Impacts of official quality signs on market value : the case of agrifood products

Jessica Bosseaux

▶ To cite this version:

HAL Id: tel-03235172

https://theses.hal.science/tel-03235172

Submitted on 25 May 2021

IMPACTS OF OFFICIAL QUALITY SIGNS ON MARKET VALUE

THE CASE OF AGRI-FOOD PRODUCTS

**Présentée par Jessica Bosseaux
Le 27 Novembre 2020**

**Sous la direction de Philippe AURIER
et Alain FRANÇOIS-HEUDE**

Devant le jury composé de

Philippe AURIER, Professeur des Universités, Université de Montpellier	Directeur de thèse
Alain FRANÇOIS-HEUDE, Professeur des Universités, Université de Montpellier	Directeur de thèse
Christine GONZALEZ, Professeur des Universités, Université de Maine	Présidente
Jean-Louis MOULINS, Professeur des Universités, Université Aix-Marseille	Rapporteur
Jean-François TRINQUECOSTE, Professeur des Universités, Université de Bordeaux	Rapporteur

UNIVERSITÉ DE MONTPELLIER

L'Université n'entend donner aucune approbation
ni improbation aux opinions émises dans cette thèse.
Ces opinions doivent être considérées comme propre
à leur auteur.

FOREWORD AND ACKNOWLEDGMENT

ABSTRACT: In response to growing interest in social and environmental concerns, public authorities develop and manage quality signs to identify responsible practices on the market, especially in the agribusiness sector. The aim of this thesis is to understand the influence of official quality signs on the market performance of agri-food products. We consider official quality signs as resources for businesses and identify and measure the marketing productivity of organic labels and *Label Rouge* with three empirical studies. Several results emerged from this work. First, a theoretical observation, with reflection on the linearity of the marketing productivity mean end chain, and the importance of studying consistency in quality signals when assessing their performance. Second, from a methodological point of view, using methods rarely used in management provides another vision of performance. Third, the studies reveal different results depending on the type of product. We highlight the lack of significant influence of official quality signs in terms of creating value through price, and the inability of perceived value to transform quality signals into monetary value. Nevertheless, we observe an increase in sales volumes related to the quality of the products. Finally, nomenclatures that indicate the entire production process, whether perceived as responsible or not, have a stronger influence on economic results than official quality signs. In that respect, we discuss the advantages of public policy and market regulations.

KEY WORDS: Official quality signs – Value – Price – Sales volumes – Marketing productivity – 3C-SR – Corporate social responsibility – Agri-food Marketing – Certification

---

RÉSUMÉ : La montée des préoccupations sociales et environnementales des consommateurs a incité les autorités publiques à développer des signaux de qualité pour identifier les pratiques responsables, notamment dans le secteur de l'agroalimentaire. L'objectif de cette recherche est de comprendre l'influence des signes officiels de qualité sur la performance de marché des produits agricoles. Considérant le signe officiel de qualité comme une ressource à disposition de l'entreprise, nous identifions et mesurons la productivité marketing du label Agriculture Biologique et du Label Rouge à travers trois études empiriques complémentaires. Plusieurs contributions se dégagent de ces travaux. Premièrement, une contribution théorique avec une remise en question de la vision linéaire de la chaine de productivité marketing, et la mise en lumière de la nécessité d'étudier la cohérence des signaux de qualité. Deuxièmement, d'un point de vue méthodologique, l'utilisation de méthodes peu utilisées en gestion apporte une autre vision de la performance. Troisièmement, les études présentent des résultats disparates en fonction du produit étudié. Les signes de qualité ne sont pas équivalents ni substituables sur le marché. Nous mettons en exergue l'absence d'influence significative des signes de qualité à créer de la valeur par le prix, et l'absence de transformation de la valeur perçue des signaux de qualité en valeur monétaire. Cependant, nous observons une augmentation des quantités d'achats en fonction de la qualité du produit. Enfin, les nomenclatures qui signalent toutes les pratiques de production, perçues responsables ou non, ont une plus grande influence sur les résultats économiques que les signes officiels de qualité. Nous soulevons ainsi l'intérêt des politiques publiques et de la régulation de marché.

MOTS CLEFS : Signes officiels de qualité – Valeur – Prix – Volumes de ventes - Performance de marché – Productivité marketing – 3C-SR – Responsabilité sociale des entreprises – Marketing agroalimentaire – Certification

TABLE OF CONTENTS

5

LIST OF TABLES

LIST OF FIGURES

LIST OF EQUATIONS

ABBREVIATIONS

BDM	DeGroot, Marschak Mechanism
CSP	Corporate Social Performance
CSR	Corporate Social Responsibility
HSMKT	Hyper- and Supermarkets
OQS	Official Quality Signs
RPA	Random Price Acceptance
WTB	Willingness-to-buy
WTP	Willingness-to-pay

FRENCH SUMMARY

Contexte de recherche

L'éthique en management est un sujet historique qui a évolué au gré de la morale, des valeurs et des courants de pensées. Il est devenu une préoccupation centrale au vingtième siècle avec l'industrialisation, l'organisation du travail et l'internationalisation des échanges (De Bry, 2008). La littérature en sciences de gestion s'est principalement penchée sur la responsabilité sociale des entreprises, traitant de la notion de "bonne conduite" des entreprises et d'éthique au sein des échanges commerciaux. Elle discute également l'étendu de la responsabilité qu'ont les entreprises et leurs rôles en tant qu'acteurs sociaux. Les autorités publiques promeuvent les pratiques responsables et durables en incitant les entreprises à intégrer et assumer leurs responsabilité sociale, ainsi qu'en construisant les infrastructures nécessaires au développement des considérations sociales et environnementales. L'objectif est d'encourager les acteurs économiques à devenir proactif dans leur approche du développement durable (European Commission, 2001, p. 5). La commission européenne désigne les entreprises comme responsables de leurs impacts sur la société. Selon elle, les entreprises peuvent « devenir responsable socialement en intégrant dans leurs stratégies les préoccupations sociales, environnementales et éthiques des consommateurs et des droits de l'Homme et en suivant les lois."[1].

L'un des objectifs de la Commission européenne est de développer des stratégies qui encouragent les entreprises et améliorent la visibilité des pratiques responsables dans un processus de co-régulation[2]. En 2018, le programme des normes harmonisées à échelle européenne inclut la protection environnementale, la sécurité sanitaire, la santé publique, ainsi que le bien-être et la santé animale. Les budgets européens alloués sur du long terme visent à améliorer le développement durable des exploitations agricoles, de l'agroalimentaire et des zones rurales. La Politique Agricole Commune soulignait déjà les responsabilités sociales et environnementales à l'horizon 2020 et à présent post 2020 (European Commission, 2019a). Dans les objectifs globaux de la mise en œuvre de la responsabilité sociale des entreprises, la Commission mentionne l'utilisation des certifications et labels, pour encourager des pratiques responsables d'un point de vue social et environnemental.

---

[1] Source : https://ec.europa.eu/growth/industry/sustainability/corporate-social-responsibility_en

[2] Source: https://ec.europa.eu/growth/industry/sustainability/corporate-social-responsibility_en

Les produits d'origine animale ont une empreinte carbone particulièrement élevée et sont de grands consommateurs des ressources d'eau et d'énergie, en plus d'être des émetteurs de polluant (European Commission, 2019b). L'intensification des méthodes agricoles en Europe a fait naitre de nouvelles préoccupations concernant le changement en milieu rural, la sécurité alimentaire, la transparence des filières agricoles, les menaces environnementales et l'insécurité économique des petits exploitants. Le marché devenu hétérogène, la responsabilité des entreprises agroalimentaires est un sujet majeur en économie et gestion, ainsi qu'en sciences politiques. En réponse à ces enjeux, les autorités publiques nationales et européennes ont développé des outils managériaux pour aider les agriculteurs et les acteurs économiques à adopter des pratiques responsables. Dans les années quatre-vingt, le ministère français a élaboré une politique de labellisation afin de protéger les méthodes agricoles, les spécificités culturelles et d'en informer les acteurs du marché et les consommateurs. Ces signes officiels de qualité émettent un signal sur le marché concernant les méthodes de production justes et responsables. L'information supplémentaire a pour double objectif d'assurer une concurrence plus juste et de protéger les consommateurs. Le Label Agriculture Biologique et le Label Rouge sont tous deux des labels techniques signalant des particularités dans le processus de production et impliquant des responsabilités sociales et environnementales. Ils garantissent aux consommateurs le respect d'une charte de production. Un logo est apposé sur l'emballage du produit ou autre support pour informer les consommateurs et délivrer un message homogène sur le marché national ou européen. Les signes officiels de qualité ont trait à la tradition, au respect de la biodiversité et à l'engagement social. Cette problématique est toujours d'actualité. L'ancien ministre de l'agriculture et de l'alimentation, Stéphane Travert, a souligné en 2018 que *«l'agriculture est au carrefour de multiples politiques qui façonnent notre pays – en matière d'alimentation, d'aménagement du territoire, de ruralité, de transition écologique, de commerce extérieur et de relations internationales –, parce que l'une de ses missions premières est de nourrir la population, parce que l'alimentation est un enjeu quotidien pour tous nos concitoyens, et parce que nous parlons de bien manger, en quantité et en qualité. Il s'agit de permettre à chacun de manger sain, sûr, durable, sans oublier la dimension conviviale, bien française, de nos repas. »* (Assemblée Nationale ~ Première séance du mardi 22 mai 2018, s. d.). Ce discours désigne l'importance majeure de la qualité des produits agricoles, ainsi que la protection des territoires et des traditions.

Néanmoins, l'agriculture responsable et extensive génère une perte de productivité et des coûts supplémentaires. L'accès à la qualité supérieure implique inévitablement des dépenses qui se

reflètent dans les prix de marché. Atteindre les objectifs de responsabilité sociale soulève ainsi le problème de la rentabilité. Les signes de qualité doivent augmenter la performance économique pour assurer la performance sociale et environnementale sur du long terme.

La performance est un concept polymorphe qui peut être abordé sous divers angles. Dans cette thèse doctorale, nous analysons la performance en fonction des résultats financiers générés par les actions marketing. Sur la base de la perception de Rust and *al* (2004), nous considérons la performance dans une série de causes à effets, aussi appelé la « productivité marketing », qui lie les décisions marketing (ressources utilisées, stratégies, actions) aux résultats économiques. Etant donné que l'augmentation de la qualité implique des dépenses, les revenus doivent compenser les coûts pour générer du profit. Cette question de compensation des coûts est centrale pour les agriculteurs et les autres acteurs de la chaine de valeur. Les politiques de certifications sont perçues comme des moyens de justifier les prix plus élevés et d'influencer les parties prenantes à mettre en œuvre des politiques de responsabilités sociales face aux défis de la durabilité (Aschemann-Witzel & Zielke, 2017). Les outils marketing de signalement de la qualité sont utilisés dans l'espoir de se différencier sur le marché et de protéger la marque, pour augmenter la qualité et la valeur perçue par les consommateurs (Sylvander et al., 2007). Ces signes officiels de qualités ont pour objectif de renforcer les caractéristiques des produits.

Les produits frais ont la particularité d'être périssables et ainsi véhiculent des risques de sécurité alimentaire. En outre, les produits agricoles sont étroitement liés aux normes culturelles et concernent la population de façon quotidienne. Au vu de l'importance de la qualité des aliments et du caractère invisible de ses caractéristiques, les consommateurs demandent des politiques alimentaires. « L'objectif de l'analyse des politiques alimentaires a toujours été d'améliorer la sécurité au niveau macro (stabilité des marchés) et micro (disponibilité pour les ménages) » (Timmer, 2012, p. 12316). Les signaux de qualité indiquent les pratiques responsables et la valeur ajoutée d'un produit qui n'est pas identifiable par le consommateur avant achat, voire après consommation. Le rôle des signaux est de modifier les processus de décisions des consommateurs en augmentant la valeur perçue des produits et inciter à l'achat. Ils sont également utilisés pour augmenter les volumes de ventes et justifier le premium de prix appliqué. Les attributs de croyances créent de la valeur pour les consommateurs et par extension, si cette valeur est transformée en acceptation à acheter et à payer un premium de prix, créent des revenus supplémentaires.

Cette thèse doctorale vise à identifier dans quelles mesures les signes officiels de qualité génèrent de la valeur en tant qu'outils d'opérationnalisation de la responsabilité sociale des entreprises sur le marché des produits agricoles.

Questions de recherche

Selon le concept de productivité marketing (Katsikeas et al., 2016; Rust et al., 2004), les travaux visent à analyser les résultats des actions marketing sur le marché et plus spécifiquement l'influence des signes officiels de qualité. D'une part, les consommateurs demandent une qualité de produit supérieur, une sécurité alimentaire et des pratiques de production responsables. D'autre part, le goût et les prix des produits sont les critères d'évaluation les plus important dans une décision d'achat. Cette thèse doctorale remet en question l'efficacité des signes de qualité pour justifier les premiums de prix et augmenter le chiffre d'affaire des produits d'origine animale responsables. Nous apportons quelques connaissances sur le rôle des outils proposés par les autorités publiques pour augmenter la performance des produits de qualités sur le marché. Nous étudions le cas de deux signes officiels de qualité : le label Agriculture Biologique et le Label Rouge.

Nous considérons ces signes comme des ressources à la disposition des entreprises (Wernerfelt, 1984). Les ressources sont définies comme *« des outils qui sont potentiellement contrôlables par les organisations sociales et qui sont potentiellement utilisables - même indirectement - dans les relations entre organisations et dans son environnement. »* (Yuchtman & Seashore, 1967, p. 900). Elles sont utilisées afin de créer des actifs matériels ou immatériels et de générer des rendements. En considérant les signes de qualité comme des ressources, nous souhaitons comprendre dans quelles mesures ils contribuent à la performance et au succès des pratiques responsables et s'ils répondent à la fois aux attentes des consommateurs et aux nécessités économiques. Ces études visent à comprendre les mécanismes de création et de captation de valeur sur le marché à travers cette question de recherche :

Dans quelle mesure les signes officiels de qualité augmentent les revenues des produits agricoles?

Cette question est subdivisée en trois questions de recherche en accord avec la littérature :

- Dans quelles mesures la cohérence en termes de responsabilité sociale des signes officiels de qualités, des types de marques et de distributeurs augmente la création de valeur ?
- Dans quelles mesures les signes officiels de qualité génèrent plus de marges que les produits standard?

- Dans quelles mesures les signes officiels de qualités génèrent de la valeur perçue par les consommateurs et se transforment en augmentation du revenu grâce aux prix et aux volumes de ventes?

Plusieurs études empiriques ont été nécessaires pour répondre à ces questions. Des études sur des données de marchés ont permis de comprendre les dynamiques et la position des produits de qualité. L'analyse de ces données a révélé des tendances, des jeux de concurrences et des clefs de succès. L'objectivité des données de marché inclut également un manque de détail que nous avons comblé avec une expérimentation qui a révélé les processus de décision des consommateurs et les raisons de certaines faiblesses et forces des signes de qualités.

Méthodologie de la recherche

La complexité de la mesure de la création de valeur réside dans la pluralité et la complémentarité des données de nature et de sources différentes. La chaine de performance et les mécanismes de formation de la valeur dépendent de la situation des entreprises, des choix stratégiques, de la psychologie du consommateur et des dynamiques de marchés (disponibilité et effet de compétition). Les différentes natures des données rendent immesurable la formation de la valeur dans un modèle global. Nous avons donc utilisé une méthode mixte pour comprendre et mesurer la création de valeur à différentes étapes de la chaine de causalité. Nous avons mobilisé les logiciels Rstudio pour toutes les études, excepté les analyses de médiations qui ont été réalisées avec SPSS et AMOS. Cette thèse doctorale apporte une méthodologie novatrice en combinant différents types d'études quantitatives.

Tout d'abord, nous avons étudié les marchés grâce à des données secondaires afin d'identifier les dynamiques. L'objectif est de confirmer l'influence des signes officiels de qualités et d'identifier les mécanismes complexes qui nécessitent une recherche approfondie. Nous avons mené deux études distinctes et complémentaires ; l'une pour comprendre la valeur marché et la formation des prix en fonction de différentes caractéristiques produits attestant d'une qualité et l'autre pour identifier et mesurer la capture de la valeur par les acteurs économiques de la chaine de valeur et mieux comprendre la profitabilité.

La valeur du marché est dans un premier temps mesurée avec la méthode des prix hédoniques et les élasticités sur le marché français.

La méthode des prix hédoniques est un concept analytique inventé par Andrew Court (1939). Il a largement été utilisé en économie dans la seconde partie de vingtième siècle (Goodman, 1998). L'approche par les prix hédoniques a été introduite par Rosen (1974) qui présente un

modèle basé sur les caractéristiques des produits et la mesure du poids de chacun d'entre eux dans la formation des prix de marché. Nous considérons que les prix se divisent en sommes d'attributs qui apportent chacun une valeur supplémentaire au produit. *"Lorsque les biens peuvent être traités comme un ensemble complet de caractéristiques, les prix observés sur le marché sont également comparables en ces termes »* (Rosen, 1974, p. 54). Les attributs des produits agricoles peuvent être identifiés et mesurés (Waugh, 1929).

Nous utilisons également les élasticités pour mesurer l'influence des signes de qualités sur les processus de décision des consommateurs dans un environnement compétitif. Sur la base des prix et des volumes de ventes, elles complètent les analyses des parts de marché en soulignant les faiblesses de différentes variétés de produits et les opportunités de création de revenus.

Pour compléter l'analyse des signes de qualité, nous avons réalisé une étude sur les marges marketing et les prix théoriques des produits en fonction du signe utilisé et des réseaux de distribution empruntés.

La marge marketing est la différence entre le prix de vente des distributeurs et celui des agriculteurs. Elle représente toutes les valeurs monétaires ajoutées par les charges liées à la transformation, l'assemblage, le transport et la distribution des produits agricoles. L'analyse des marges marketing pour différents réseaux de distribution (grandes et moyennes surfaces, discount, magasin bio) et différentes gammes de produits (Agriculture biologique, Label Rouge, standard) indique la distribution de la valeur le long de la chaine de valeur. Nous les analysons avec des traitements statistiques et des variables nominales afin d'isoler l'effet du signe de qualité et de comprendre son rôle dans la création de valeur.

La méthode des prix théoriques compare les prix de marché avec une valeur arithmétique calculée en fonction de la valeur de différents attributs du produit. La mesure du prix théorique est réalisée grâce aux coefficients de la valeur des signes de qualité et des distributeurs. La différence entre ce prix arithmétique et le prix du marché indique la capacité des distributeurs à maximiser le potentiel de création de valeur des produits.

Ces analyses de marché sont complétées d'une troisième étude quantitative. Nous avons collecté des données primaires grâce à une expérimentation qui a pour objectif de tester l'efficacité des marchés en axant principalement la recherche sur la formation des prix et des volumes de vente, cette fois du point de vue des consommateurs. Nous nous sommes inspirés des protocoles d'économie expérimentale pour développer une étude alliant un système d'enchères permettant la mise par un seul acheteur avec un prix de réserve aléatoire, l'étude des

quantités achetées, ainsi qu'un questionnaire récoltant des informations sur l'attitude des consommateurs. L'utilisation de modèles Tobit permet des régressions dont la variable indépendante est censurée. Ce modèle économétrique est préconisé en économie pour l'étude des enchères et des paris. L'étude des modèles de médiation nous permet de mesurer la capacité à transformer une valeur perçue en une valeur monétaire par l'un des deux leviers de la création de part de marché.

L'association des données primaires et secondaires nous permet d'analyser la création et capture de la valeur à différentes étapes de la chaine de valeur, avec des résultats solides alliant validité externe et interne. Ces études répondent à nos questions de recherche en considérant la valeur sur le marché et le rôle des consommateurs finaux dans sa transformation en valeur monétaire.

Résultats principaux

Les résultats des études portent sur l'influence des signes officiels de qualité le long de la chaine de valeur mais aussi et surtout chez les distributeurs.

Au niveau du consommateur final, nous avons noté une augmentation de la demande de produits de qualité supérieure. Les produits d'origine animale bon marché tels que les œufs de poules de batterie ou les poulets entiers standards représentent de plus faibles parts de marché que leurs homologues d'élevage plein air. Parmi les gammes de produits de qualité supérieure, les signes officiels de qualité augmentent les parts de marché et génèrent des effets divers selon les produits considérés. Le Label Rouge connait un fort succès sur la volaille avec un premium de prix et une demande forte, alors que la version biologique du produit, plus chère, ne génère pas autant de valeur sur le marché avec une part de marché inférieure à celle des produits standards. A l'inverse, la part de marché des œufs frais portant le Label Agriculture Biologique est en constante augmentation, suivant la courbe des œufs plein air, le leader sur le marché. En revanche, les œufs portant le Label Rouge ne présentent pas un avenir prometteur malgré ses prix plus bas que la qualité biologique. Les produits labellisés ne sont pas équivalents ni substituables sur les marchés.

Les bas prix ne sont pas un avantage compétitif sur les marchés des produits agricoles car ils ne compensent pas les pratiques peu responsables. De plus, les consommateurs de produits labellisés ne sont pas particulièrement sensibles aux variations de prix. Les produits de qualité inférieure ne sont plus les standards sur le marché. La référence est à présent les produits non labellisés mais montrant des pratiques responsables comme les élevages plein air.

Le prix n'étant pas un levier pour un avantage concurrentiel, nous avons examiné l'importance des volumes de ventes dans la création de valeur via les parts de marché. Ils ont une importance primordiale dans la performance de marché des produits agricoles et doivent être pris en considération dans les analyses. Les consommateurs sont plus enclins à acheter plus en termes de quantité que d'augmenter leur consentement à payer pour les produits labélisés. Nous avons également démontré que la valeur perçue et la spiritualité détiennent des rôles importants dans l'augmentation du consentement à acheter, mais pas nécessairement dans celle du consentement à payer. Enfin, la relation réciproque et négative entre la quantité de produits désirée et le consentement à payer est trop faible pour avoir un réel impact et ne freine pas les facteurs d'augmentation de la création de valeur sur le marché.

La valeur perçue n'est pas modifiée par les signes officiels de qualité et nous avons identifié l'importance d'autres facteurs dans l'acceptation d'un premium de prix. Par exemple, d'autres signaux de qualité comme les pratiques responsables ou la marque peuvent modifier les comportements des consommateurs. Néanmoins, nous remarquons que les effets des signaux de qualité sont modifiés en fonction du produit étudié et que les résultats ne peuvent pas être étendus à l'ensemble des produits d'origine animale. Les spécificités de chaque marché sont à prendre en considération.

Nous avons évalué les chaines de valeurs et la distribution de la valeur entre les acteurs qui les forment. Nous avons observé une modification de la distribution lorsque les produits portent un signe officiel de qualité. Premièrement, les prix supérieurs n'impliquent pas systématiquement une augmentation de la marge marketing. Les produits avec des signes officiels de qualité génèrent plus de volatilité des prix en aval de la chaine de valeur et ainsi impliquent un risque supplémentaire et une instabilité des marges marketing. Les distributeurs sont ainsi dans l'obligation d'encaisser les chocs dus aux variations, pour présenter une offre stable aux consommateurs. Cela affecte les marges marketing des distributeurs.

Intérêt de la recherche

Les intérêts de cette recherche sont de dimensions théoriques, méthodologiques, managériales et politiques.

D'un point de vue théorique, l'objectif est d'associer la littérature marketing qui est principalement constituée de données attitudinales, aux intérêts économiques en lien avec la valorisation financière de la responsabilité sociale. La littérature a souligné les difficultés de la mesure de la performance marketing (N. A. Morgan, 2012). La pluralité des méthodes de

mesures ne peut analyser qu'une partie des effets du marketing. Les études réalisées contribuent à la compréhension de la performance marketing et plus spécifiquement de la performance des signes officiels de qualités sur les marchés.

Nous soulignons la complexité des relations entre les variables. Nous éclairons la performance à la lueur du concept de 3C-SR. Les pratiques responsables ne peuvent générer de la performance que lorsque le signe officiel de qualité montre un degré d'engagement social suffisant, que les autres signaux de qualité reflètent le même degré d'implication et que les différentes parties prenantes constituent un ensemble d'acteurs cohérents dans leurs pratiques. Nous avons également inclus dans notre analyse le rôle des autorités publiques dans l'atteinte des objectifs sociaux et environnementaux. Pour ce faire, nous avons identifié différentes techniques de régulation de marché pour en connaitre leurs forces et leurs faiblesses. Nous avons étendu cette recherche en gestion aux problématiques politiques et économiques, domaines étroitement liés aux succès des actions marketing en faveur de la responsabilité sociale.

Concernant la méthodologie, nous avons démontré l'importance et la complémentarité des données de marchés et des données issues d'une expérimentation. Les données de marchés révèlent la demande des consommateurs, les tendances sur les marchés et l'importance de certains critères. Ces études évitent les limites liées aux données attitudinales qui souffrent des biais psychologiques et sociologiques. L'expérimentation est un complément permettant d'expliquer les tendances préalablement identifiées et de lister et comprendre les facteurs de succès ou d'échec.

Un second apport méthodologique réside dans l'originalité de l'expérimentation. L'objectif est de combiner la méthode des enchères avec une mesure des quantités désirées. Nous avons développé un protocole sur la base des enchères BDM en incluant les quantités voulues selon le prix donné à l'enchère et le prix aléatoire. Ainsi, cette méthode permet d'observer le potentiel d'augmentation de part de marché par le prix et les quantités. Cette méthode englobe plusieurs aspects du comportement du consommateur dans un environnement contrôlé.

A la vue de l'extension des gammes de produits labellisés chez les distributeurs et l'augmentation de la demande, cette thèse donne des réponses et conseils aux acteurs économiques impliqués dans la chaine de production. Tout d'abord, la disponibilité des produits est grandissante, avec des secteurs de produits issus d'agriculture biologique chez les distributeurs et la mention de produits Label Rouge en restauration. La qualité certifiée des

produits est en hausse, mais ne garantit cependant pas l'augmentation de la propension à payer des consommateurs et ainsi ne peut être une voie certaine de la durabilité des marchés. Nous avons ainsi analysé les facteurs permettant d'augmenter le succès des signes de qualité et d'identifier les meilleurs scénarios pour maximiser les résultats économiques. Nous œuvrons pour une meilleure compréhension des enjeux liés à la marque, aux signes de qualités et aux types de distributeurs.

Enfin, nous ouvrons la discussion à l'efficacité des politiques publiques et leurs interventions en vue de promouvoir les pratiques responsables et d'augmenter la qualité des produits sur les marchés. La régulation des marchés dans une économie libérale est un débat houleux. La Commission européenne et le gouvernement français adoptent des stratégies similaires pour les produits agricoles, en multipliant les possibilités de différenciation sans proscrire les pratiques. Les signes officiels de qualité sont proposés comme un outil à la responsabilisation mais aussi à la génération de profits supplémentaires. Au-delà des tentatives timides d'influence sur de marché, l'enjeu de la politique publique est de répondre aux attentes de citoyens tout en satisfaisant les obligations économiques et les exigences commerciales. Une grande partie de la production agricole dépend des aides publiques pour assurer la disponibilité des denrées alimentaires, essentielle aux pays. Avec une vision de gestionnaire, nous commentons et discutons l'efficacité des politiques publiques et des mesures visant à améliorer la valorisation des produits sur le marché et à influencer les tendances.

Structure de la thèse

Cette thèse doctorale se divise en deux parties. La première est une approche théorique en deux chapitres et la seconde est une approche empirique en trois chapitres. Les parties sont complémentaires et apportent des connaissances différentes qui permettent une meilleure compréhension des processus de création de valeur par les signes de qualité.

La première partie est dédiée au cadre théorique et conceptuel. Dans le premier chapitre, nous retraçons l'histoire de la responsabilité sociale des entreprises pour en comprendre l'essence. Nous mettons en lumière les débats au sein de ce concept et identifions les attentes sociales qui y sont liées et le rôle des autorités publiques dans sa mise en œuvre. La littérature abondante remet en question le rôle des entreprises et leur objectif de profitabilité. Les débats sont nombreux et dépendent des différents courants philosophiques et de la considération de l'éthique dans les échanges commerciaux. Nous définissons la responsabilité des entreprises dans notre contexte de recherche et identifions le rôle de l'information sur les marchés,

principalement des signes de qualités. L'un des concepts a particulièrement capté note attention, celui des 3C-SR, qui considère que la performance repose sur trois piliers : le degré d'implication dans la responsabilité sociale des entreprises, la cohérence de cette implication au sein de toutes les activités de l'entreprise et l'homogénéité de cette implication entre les partenaires commerciaux. Nous regardons la performance à travers ce spectre tout au long de la thèse.

Le second chapitre est dédié au concept de performance et comment la responsabilité sociale des entreprises peut créer de la valeur sur le marché. Nous nous concentrons sur deux indicateurs principaux : le prix et le volume de vente. Ces deux variables dépendent du comportement du consommateur et permettent de calculer les parts de marché, le chiffre d'affaire et la marge marketing.

Nous nous penchons sur la performance consommateur, les résultats financiers et économiques et élaborons sur la base des théories abordées un modèle théorique de la création de valeur. Sur cette base, nous abordons la seconde partie de la thèse qui est constituée de diverses études empiriques.

Le premier chapitre teste la rationalité et les préférences des consommateurs en analysant le marché des œufs frais. Ce produit est homogène sur le marché et sa production est encadrée par une nomenclature obligatoire qui délivre des informations claires et connues du grand public au sujet des processus de production. Le terrain est ainsi favorable à l'analyse de l'influence des signes officiels de qualité parmi une multitude d'attributs de croyances clairement identifiés. Aussi, les œufs sont des produits d'origine animale largement consommés et perçus comme un produit vertueux, ce qui augmente l'influence du label Agriculture Biologique. Selon la littérature, les consommateurs ont un consentement à payer plus important pour les produits présentant un engagement de pratiques responsables. L'étude des prix et des volumes de vente donne une vision globale du rôle des signes de qualité. Nous soulignons également l'importance de la marque dans la formation des prix.

Le second chapitre est une étude empirique qui analyse les prix de marché et les marges marketing pour les œufs frais et les poulets entiers prêt-à-cuire. Ce second marché est un cas intéressant car il est le pionnier du développement du Label Rouge. Le produit est également peu transformé et perçu comme vertueux. La situation de ce marché est relativement différente de celui des œufs frais et présente des enjeux économiques importants. L'analyse de la valeur se fait le long de la chaine de production et analyse deux facteurs : le signe de qualité et le type

de distributeur. Nous analysons la création de valeur avec deux méthodologies : la méthode des prix théorique et les marges marketing. L'objectif est de savoir dans quelle mesure la valeur est créée, mais également comment elle est distribuée entre les acteurs de la chaine. La notion de pouvoir de négociation est ainsi abordée. L'analyse statistique des modèles délivre des informations sur la capacité de création de valeur des attributs.

Le troisième chapitre est une approche par le consommateur. L'expérimentation a été élaborée pour une meilleure compréhension de l'influence des signes officiels de qualité sur le consentement à payer et à acheter des consommateurs. L'expérimentation a été menée sur le lait car c'est un produit d'origine animale peu transformé communément acheté, que la fraicheur du produit n'est pas un critère qui aurait pu compromettre la fiabilité de l'étude, contrairement aux œufs ou aux poulets entiers. Nous avons évalué la performance consommateur du produit portant la mention Agriculture Biologique en évaluant les critères comportementaux, à savoir le prix de l'enchère et les quantités souhaitées, ainsi que la mesure de la valeur perçue et de la spiritualité associée à la consommation. Aussi, nous avons collecté des données concernant les attributs des produits principalement achetés par les répondants (le type de marque, les types de magasins fréquentés, la qualité de produit principalement achetée) et les prix de référence interne. Nous avons analysé les données grâce à deux méthodes distinctes et complémentaires : les modèles Tobit et les modèles de médiation.

Nous concluons ce travail doctoral en présentant une discussion générale sur les études empiriques et en faisant le lien avec la littérature. Nous menons une réflexion sur la pertinence de la considération de la performance sous une forme de chaine causale et soulignons la complexité du modèle et l'importance de la cohérence entre les signaux de qualité. Nous questionnons également la place de la performance sociale et environnementale dans le système commercial actuel et interrogeons le rôle des politiques publiques dans l'incitation ou la restriction à l'adoption des pratiques responsables et à la réussite des marchés.

Dans une dernière section, nous présentons les implications de nos travaux d'un point de vue théorique, managérial, méthodologique, mais aussi politique. En effet, la politique européenne est concernée par l'augmentation de la valeur des produits agricoles, la qualité et la sécurité sanitaire des produits alimentaires et elle se préoccupe également de la sécurité économique des agriculteurs et de la protection des pratiques traditionnelles. Nous reconnaissons l'existence de plusieurs limites dans nos recherches. Concernant la méthodologie, nous identifions deux principales limites. Tout d'abord, notre modèle théorique n'est pas mesurable en un modèle global et nécessite plusieurs études et types de données complémentaires qui sont difficilement

comparables. Aussi, les bases de données de marches manquent de détails et les données agglomérées ne nous permettent pas de comparer efficacement les influences de différents signaux de qualités. Les marges marketing n'ont pas pu prendre en compte les coûts ni les volumes de ventes et la formation des prix ne pouvait être analysée avec les attributs de marques et de qualités. Concernant les limites théoriques, la perception linéaire de la causalité de la performance ne permet pas de rendre compte de la complexité des mécanismes et cache ainsi certains effets. Nous terminons alors avec les perspectives de recherches futures qui viendront compléter ces travaux, améliorer notre compréhension des résultats et alimenter notre réflexion sur la cohérence des signaux.

GENERAL INTRODUCTION

Research context

Ethics in business has long been a popular topic that has evolved in line with morals, values, and intellectual currents. It became a central consideration in the 20th century with industrialization, the organization of work, and the internationalization of trade (De Bry, 2008). Business literature mostly deals with corporate social responsibility, referring to the "good" behavior of the company. This includes ethics by discussing what good and bad business means, and it questions the scope of responsibility, as well as the roles played by firms in society. Public authorities have promoted and encouraged responsible and sustainable business practices and mentioned that "*Public policy also plays a key role in encouraging a greater sense of corporate social responsibility and in establishing a framework to ensure that businesses integrate environmental and social considerations into their activities... Businesses should be encouraged to take a pro-active approach to sustainable development in their operations both within the EU and elsewhere."* (European Commission, 2001, p. 5). The Commission has defined the term corporate social responsibility as the responsibility of businesses regarding their impact on society. According to the institution, companies can "*become socially responsible by integrating social, environmental, ethical, consumer, and human rights concerns into their business strategy and operations, and by following the law.*"[3].

The objective of the Commission is to develop a strategy that encourages companies and enhances the visibility of both corporate social responsibility and good practices in a co-regulation process[4]. In 2018, the EU-wide standards program included environmental protection, food and feed safety, animal health and animal welfare, and public health. The long-term budget of the European commission aims to improve the sustainable development of farming, food, and rural areas. The Common Agricultural Policy (CAP) outlines social and environmental responsibility for horizon 2020 and now post 2020 (European Commission, 2019a). In the overall objectives of corporate social responsibility implementation, the Commission mentions the use of labels, including the organic label, to promote market uptake and encourage socially and environmentally friendly business practices.

---

[3] Source: https://ec.europa.eu/growth/industry/sustainability/corporate-social-responsibility_en

[4] Source: https://ec.europa.eu/growth/industry/sustainability/corporate-social-responsibility_en

Animal-based food has a particularly high footprint, requires high consumption of both water and energy, and emits pollutants (European Commission, 2019b). The intensification of farming methods in Europe generated new concerns in terms of social changes in the countryside, food safety, and transparency throughout the agribusiness chains, environmental threats, and economic insecurity for small farmers. The market became highly heterogeneous, and firms' responsibility in the food sector became a hot topic in economics and management, but also in politics. In response to these stakes, national and European public authorities developed and managed tools to help farmers and firms adopt more responsible practices. In the 1980s, the French ministry elaborated official quality sign policies to inform and protect farming methods and cultural specificities. These quality signs indicate on the market that responsible and fair practices have been applied in the food production, and have a dual objective: the fairness of competition on the market and the protection of consumers. Organic labels and *Label Rouge* are technical labels that indicate a specific production process, implying environmental and social responsibility. They are a guarantee for customers that businesses respect a technical chart. The logo is affixed to the packaging or to the accompanying document to inform consumers and deliver a homogeneous message to the market, whether national or European. Official quality signs refer to nature, tradition, and social support within the European Union. The issue is still ongoing, and the former Minister of Agriculture and Food Stephane Travert highlighted in 2018 the importance of agriculture, and the related nutritional and credence qualities *"in terms of food, regional planning, rurality, ecological transition, and international trade – because one of the primary missions is to feed the population, because food is a daily challenge for all citizens, and because we are talking about eating well, in quantity and quality. It's about allowing everyone to eat healthily, without forgetting the friendly very French dimension of our meals"* (Assemblée Nationale ~ Première séance du mardi 22 mai 2018, s. d.). This discourse highlights the central concern of quality, but also the protection of traditions and land.

Nevertheless, responsible, extensive farming involves a loss in productivity and extra costs. Access to higher quality food implies extra expenses that generate a knock-on effect on prices. Attaining the objectives of corporate social responsibility implies higher production costs, and raises the issue of profitability. Quality signs must improve economic performance to ensure social and environmental performance. Performance is a polymorphic concept that can be approached in many ways. We consider that performance lies in the financial outcomes of marketing actions. Based on the perception developed by Rust *et al.* (2004), we perceive

performance in a chain-of-effect, also called "marketing productivity", which links marketing decisions (resources, strategies, actions) to economic results. Because increasing product quality implies expenses, revenue must compensate for these extra costs and generate profitability. The main question for farmers and other economic actors lies in the profitability of producing at higher cost. Policies are perceived as support to both justify price differences, and are a great influence on stakeholders when it comes to implementing corporate social responsibility, and improve the sustainability challenge (Aschemann-Witzel & Zielke, 2017). The marketing tools for indicating quality are used with the hope of creating market differentiation and brand protection that is perceived and valorized by customers (Sylvander et al., 2007). The aim of official quality signs is to empower these features on the market.

Fresh food is a particular product: it is perishable and carries risks related to food safety. Moreover, it is related to cultural norms and acceptance, and it concerns the entire population on a daily basis. Food policies are elaborated to overcome the invisibility of credence quality features. *"The proximate goal of food policy analysis has always been to improve food security at both the macro (market stability) level and the micro (household access) levels."* (Timmer, 2012, p. 12316). Quality signals deliver information on the market to highlight responsible practices and other added value that customers may not be able to perceive before purchase, if ever. The role of quality signals is to modify the decision process of customers by increasing the perceived value and encouraging the purchase. These signs are also used to increase the quantity purchased, and/or justify a price premium. Credence quality creates value for customers and by extension, if this value is transformed into an acceptance of purchase and price premium, creates value in terms of sales revenues.

This doctoral thesis aims to identify and understand to what extent official quality signs can generate value as a tool for operationalizing corporate social responsibility in the agri-food market.

Research questions

Based on the marketing productivity chain (Katsikeas et al., 2016; Rust et al., 2004), we wonder how marketing actions for social responsibility generate market value, and more specifically the role of official quality signs. On the one hand, consumers demand higher product quality, food safety, and responsible practices in production. On the other, taste and price are still the most important criteria for purchase decisions. This doctoral thesis calls into question the efficiency of official quality signs for justifying a price premium and increasing the sales revenue of responsible practices for animal-farm agri-food products. We provide some elements for understanding the role of public authority tools in the market performance of responsible signals by focusing on two credence quality official quality signs: the organic label and the *Label Rouge*.

We consider both official quality signs as resources for companies (Wernerfelt, 1984). Resources are defined as *"facilities that are potentially controllable by social organizations and that are potentially usable – however indirectly – in relationships between the organization and its environment."* (Yuchtman & Seashore, 1967, p. 900). They are used to create tangible and intangible assets that generate returns for the firm under appropriate circumstances. Considering official quality signs as resources, we aim to understand to what extent official quality signs can play a part in the performance of socially responsible actions, and respond to both customers' demand and their acceptance of the related cost. Moreover, in addition to consumer performance, official quality signs must respond to market performances and economic sustainability. The studies seek to provide greater understanding of the value creation mechanism in the market thanks to the research question:

To what extent do official quality signs influence the sales revenues of agri-food products?

This main research question is divided into three sub-questions that arise from the literature:

- To what extent does the consistency between official quality signs, brand types and store types enhance value creation?
- To what extent are customers' benefits from official quality signs transformed into sales revenue through price and purchase quantity?
- To what extent do official quality signs generate greater profits than the standards for other quality range products?

Several empirical studies are needed to answer these questions. The study of market data helps to understand the situation and its evolution over time. Market analyses are helpful for identifying the main trends, market power, competition, and success of the products. They describe the market with objectivity but also with a lack of subtlety. This is why we must better understand the customers' process for making purchase decisions if we are to understand the market mechanism.

Research methodology

The complexity of value creation assessment lies in the plurality and complementarity of data that are of different natures and sources. The mean end chain of performance and the mechanism for value formation depends on firms' situation, strategies and choices, the customers' psychology, and market dynamics (availability, competitors' offers). The different natures of the data collected make the marketing productivity model impossible to measure in an overall, inclusive study.

Assessing value creation requires a mix-method to evaluate the mechanism of performance at different stages in the chain, and to understand to what extent the value creation comes from official quality signs or other phenomena. This doctoral thesis proposes a new approach to management research with several quantitative methods inspired by economics.

We first designed studies with secondary data to investigate the markets and identify their situations and evolution. The objective was to attest to the influence of quality signs and identify the complex mechanisms that require further examination and understanding. We conducted two separate studies, one to understand the market value and consumers' acceptance of price for particular quality characteristics, and another to understand the value created by several economic actors throughout the value chain.

Market value is first assessed using the hedonic price method and elasticity with in-store prices and sales volumes on the French market.

The hedonic price method is an analytical concept devised by Andrew Court (1939) and seriously used in economics in the second part of the 20th century (Goodman, 1998). The hedonic price approach was later introduced by Rosen (1974), who presented a model based on product characteristics and the weight of each attribute in the priceformation. We assume that prices are divided by the sum of attributes that all bring value to the product. *"When goods can be treated as tied packages of characteristics, observed market prices are also comparable on*

those terms." (Rosen, 1974, p. 54). The quality attributes of a food product can be identified and measured (Waugh, 1929).

We also use elasticity to assess the power of official quality signs in decision-making in a competitive environment. Based on price and sales volumes, it completes the analysis of market shares by highlighting the weaknesses of the product's varieties and indicating the limitations and opportunities in sales revenue creation.

To complete the analysis of the official quality sign alone, we conducted a second study, using marketing margins and theoretical price methods. Our aim is to measure the fluctuation in value creation of official quality signs depending on store type.

The marketing margin is the difference between farm value and retail price. It represents all the monetary value of assembling, processing, transporting, and retailing charges added to farm products. Analyzing the marketing margins for different store types and value-chains (either with official quality signs or without) indicates value distribution. We analyze it with statistic processing and using dummy variables to both isolate the effect of quality signs and understand the role they play in value creation.

The theoretical price method compares the current market price with the arithmetic price calculated using the price of different features. We assessed the theoretical price according to the price premium for official quality signs, and the price premium for store types. The difference between arithmetic price and market price indicates the capacity of each store type to maximize the potential value creation of the quality product.

These market analyses are completed with a third quantitative study based on primary data. We conducted an experiment that focuses on the combined decision of price and quantity of respondents. We developed a method based on experimental auctions and added the assessment of the number of items purchased at their auction price, and the random price. The development of this type of experiment was unusual and helped us to identify the most important lever for increasing market share. We also investigated the capacity for transforming the perceived value of a product which invests in socially responsible practices into a monetary value that financially supports the firms' investment in socially responsible activities.

The combination of primary and secondary data makes it possible to investigate value creation at different stages in the mean end chain, as well as provide the results with soundness. These data also answer the research questions by taking into account both market value and the elements related to customers.

Main results

This doctoral thesis produced results concerning the influence of official quality signs at the business-to-consumer stage, but also in the value-chain between business actors. The main results are displayed below.

At the end consumer stage, we notice an increase in demand for high-quality products on the market. Low-cost production of animal-based products such as standard chicken and battery hens' eggs have lower market share than free-range products. Of the high-quality products, the official quality signs increase the market price and generate various effects on the market. *Label Rouge* is a success for high quality oven-ready chicken with a high price, whereas the organic version is more expensive but barely generates value because of a constant, low market share. On the contrary, table eggs benefit from the organic label with a continuous increase in market share, whereas *Label Rouge* eggs do not seem to have a bright future despite their cheaper price. Official quality sign versions of the products are neither similar nor substitutable.

For agri-food products, a low price is not necessarily a competitive advantage, and it does not compensate for the least responsible practices. Moreover, the target of labeled products can be almost insensitive to price variations. The low-quality version is no longer the market reference, and the higher quality products, especially those that are free-range, have become the market's standard product.

Apart from price, we discovered one possibility for increasing market share without modifying prices but by pushing sales volumes. Performance can come from sales volumes instead of price increases – two important levers that must be studied together. Customers are more likely to purchase a greater quantity than increase their willingness-to-pay for higher quality. We found that the perceived value and spirituality associated with consuming high-quality products play an important role in the decision to purchase quantity, but not necessarily that of accepting a price premium. The negative and reciprocal relation between desired quantity and willingness-to-pay is not strong and is compensated by other factors for increasing the creation of market value.

It is not only the perceived value that is modified by official quality signs, and we acknowledge the importance of other factors in market price acceptance. For example, other quality signs increase the market price, such as responsible practices – free-range breeding - and brand type. Nevertheless, we noticed that quality signal do not each have the same influence; it depends on

the product, and our findings cannot be extended to all agri-food products, but must instead be studied taking into consideration the specificities of each market case.

We evaluated market value starting with the value-chain. We noted that the chain is modified by using official quality signs. First, the higher market price does not necessarily imply higher marketing margins for actors because of the related higher costs. Official quality signs show higher price volatility downstream in the value chain. Stores must absorb the variations to be able to propose a consistent offer in the long term, and do not show volatility in market price. They have greater variation in their marketing margins than standard products. The distribution of marketing margins is more balanced between actors, but also riskier for some of the actors.

Research interests

The dimensions of theory, methodology, management, and politics were used to approach the various points of interest of this research.

From a theoretical point of view, the objective is to combine the perception found in marketing literature, which mainly focuses on attitudinal data, and economic interests, related to the financial valorization of social responsibility. The difficulty in assessing marketing and business performance has been noted in the literature (N. A. Morgan, 2012). The plurality of methods used to measure part of the outcomes reflects the wide range of concepts representing performance. This study contributes to the knowledge on marketing performance and more specifically the performance of official quality signs with regard to responsible practices.

We highlight the complex relations between the variables used to assess market performance. These relations and effects on market performance are interpreted in the light of the consistency of signals in terms of commitment to social responsibility and the overall coherence within the product itself and the environment (stakeholders). We also expand on the role of public authorities in attaining corporate social goals and identify how regulation may be strengths or weaknesses for the market. We open management research up to politics and economics from a marketing point of view.

Concerning the methodology, we first show the advantages of analyzing the concrete results of marketing actions from market data and customers, the standard methodology in marketing research. The market data reveal real market performances and allow researchers to assess how criteria are taken into consideration at the point-of-purchase. They curb all the negative aspects of attitudinal data that suffer from psychological and sociological biases that cannot be

measured from customers' answers. The experiment is a complement that may explain the market statement and identify more precisely the factors of success and failure.

The second methodological technique lies in the experiment itself. The objective was to combine auction methods with assessment of quantity. We developed an auction mechanism based on the BDM method. It includes the notion of purchase quantity in the auction. We were able to assess the purchase decision with the respondent's willingness-to-pay, as well as observe the fluctuation in additional purchase quantities at a random price. This method was used to assess the difference in decision-making according to the level of product quality in a controlled environment.

Business managers should also find interesting points in this thesis. There is growth in the responsible food market in every type of outlet. Organic food is available from specialized stores to hard-discount, *Label Rouge* quality is offered in restaurants and indicated on menus, and parents demand that school canteens serve food that has not been genetically modified. The costs generated by improved quality need to produce something in return. Even if we perceive growth in consumer demand, there is no guarantee that customers will pay for it at any price and in sufficient quantities to make the business sustainable. This thesis investigates the factor of signal consistency as a key for the success of official quality signs, and identifies the best-case scenario for increasing consumer demand and price acceptance. A better understanding of the stakes related to the management of signals such as brand, label, and store type – where the product is distributed – allows marketers to make better decisions for positive financial outcomes.

Finally, we open the discussion into the efficiency of the public policies intervention for encouraging responsible practices and increasing a product's quality performance on the market. Regulation of the free market has generated vigorous debates among economists. The European Commission and the French government adopt the same strategy regarding agri-food products, with a desire to put options on the market without prohibiting or constraining business practices. Official quality signs are designed to help responsible actors become more visible on the market and have the opportunity to make profits from their practices. Beyond the modest attempts to influence the market using a variety of tools, the impact of public authorities in their response to both customer expectations and business needs is decisive. A significant part of the agri-food market depends considerably on public financial support, and efficient food production and delivery are essential for countries. We propose our marketing perception of public intervention in the agribusiness for farm animal products, and discuss the efficiency of

playing a supporting role through voluntary policy measures and, where necessary, complementary regulation.

Structure of the thesis

Our research is divided into two parts: a theoretical approach composed of two chapters, and an empirical approach composed of three chapters. Both parts are complementary and add knowledge for better understanding of the value creation process of official quality signs in the agri-food markets.

The first part of this thesis is dedicated to the conceptual and theoretical framework. In the first chapter, we investigate corporate social responsibility and trace its history to understand the current situation regarding how firms behave in relation to social expectations, and the role of public authorities in implementing social and environmental practices. The wealth of literature questions the role played by firms in society apart from the objective of profit. Debates on corporate social responsibility are commonplace and are connected to the philosophy of business ethics via the issues of the range of responsibility, morals, the relations between the actors, and measurement issues. We identify corporate social responsibility in our context and analyze the role of information, and more specifically official quality signs, in its implementation. One concept of social responsibility performance caught our attention in particular. The 3C-SR model states that corporate social responsibility generates outcomes only if three pillars are combined: a satisfying degree of commitment, a consistency of actions within the organization, and coherent stakeholders' connection with similar values. The performances of social actions are analyzed from this point of view throughout this doctoral thesis.

The second chapter is dedicated to the concept of performance, and how corporate social responsibility is supposed to create value on the market. We focus on two main indicators of market performance: price and purchased quantity. Both variables depend on consumer behavior and are the basis of market shares, sales revenues, and margin creation. This thesis aims to understand how official quality signs influence product performance through their impact on consumers and financial results, using experiments and market data. Based on the literature review, we design a theoretical model for value creation for official quality signs.

The second part of the thesis is an investigation with empirical studies of value creation. The two first chapters use market data, whereas the last chapter is an experiment to understand the mechanism identified. Whereas most marketing studies use attitudinal data, our research aims to fill in the gap left by attitudinal data – which produce approximate answers to surveys that

do not reflect the market and are not reliable enough to assess the potential profit of product types (Wertenbroch & Skiera, 2002). We first test the rationality and preferences of consumers by analyzing the specific market of table eggs. This specific market was chosen based on several characteristics, including the homogeneity of the product and the legal nomenclature that governs the marketplace with mandatory and clear information about the product's credence quality. The case of table eggs is favorable for assessing the importance of different features and the credence value they generate. Regarding the influence of non-economic features, we question to what extent quality signs create an acceptance of price. Also, eggs are widely-consumed farm animal products, perceived as a virtue food, and thus a good basis for assessing the influence of organic labels and *Label Rouge*. Based on the literature, we assume that consumers are willing to pay a price premium for socially and environmentally responsible products. Studying of market prices and quantities purchased reveals the big picture of the role played by quality signs on the market. We analyze market trends and assess the implicit prices of labels and their attributes using the hedonic price method. We then calculate price elasticity to better understand the market mechanism of quality ranges.

The second chapter in this part is an empirical study that analyzes market price and marketing margins for table eggs and oven-ready chickens. With regard to the creation of value, we highlight the importance of brand type and store type and mention the role played by consistency in quality signals. This second market is interesting because it was the pioneer for the development of the *Label Rouge* quality sign, and it is a farm product that undergoes little processing, an important factor for the performance of official quality signs according to previous works. The situation of the market is rather different from table eggs, and the economic stakes are high. We investigate the creation of value throughout the value chain based on two factors: the stage in the value chain, and the type of distributor. We use marketing margins as the indicator for value creation with two methodologies. We use the theoretical price, calculating the organic premium ratio at a given stage and the value creation of non-organic products at the buyer stage. The objective is to know where the value is created and how, as well as to better understand the role played by store type in this value creation. We perform a statistical analysis of the value creation models and assess the role of each attribute in price formation.

The third chapter of this empirical part is a customers' approach to value creation with an experimental economics study that has been designed to better understand the influence of organic labels on price acceptance and the quantities purchased of a product. We conducted the

experiment on liquid milk for several reasons. It is a low-processed farm animal product that is commonly purchased in France, and, contrary to table eggs and oven-ready chickens, one for which freshness is not a major constraint at purchase capable of skewing the study of official quality signs in an experiment. We conducted experimental auctions with the introduction of quantity purchased in addition to price analysis. We chose the BDM mechanism for auctions and designed a survey that participants were asked to complete. We investigated how quality signs generate market value through price and sales volumes and assessed the role of perceived value and spirituality as intermediate variables. We collected information regarding the products usually purchased by the respondents (brand type, store type, quality) and their reference prices. We analyzed the data using two methods. First, we designed a Tobit model, which is a censored regression model with dummy variables mostly used for assessing willingness-to-pay factors. This methodology was used to analyze the three behavioral variables in the study: auction, quantity purchased, and random price acceptance. The second method is the analysis of mediation effects that aims to measure the intermediate factors of perceived value and spirituality and the influences between the behavioral variables themselves.

Finally, we propose a general discussion and conclusion of the empirical studies. The results and the literature review are compared. Reflections on the relevance of the value means-end chain are made by highlighting the importance of consistency in quality signals and the complexity of the model. We also question the place given to social and environmental performance in the current trade system, and how public policies can either help or refrain market development and economic success. Then, in the final section, we mention the implications of this doctoral thesis. We review the main theoretical observations and display the methodological implications of the empirical studies. This is followed by the managerial aspects, with practical advice for firms. Finally, we evaluate the major political implications. European policies play a role in value creation for agribusiness and consider the increase in food quality and safety, the protection of farming practices, and food market support as a primary concern. From these managerial studies, we propose our thoughts which should be useful for investigating food market sustainability. We acknowledge the limitations of this research at several levels. Two of the main issues are associated with the empirical studies. First, the theoretical model of value creation cannot be tested at once because it requires different methodologies. We needed to investigate product-market performance with market data, and the customer's ability to contribute to market performance with an experiment. The second main issue is due to the result of the lack of details in the databases. The mediation

effect of brand types and official quality signs were not available, and we would have obtained more precise results with the sales volumes according to type of distributor. Considering the theoretical limitations, the literature presents value creation in a mean end chain model. This perception is restrictive in terms of the influence of signals, and does not describe the true complexity of the creation of market value. Finally, we present future studies that should be the extension of both the results we have obtained, and the reflection we have initiated.

PART 1. FIRM'S RESPONSIBILITY, QUALITY SIGNS AND MARKET PERFORMANCE - A THEORETICAL APPROACH
Chapter 1. The role of quality signs in the corporate social responsibility
Chapter 2. The effects of quality signs on marketing performance
PART 2. QUALITY AND VALUE: THE ROLE OF PRICE AND QUANTITY – AN EMPIRICAL APPROACH
Chapter 1. The influence of quality signals: A consumer demand approach
Chapter 2. Price and value: A value-chain approach
Chapter 3. Willingness-to-pay and purchased quantity: An experimental approach
GENERAL DISCUSION AND CONCLUSION Contributions, limits, and research opportunities

PART 1. FIRM'S RESPONSIBILITY, QUALITY SIGNS, AND MARKET PERFORMANCE – A THEORETICAL APPROACH

The objective of the first part is to establish the theoretical foundations of the research. The main purpose is to understand to what extent signaling the corporate social responsibility to stakeholders can influence the firms' performance, with a focus on the use of official quality signs in agribusiness. The literature review establishes the conceptual and theoretical framework of the doctoral thesis, and helps in the elaboration of the empirical studies.

The first chapter presents the history and evolution of corporate social responsibility to contrast the different approaches and theories. Following the 3C-SR model, we integrate the dimensions of stakeholders as a fundamental element in corporate social responsibility success and we consider that performance is the result of internal and external consistency of the firms' decisions and actions. We highlight the importance of the information in the market by relating the information economy theory and the signaling theory and present the special stakes of signaling credence quality in the agri-food market.

The second chapter deals with the value creation of firms. Based on the marketing performance, we present a mean-end chain model with the customer, market, and economic firms' results of marketing actions. We identify the role of quality signs in the firm performance and suggest that the consistency with other signals contribute to the enhancement of corporate social responsibility positive outcomes, specifically better market results. Based on the literature review, we formulate main and sub- research questions that complete the current academic knowledge. We explain the required methodologies to test the elaborated theoretical model and present the official quality signs markets, history, and influence.

The two first chapters elaborate the conceptual structure of the thesis and identify the various components of the theoretical model. The current part establishes the guideline of the research and makes the link between the marketing and the financial perception of performance.

PART 1. FIRM'S RESPONSIBILITY, QUALITY SIGNS AND MARKET PERFORMANCE - A THEORETICAL APPROACH
Chapter 1. The role of quality signs in the corporate social responsibility

Section 1. Theory of corporate social responsibility
    1. Past conceptualization of corporate social responsibility
    2. The debates about corporate social responsibility
    3. The quality signs in corporate social responsibility practices
Section 2. Information and corporate social responsibility
    1. Addressing information asymmetry
    2. Information in agribusiness

Chapter 2. The effects of quality signs on marketing performance

Section 1. The performance of quality signs
    1. Conceptual clarification about performance
    2. The performance of quality signs
    3. Price and purchased quantity as performance indicators
Section 2. Information and corporate social responsibility
    1. From the literature review to the research model
    2. Presentation of the research field

Conclusion of Part 1

CHAPTER 1. THE ROLE OF QUALITY SIGNS IN THE CORPORATE SOCIAL RESPONSIBILITY

The first chapter aims to discuss the theoretical basement for the adoption of labels in agribusiness as a signal of quality for consumers. The chapter is divided into two sections to answer the following questions:

- Is the quality enhancement a tool for corporate social responsibility?

- How quality signs enhance market performance through price and quantity?

The quality signs have been often studied with the asymmetry of information theory, and the efficiency of signaling quality on the market (Spence, 1974). The labels do not benefit from an entire theory elaborated for their specific case and are mostly considered as a signal that gives better information to the consumers. In this thesis, we consider the quality signs as forming part of the corporate social responsibility. We analyze a set of signals that deliver information about the degree of responsibility of the firms and the products.

The first section presents the theory of corporate social responsibility (CSR). For decades, the management research explored the social responsibility and the related difficulties for implementation. The concept of corporate social responsibility has been rethought and redesigned over time. Nowadays, a large number of definitions remain in the literature. We discuss the different approaches of corporate social responsibility and how quality signals are an integral element of it.

The second section presents the necessity of delivering information on corporate social responsibility. We discuss information economics and the signaling theory to understand the necessity of quality signs. Then, we tighten our research on agribusiness and display the stake in the food sector.

Section 1. Theory of corporate social responsibility

The responsibility of firms is a growing concern for decades and developed new forms of pressure on companies. Several stakeholders make new requests to firms, while the social and institutional pressure strengthens. This section aims to define corporate social responsibility by presenting its evolution, legitimacy, and scope. The concept is presented through its numerous definitions (1). We identify several approaches and debates that have been developed in the

literature (2) before explaining how the quality signs are related to corporate social responsibility (3).

1. Past conceptualizations of corporate social responsibility

The negative externalities of economy and business have been an important concern since we trade. *"The history of ethics in business is a long one, going back to the beginning of business."*(De George, 1987, p. 201). The terms and words referring to responsibility in business evolved in history, but the topic has always been a concern (De Bry, 2008).

At the beginning of the twentieth century, Taylor considered management as a tool to achieve the workers' maximum efficiency. The development of the work organization conflicts with the moral law developed by Kant that aims to treat people in their ends in themselves, considering their needs and inspirations. Clark (1916, p. 218) illustrated the concern of social responsibility by calling into question the phrase *"business is business"*. He highlighted that the humans are unselfish in several ways in their lives, but the business relations are excluded from moral obligations. The responsibilities of human actions are not transposed to business actions. To avoid the *laissez-faire* of the liberal economy and curb the negative impacts of business relations, the public authorities developed regulations and control systems. In his conclusion, Clark highlights the lack of business responsibilities and the sense of injustice, and the need to fill in our scheme of social management and social interpretation.

In the thirties, Barnard suggested manipulating the individual desires and goals to meet the organizational purpose. He considered the responsibility as *"the power of a particular code of morals to control the conduct of the individual in the presence of strong contrary desires or impulses."* (M. Schwartz, 2007, p. 47). Barnard considered that the executives have a higher moral responsibility, as management decisions are highly considered by moral issues. He also suggested a shared responsibility with external stakeholders, a key point in the evolution of the social responsibility concept. This perception of the responsibility, and roles of the workers in the firms according to their hierarchical position, is consistent with the paternalistic attitude from the managers toward the workers. It reveals the expression of social consideration (De Bry, 2008).

Corporate social responsibility entered the academic field in the second part of the last century. Frederick (1978) presented the corporate social responsibility evolution through a timeline from 1950 to 2000. Looking at the development of the concept through history gives an interesting overview of the issues. The timeline highlights debates that emerged between citizens, politics,

economists, workers, consumers, and business actors. Four main perceptions of corporate social responsibility are presented. The author called them the four stages of corporate social responsibility presenting its roots, challenge, and transformation over time.

Table 1 Four stages of CSR

	CSR1. Corporate social stewardship (1950s – 1960s)	*CSR2. Corporate social responsiveness (1960s – 1970s)*	*CSR3. Corporate/Business Ethics (1980s – 1990s)*	*CSR4. Corporate global citizenship (1990s – 2000s)*
Guiding CSR principle	Corporate managers are public trustees and social stewards	Corporate should respond to legitimate social demands	Create and maintain an ethical corporate culture	Accept responsibility for corporate global impacts
Main CSR	Corporate philanthropy	Interact with stakeholders and comply with public policies	Treat all stakeholders with respect and dignity	Adopt and implement global sustainability programs
CSR drivers	Executive conscience and company reputation	Stakeholder pressures and government regulations	Human rights, religious and ethnic values	Globalization disruptions of economy and environment
CSR Policy	Philanthropy and public relations	Stakeholder negotiations and regulatory compliance	Mission statements, ethnics codes, social contracts	International code compliance, sustainable policy

Corporate social responsibility is based on the idea that business has a social role, and its decisions impact society and the environment. This idea has been developed mostly in the U.S at the beginning of the last century and has its roots in the history of business communities.

In the mid-twentieth century, the concept became more popular, and the modern CSR as we know it started to emerge. The following paragraphs describe the diverse perceptions of social responsibility in business and develop the main concepts.

1.1 The beginning of corporate social responsibility: developing and questioning the concept

Howard Bowen is considered as the pioneer of the corporate social responsibility with his book "Social responsibilities of the business" edited in 1953 and initiated by a religious organization. The author used the terms Stewardship and Trusteeship, and developed a concept that reflects the stakeholders' approach. The book questions the model of the United States economy and its evolution. He defines corporate social responsibility as follow: *"[CSR] refers to the obligations of businessmen to pursue those policies, to make those decisions, or to follow those lines of actions which are desirable in terms of objectives and values of our society"* (p.6)

The author presents ethics as the essence of social responsibility. Social responsibility is presented as the result of economic obligations, legal and ethical obligations, and philanthropic obligations. Philanthropy is the central value and aims to establish a social balance by reducing the gap between the wealthy and the poor people.

Drucker makes three arguments in favor of ethics in business. First, he does not define business in terms of profit but as an organ of society. Second, as a logical process, the power of firms demands a corresponding responsibility, establishing the social power argument due to the control of resources by managers that can affect society. Finally, the author, in compliance with the Cristian philosophy, and joining Bowen, states that the company has a responsibility towards its employees and must fulfill the human dignity and offer equal opportunities to employees (M. Schwartz, 2007).

In the sixties, the voluntary stewardship of corporate social responsibility was not sufficient for society and became controversial. The business sector had to respond to new social demands, including the correction of racial or sexual discrimination at the workplace, new environmental requirements toward pollution, the importance of workplace safety, and the claim for fair prices. The matter of satisfying shareholders and self-interests was consistent with the unique aim of profit but was potentially conflicting with the matter of social goals. The authors wondered which social and environmental objectives can be included in the companies' objectives and responsibilities, and to what extent they were responsible for their actions. Plenty of definitions generated debates about the role and the limits of corporations. We discuss the details of these debates in the next paragraph.

The literature shows a large heterogeneity of the dimensions included and considered as the responsibility of the firms. Davis highlights the ambiguousness of social responsibility for firms as *"a tendency exists to limit its [social responsibility] application to person-to-person contacts. Social responsibility moves one large step further by emphasizing institutional actions and their effect on the whole social system. Without this additional step, personal and institutional acts tend to be divorced."* (1967, p. 46). Corporate social responsibility implements the moral responsibility of human actions to business, enlarging the role of enterprises in society. The concept has been criticized, mostly because of the indefinite framework of the responsibility.

In the literature, corporate social responsibility is either perceived as a burden for the firms (in the economy with liberal anchorage), or a moral obligation that is above the unique objective

of profitability. A large number of publications attempted to develop the concept of social responsibility of firms and integrated one or several dimensions such as social, environmental, political, ethical, economic, or even cultural. In his book "Business in contemporary society: framework and issues", Johnson (1971) defines four times the social responsibility with different approaches. They can appear contradictory, but they are mostly complimentary. They describe a unique and plural reality in business (see appendix Definitions of corporate social responsibility). The first approach of the author set forth the canalization of business with *"the elaboration of social norms in prescribed business roles" (p.51)*. He elaborated a list of actors that must benefit from the social responsibility in that terms: *"Instead of striving only for larger profits for its stockholders, a responsible enterprise also takes into account employees, suppliers, dealers, local communities, and the nation"* (p. 50).

Several social actors are not considered in this definition, such as customers (Jones, 1980). CSR1 was an independent concept. Then came the idea that the business social responsibility should be a response to the social demands, and the concept evolved to the corporate social responsibility as social responsiveness.

1.2 The corporate social responsiveness

Carroll summarizes the "Corporate Social Responsiveness", also called CSR2, in this relevant form *"Corporate social responsiveness, which has been discussed by some as an alternative to social responsibility is, rather, the action phase of management responding in the social sphere. In a sense, being responsive enables organizations to act on their social responsibilities without getting bogged down in the quagmire of definitional problems that can so easily occur if organizations try to get a precise fix on what their true responsibilities are before acting"* (A. B. Carroll, 1979, p. 502).

The responsiveness is the micro-level of social responsibility. Wrtick and Cochran explained the differences between corporate social responsibility and social responsiveness in a table.

Table 2 Differences between social responsibility and social responsiveness

	Social responsibility	Social Responsiveness
Major considerations	Ethical	Pragmatic
Unit of analysis	Society	The firm
Focus	Ends	Means
Purpose	"Window out"	"Window in"
Emphasis	Obligations	Responses
Role of the firm	Moral agent	Producer of goods and services
Decision framework	Long term	Medium and short term

Carroll (1979, p. 503) mentions six social issues that are involved in the social responsibility, namely the consumerism, the environment, the discrimination, the product safety, the occupational safety, and the shareholders. The firm must respond to these issues with a specific social responsibility category and with a philosophy of responsiveness. The author developed categories of social responsiveness from previous articles. The categories are ranked from the inaction (Do nothing – no response) to pro-action (do much – proactive response) (Archie B. Carroll, 1979, p. 502). Two ways are used by firms to respond to social pressure: organizational design and managerial competences. Firms do not have the same ability of firms to respond more or less to social pressure (W. C. Frederick, 1978, p. 155). This ability depends on firms' resources, resources utilization, and strategies (Barney, 1991). Davis (1967, 1973) presents a process of response in three phases, from policies to actions. Table 3 presents the interdependency of the roles and responsibilities of actors. In the third phase, managers must use their resources to solve the management issue and increase the quality or quantity of social responses.

Table 3. The social responses from policy to actions

Organizational level	Organizational Process		
	Phase 1 ⟶	Phase 2 ⟶	Phase 3
Executives	Problem: moral imperative	New Knowledge	Getting the organizational commitment
	Action: Policy	Hiring specialists	Changing performances expectations
	Results: New objectives		
Specialists		Problem: Technical issues	Lead to responses of operational unities
		Action: Drawing data system and interpreting the environment	Using the data system to measure performance
		Results: Working on the field at the communication and technical level	
Managers			Problem: Management issue
			Action: Using resources and modifying procedures
			Results: Increasing responses

Business ethics respond to scandals that pointed up the actions of businesses that were controversial, such as the support of apartheid by doing business in South Africa, the disastrous working conditions in third world countries, or the dangerous or unsafe components of products. Regardless of the truthfulness of these scandals, they affected society. In addition to

the executive of firms, public authority can be implied in the process of moral issue identification and policymaking. The multiplicity of actors involved in moral quandaries and their shared necessity to respond extend the scope of the firms' responsibility to all their stakeholders.

1.3 The stakeholders' challenge

The CSR3, corporate social rectitude, integrates a new dimension of ethics and morals to social responsibility. Frederick identifies three value-based and ethical drivers for management decision, namely the utilitarian, related to the economical aspect of the firms, the human rights, related to the parties beyond the firms, and the social justice, related to the societal level (William C. Frederick, 1986; Mitnick, 1995). The CSR2 included the stakeholders as a concern, and mainly from a managerial view of the firm presenting four main stakeholders: owners, suppliers, customers, and employees. The CSR3 increased the number of actors as it considers a stakeholder any group or individual who is affected or who can affect the business of the firm. In that respect, the CSR3 adds the obligation and the necessity of an ethical climate within the company and with its stakeholders. The interests of several actors, other than stockholders, must be served by the activity of the business. The inclusion of other actors in the social responsibility raises two main questions. First, the enlargement of firms' responsibility leads to the debate of responsibility limits. The identification of the stakeholders and the asymmetry between their negotiation strengths are two main issues (Griethuysen, 2009). Second, we question the control authority that may evaluate the responsibility of the firms. Both questionings refer to the design and the control of corporate social responsibility. Defining corporate social responsibility requires the identification of goals, implementation framework, and appropriate resources.

In previous research, the stakeholder approach is central in the analysis of social performance. Garriga and Melé (2004) classify the corporate social responsibility theories in four types: instrumental, political, integrative, and ethical (Appendix) The stakeholder approach is part of the integrative theories and ethical theories. The integrative theories look *"at how business integrates social demands, arguing that business depends on society for its existence, continuity, and growth." (Garriga & Melé, 2004, p. 57)*. Among them, the stakeholder management enforces the generic social responsiveness and public responsibility principle with the central goal of achieving maximum overall cooperation with the entire system of stakeholders. The ethical theories gather the approaches that focus on the relationships between society and business. The normative stakeholder theory considers all the objectives of the stakeholders and enforce the legitimacy of their interests.

The identification of stakeholders is commonly made with a three attributes pattern from a notorious article: power, legitimacy, and urgency (Mitchell et al., 1997). The stakeholders present several combinations of these attributes for the firm and are classified according to their characteristics.

Figure 1 Stakeholder typology: one, two or three attributes present(Mitchell et al., 1997, p. 874)
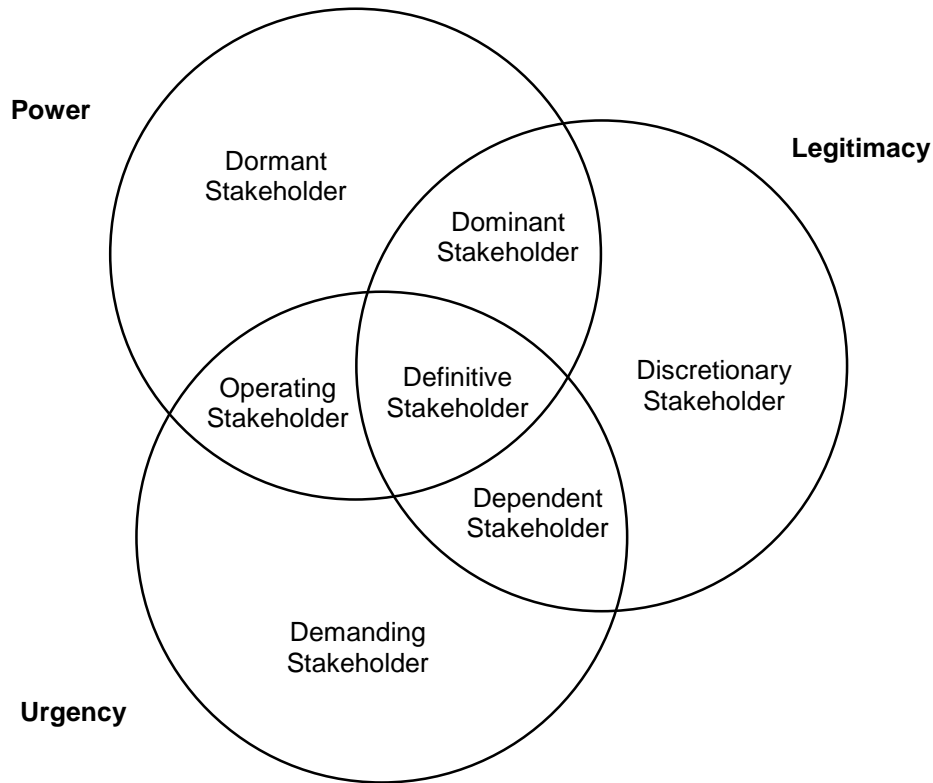
The authors classify them as *"[the] latent stakeholders are those possessing only one of the three attributes and include dormant, discretionary, and demanding stakeholders. Expectant stakeholders are those possessing two attributes and include dominant, dependent, and dangerous stakeholders. Definitive stakeholders are those possessing all three attributes. Finally, individuals or entities possessing none of the attributes are non-stakeholders or potential stakeholders."* (Mitchell et al., 1997, p. 873). Stakeholder relations management is central and must be adapted to each actor. The misidentification of stakeholders may lead to negative consequences (missing an opportunity, not seeing a danger…). Globalization increases stakeholder importance and complexity.

1.4 Global economy and new challenges

CSR4 evolves simultaneously with the globalization. It includes more stakeholders, like non-governmental organizations (NGOs), and acts as a buffer between society and global companies

with a new role of international peacemakers. According to Bowen *(2013, p. xiii), "The corporate social responsibility scholarship aims at (re)discovering how business may create shared value for both business and society, (re)considering the role of institutional factors in the adoption of social responsibility, and (re)thinking critically how corporate social responsibility expresses the political role of corporation."* Corporate social responsibility is an integral element of the managerial process and becomes an instrument for success. Dunfee and Donaldson (1999) propose a unique social contract between the society and the business actors that embodies universal human rights principal. According to the legitimacy theory, this contract must provide a proper environment for market success.

The globalization of capitalism generated new oppositions, and an alter-globalization movement emerged. Firms face double constraints: they must meet expectations of capitalism and private property that respond to the tragedy of the commons, and at the same time, they must fulfill their social and environmental roles (Griethuysen, 2009).

2. The debates about corporate social responsibility

The lack of agreement about the nature and the scope of corporate social responsibility, but also the role of stakeholders and the implication of globalization rose several debates in the academic world, but also the civil society and the business community. This paragraph aims to avoid confusion and specify the scope of our research. We focus on the debates related to the business concerns, but other scientific disciplines questioned the influence of other factors on CSR, such as sociology and philosophy. We first mention the issue related to the semantic and clarify the vocabulary used in the literature. Second, we discuss the identification of stakeholders and the bewilderment of their recognition. Third, we outline the controversy of enhancing non-economic performance in a liberal context, addressing the question of social performance and measurement. We conclude with a special focus on the profitability of corporate social responsibility from a marketing and an economic perspective.

2.1. Other important concept related to CSR

Corporate social responsibility is often confused among other concepts related to ethics in business. Below, we provide an overview of the vocabulary for clarification (De Bry, 2008).

2.1.1 Ethics in business

Management ethics considers the firm responsible for the consequences of business actions, a larger concept than corporate social responsibility. Frederick Taylor addresses the issues of

ethics in business by identifying the basic limits of his production methods and did not intend to injure the employees. In a paternalist conception of the organization, the firm implies the encouragement of workers and the improvement of the work with personal relation, and without condescending or patronizing. The limits he stated are similar to a business ethics dialogue. Chester Barnard stated that managers have the responsibility to make the moral code applied in the company but also with the stakeholders. Leaders have the responsibility of their capacity to convey to others. For Drucker's, the main purpose of business is not profit. The corporation is a social institution and must respond to social responsibilities, including specific responsibilities toward their employees. All these perceptions of ethics in business consider that moral principles must be applied to economic actors. Ethics shows five essential values: justice, social responsibility, exemplary manners, mutual trust, and respect for others.

Corporate social responsibility can be considered profit-oriented in a neo-classical approach, and unique responsibility to the shareholders (Friedman, 1970). The approach of business ethics is more sociological and take legitimacy in the values of society and the relationship with stakeholders. It requires developing the links between the responsibility of the firms toward ethical, environmental, and social concerns.

2.1.2 Sustainable development

Corporate social responsibility is closely related to the sustainable development concept. The latest has been officially defined in the Brundtland report and claims that *"Humanity has the ability to make development sustainable to ensure that it meets the needs of the present without compromising the ability of future generations to meet their own needs."* (United Nations, 1987, p. 15). The theoretical sustainable principles are nevertheless applied in corporate social responsibility firms' actions (De Bry, 2008). The institution considers that the responsibility of the firms is to contribute to the viability and sustainability of the society in general.

Sustainable development has three levels of involvement, similar to the classification of corporate social responsibility involvement.

Table 4. Levels of involvement for sustainable development (adapted from De Bry, 2008)

Level	CSR corresponding	Major dimensions	Behavior
Conformity	Neo-classical CSR approach	Economy	Focus only on profit
Periphery	CSR2	Economy, social and environment	Focus on profit and meet the social and environmental expectation
Incorporated	CSR in business ethics	Stakeholders, society	The main objective is the sustainable development and the stakeholders

2.2. Identification of the stakeholders' responsibility

The large literature dealing with stakeholders generated several levels of analysis. Stakeholders are alternatively used as a concept, a model, a management tool, and a theory. Freeman and Reed (1983) distinguished two levels. The theoretical level questions the role of stakeholders with a philosophical approach to management and proposes a typology. The analytical level focus on the cooperation and the competitive threat between the stakeholders with an objective of strategy or audit. Donaldson and Preston (1995) identified and explained three prisms to analyze the stakeholders: descriptive, instrumental, and normative. A fourth prism called managerial stakeholders has been added.

Table 5: Theses about stakeholders - adapted from Donaldson and Prestion (1995)

Thesis	Description
Descriptive*	A model describing the cooperative and competitive corporations and stakeholders.
Instrumental*	Analyze the connection between the stakeholders, there achievements and performances.
Normative*	Stakeholders are studied as persons or groups of persons, which implicate the consideration of morals, values, philosophy, and human behavior.
Managerial	Studies about stakeholders are made for generating managerial implications to improve the situation.

Represents a theory of stakeholders.

The famous typology of Donaldson and Preston (1995) has been largely criticized. Mitchell and al. claim that the importance of stakeholders depends on three attributes stated above (1997): power, legitimacy, and urgency (Figure 1 Stakeholder typology: one, two or three attributes present(Mitchell et al., 1997, p. 874)). Business is perceived as an entire system in which all stakeholders have a relative power over others. The improvement of their relationship has a double – sometimes conflicting – goal of managing responsibility and profitability. The corporate responsibility faces the demand from discretionary stakeholders, but must also obey to the dormant and the demanding stakeholders if related to society's stakes. Waddock, Bodwell, and Graves (2002, p. 134) identified the pressures and classified them into three categories.

Table 6. Classification of stakeholders' pressures

Primary Stakeholder Pressures	Secondary Stakeholder Pressure	Social and institutional pressure
Owners Demands for efficiency/profitability Viability (sustainability) Growth of social investment **Employees** Pay and benefits Safety and health Rights at work/Global labor standards Fair/ethical treatment **Customers** Demand for "green" and "ethical" products "No sweatshop" movement **Suppliers** Fairtrade/meet commitments Continued business	**NGOs/ Activists** Demand for better human rights, labor rights, environmental performance **Communities** Neighbor of choice **Governments** Demands for transparency Anti-corruption movement Compliance with laws and regulation Economic development	**The proliferation of "best of" ranking** Creates incentives to rank high to enhance corporate reputation **The emergence of global principles and standards** Changing public expectations of companies **Triple-bottom-line reporting/accountability** Increased demands for accountability Increased demands for transparency Emphasis on financial, social and ecological performance

The responsible firm measures and faces its responsibility for all actors. The choice of stakeholders is a key element. *"The stakeholder theory and the relation marketing indicate that the quality of stakeholder-company relationships is commensurate with the benefits stakeholders receive from their interactions with the company"* (Bhattacharya et al., 2009, p. 260). The authors developed a stakeholder-centric model for understanding CSR.

Figure 2 A model for understanding stakeholder responses to CSR (Bhattacharya et al., 2009, p. 260)
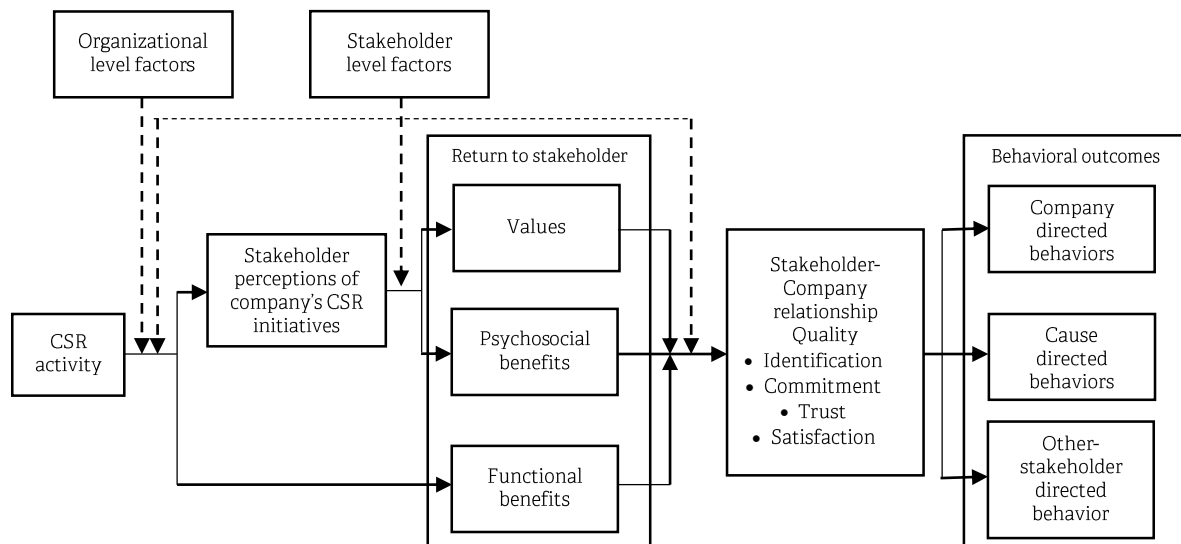
Two benefits are distinguished: functional benefits and psychological benefits. Information can strengthen relationships, especially in the case of reciprocal exchanges. The reciprocity improves the relationship quality in four dimensions (from the strongest to the weakest): identification, commitment, trust, and satisfaction. The advantages of quality relationships

between stakeholders are numerous. Davis (1973) examined the reasons for and against the business's assumption of social responsibility, considering stakeholders as part of society.

Table 7 The case for and against social responsibilities (Davis, 1973)

For		Against	
Long-run self-interest	The accomplishment of social goods connect with the social community and take advantages in the long term.	Profit maximization	The social responsibility if a subversive doctrine in a free society for Friedman, and it impedes business
Public image	A positive public image support the long-run self-interest	Cost of social involvement	The business should allocate a very small amount of its resources to social matters
Viability of business	Performing valuable services for the society for the well-being of the whole business and its environment	Lack of social skills	Businessmen are not capable to answer social needs
Avoidance of government regulation	The social responsibility of business actors avoid regulation by the government that are costly and mandatory, centralized the power and weaken the business	Dilution of business's primary purpose	The involvement in social goals will decrease the economic effectiveness of business and generate a poor social performance
Sociocultural norms	Responsibility must be adapted to the cultural norms to reach their goals and succeed	Weakened international balance of payments	International balance of payments do not take social responsibility into account and must be affected
Stockholder interest	Diversification of ownership portfolio and responsive behavior bring returns to the firms	The business has enough power	The business should not take more power to society and become the giant social institution
Let business try	Business can try freely to solve social problems where other institutions have failed	Lack of accountability	Social responsibility is not in accountability, and should not rely on occasional actions of businessmen
Business has the resources	The resource of business might be useful to solve social issues	Lack of broad support	The general opinion is not homogeneous and social actions from firms may arise frictions in society
Problems can become profits	Not all problem can be handled in this way, but some can be turned into a profitable situation		
Prevention is better than curing	Business must handle issues before they get even more problematic		

This list is oriented toward profit maximization, calling into question the degree of priority of each responsibility and the real power of corporate social responsibility in changing business practices.

2.3 The volunteer approach and the regulation approach: the degree of liberality in the economy

The debate lies in a dual perception of corporate social responsibility implementation: voluntary participation or mandatory regulation. Corporate social responsibility is defined by Davis as *"a*

firm's acceptance of social obligation beyond the requirement of the law" (1973, p. 313). The definition explicitly mentions the optional nature of social responsibility. Bowen states that volunteer involvement of business actors could be sufficient to solve the social and economic issues of the United States of America and regulate the American economy (Acquier & Aggeri, 2015). Bowen rejected utilitarianism and mentioned the social audit, the political reforms, and the revision of the management education as elements of the social responsibility institutionalization. For Drucker, business is a discipline. The firms and the society face indissociable stakes that must be considered with morality. In 1970, Friedman wrote in "Capitalism and Freedom" that *"There is one and only one social responsibility of business-- to use its resources and engage in activities designed to increase its profits so long as it stays within the rules of the game, which is to say, engages in open and free competition without deception or fraud."* (Friedman, 1970, p. 6). Jones (1980) criticized the obligation of companies to adopt measures for social responsibility and denies that responsibility concerns a very large amount of actors. Jones (1980, p. 59-60) also support voluntary adoption and considers that behavior influenced by the coercive forces of law or union contract is not voluntary.

This liberal approach of corporate social responsibility includes a unique economical dimension that is supposed to have positive consequences on other dimensions. It is analogous to the theory of Adam Smith which states that humans contribute to society when they act in their self-interest. The first and main objective of this approach is to satisfy shareholders and financial performance, upstaging the other non-financial dimensions. It discards the social and moral obligations of the firms and does not identify precisely the responsibility of firms.

The question of the supervisory authority for corporate social responsibility is a thorny topic. Corporate social responsibility is considered apart from legal and technical obligations. *"It means that social responsibility begins where the law ends."* (Davis, 1973, p. 313). The European commission adopted the liberal approach, empowering autoregulation and coregulation. Firms adopt corporate social responsibility if they find a financial interest, or benefits in terms of image or trade (Igalens, 2013).

Corporations face three challenges: economic responsibility, public responsibility, and social responsiveness (Wartick & Cochran, 1985). Each dimension should be measured to be analyzed and compared, but the measurement of social effort and performance rose several debates.

2.4 The performance of CSR

The corporate social performance (CSP) raises the issue of measuring the results of the social responsibility implementation. Corporate social performance is not clearly defined and is sometimes used as a synonym of corporate social responsibility or social responsiveness. In 1979, Carroll described the corporate social performance as a three-dimensional integration of corporate social responsibility, CSR2, and social issues. The model integrates economic responsibility and public policy responsibility.

Figure 3. The corporate social performance model
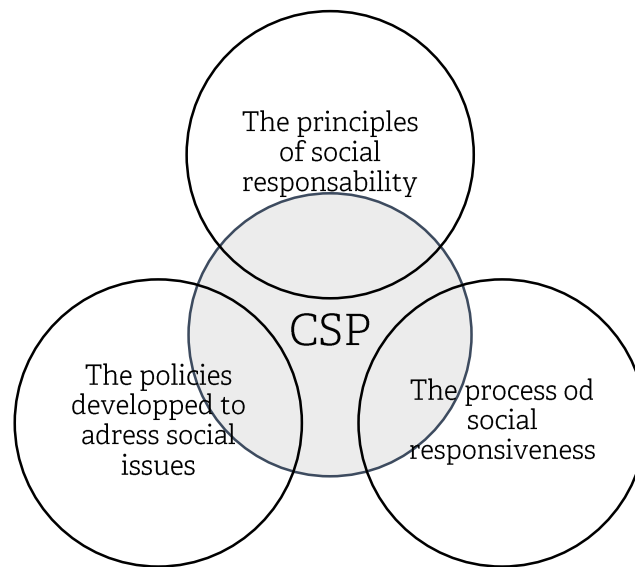
The corporate social performance gathers all performance of firms' corporate social responsibility program. It is a multidimensional construct with firms' behavior and actions, internal processes and behaviors, and outputs. The concept is polymorphic, complex, and by extension hard to measure. The corporate social performance has no unanimous definition and framework, but we retain the following definition:

> *"Corporate social performance is a multidimensional construct, with behaviors ranging across a wide variety of inputs (e.g. investments in pollution control equipment or other environmental strategies), internal behaviors or processes (e.g. treatment of women and minorities, nature of products produced, relationships with customers), and outputs (e.g. community relations and philanthropic programs)" (S. Waddock & Graves, 1997, p. 304)*

The identification of corporate social responsibility's results is difficult. For example, corporate social performance is highly correlated with research and development. Such correlation makes the independent influence of corporate social responsibility on financial performance

(McWilliams & Siegel, 2011). Wartick and Cochran developed a list of criteria that are incorporated in each dimension of the above model (1985, p. 767).

Table 8 The corporate social performance model

Principles	Processes	Policies
Corporate social responsibilities	Corporate social responsiveness	Corporate issues management
Economic Legal Ethical Discretionary	Reactive Defensive Accommodative Proactive	Issues Identification Issues Analysis Response Development
	Directed at:	
The social contract of business Business as a moral agent	The capacity to respond to changing societal conditions Managerial approaches to developing responses	Minimizing "surprises" Determining effective corporate social policies
Philosophical orientation	*Institutional orientation*	*Organizational Orientation*

Corporate social responsiveness and corporate issues management are used to meet the stakeholders' demands. The role of policies is to identify, analyze, and respond to environmental changes. Each process mentioned above has been related to the managerial approach, posture of strategy, and performance.

Table 9 The reactive-Defensive-Accommodative-Proactive (RDAP) scale (Clarkson, 1995, p. 109)

Rating	*Managerial approach*	*Posture of strategy*	*Performance*
Reactive	Fight all the way	Deny responsibility	Doing less than required
Defensive	Do only what is required	Admit responsibility for fighting it	Doing the least that is required
Accommodative	Be progressive	Accept responsibility	Doing all that is required
Proactive	Lead the industry	Anticipate responsibility	Doing more than is required

Each action for corporate social responsibility can be discussed with stakeholders and adapted to meet their demands and reach corporate social performance. Several models have been developed with either linear or circle chains. The latest shows an inverted U-shaped relationship between the two concepts.

The ethical model denies performance outcomes of corporate social responsibility and pushed economic returns into the background. The central assessment is made on moral, social, and ethical responsibility. Nevertheless, economic viability is a central element to make the firm apply social responsibility (Kanji & Agrawal, 2016). The stakeholder approach assumes a positive linkage between corporate social responsibility and financial results thanks to better stakeholders' relationships and the creation of a virtuous circle of stakeholders' performance (S. Waddock & Graves, 1997).

In this doctoral thesis, we the 3C-SR model developed by John Meehan, Karon Meehan, and Adam Richards (2006). The model is a tri-partite orientation highlighting the complexity of reaching an effective organization, called corporate citizenship (CC).

Figure 4 The 3C-SR model
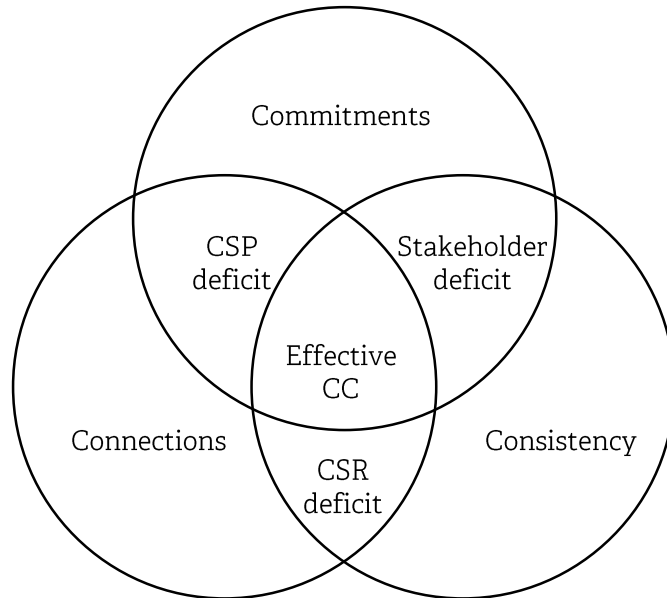
These three dimensions correspond to ethical and social commitment, connections with partners in the value network, and consistency of behavior over time to build trust.

Table 10 Definition of 3C-SR model dimensions

Dimension	Definition	Examples
Commitment	Represent the values element of social resources (ethical standards and social objectives).	Labels and certifications (societal validity), code of business practices (low legitimacy)
Connections	Structures of roles and relationships among the constellation of the actors.	Stakeholders approach, credibility of the network, SA800 standards
Consistency	Refers to the behavioral element of social resources over time and across all facets of an organization's operation.	Long-term consistency and credibility of the value network, coherence in the firm

In the management literature, the term <u>commitment</u> has been mostly studied from a customer perception (Haanpää, 2007; Maher & Zohra, 2017) and organizational commitment from an employee perception (Farooq et al., 2014; Turker, 2008). In this specific case, we are referring to economic actors' commitment to corporate social responsibility, and more specifically the commitment that is signaled in the market. As Carroll (1979) mentioned in the definition of corporate social responsibility, the firms develop activities that follow several ethical rules that the public expect. The concept of 3C-SR refers to the commitment of the firms to the social benefits, including universal rights, sustainable development, common goods and stakeholders (Wilburn & Wilburn, 2014).

The dimension of connection highlights that the corporate social responsibility includes a focus on stakeholders. They are *"not just recipients of a company's activities [...], but the stakeholders must be partners in the development of companies' plans, and this requires that understanding stakeholders' values are necessarily and explicitly a part of doing business."* (Wilburn & Wilburn, 2014, p. 6). The partnership should be based on fairness and a dialog to understand the needs and commitments of members. The choice of the stakeholders would results in a mutual agreement concerning the economic, social and environmental improvement.

The consistency dimension states that the multiple source or signals about social involvement should be consistent to have a positive influence on attitudes and behavior (Roeck et al., 2016). The consistency plays an important role in the evaluation of the product (or firm) quality and value (Yang, 2012). Consistency in terms of signals and over time interfere in the quality evaluation process.

This model aims to transform social value into competitive advantages. *"This positive corporate image translates into enhanced sales revenue as more and more aware consumers favor the organization with their expenditures."* (Meehan et al., 2006, p. 396). A weakness in one of these three dimensions may lead to a market failure. This model is a guideline to evaluate several approaches of corporate social responsibility, from the choice to the stakeholders, the signals sent about the commitment and the consistency along a period.

2.5 Profit and CSR

Corporate social responsibility is mainly assessed with financial results. Most of the advantages outcomes listed by Davis (1973) are linked to profit, or intermediate outcomes such as public image, sociocultural norms, stakeholder relationship, and viability of the business that contribute to long-run interests and profit. Moreover, corporate social responsibility is a precautionary principle to avoid costly mandatory regulation or costly social issues. The arguments against corporate social responsibility are mostly related to profit, but also related to the concept of responsibility itself, such as its scope, the required resources, and the thorny aspect of social positioning for profitable companies.

Management literature focuses on the relation between corporate social responsibility actions and firm performance. In this paragraph, we focus on the relations between corporate social responsibility and marketing (1) and finance (2).

2.5.1 Corporate social responsibility and marketing

Marketing scholars discuss the corporate social responsibility in the sixties, more specifically the societal marketing in response to the spread of consumerism. Societal marketing mixes traditional marketing and social expectations to meet the long-term needs of consumers (health, environment…). Kotler considers consumerism as inevitable and creates business opportunities (Kotler, 1972). The new consumer's needs and desires create an opportunity to adapt and create new products. The diversity of the market generates new market shares and extra benefits. Kotler (1972, p. 56) presents a classification of products according to the immediate satisfaction and the long-run consumer welfare that bring the purchase. The product reformulation is a way to face the societal concerns and to create products' diversification and markets.

Table 11 Classification of new product opportunities

		Immediate satisfaction	
		Low	**High**
Long run consumer welfare	**High**	Salutary products	Desirable products
	Low	Deficient products	Pleasing products

A second way to face consumerism is to adopt a concern-for-the-consumer attitude. Consumer orientation improves the brand image and by extension profits. The societal marketing refers to customer orientation, intending to generate satisfaction, and long-run welfare (El-Ansary, 1974). The social marketing is different from societal marketing. Social marketing is *"the design, implementation, and control of programs calculated to influence the acceptability of social ideas and involving considerations of product planning, pricing, communications, distribution, and marketing research"* (Kotler & Zaltman, 1971, p. 10). Nevertheless, the implementation of social concern through moral do not contribute to ethical marketing. Ethical marketing must be responsible towards stakeholders. The literature of marketing and corporate social responsibility is very dense, dealing with cause-related marketing, environmental marketing, consumers' responses, but also marketing managers' decision processes and ethical responsibilities. Maignan and Ferell (2004) invite marketing researchers to expand the scope of their studies toward various stakeholders, and not only customers and channel members.

Marketing literature investigates how social and societal concerns of firms marketing is related to profits thanks to the intermediaries of internal and external stakeholders.

The role of marketing in stakeholders relationships

From a marketing perception, corporate social responsibility should generate a positive experience for stakeholders with customized and idiosyncratic programs. Relationship marketing is closely related to the stakeholder theory. Quoted by Maignan and al (2005) and adapted by Hinson and Kodua (2012), a model implement corporate social responsibility in marketing. The first stage consists of the identification of the norms and values of the firm that are likely to have implications in corporate social responsibility. The identification of the stakeholders and their issues, values, and norms are the following key step.

> *"Organizations that embrace a stakeholder orientation need to generate intelligence identifying stakeholders and understanding their needs. Identifying corporate social responsibility issues and problems is the first step in determining the stakeholder groups that have an interest in organizational participation and solutions." (Maignan et al., 2005, p. 968)*

The author suggested that surveys are a key input for decisions in marketing to make a list of all stakeholders, and a good estimate of their power, legitimacy, and urgency (Mitchell et al., 1997).

> *"Conditions for collaboration exist when problems are so complex that multiple stakeholders are required to resolve the issue and the weaknesses of adversarial approaches are understood"* (Maignan et al., 2005, p. 969)

The fourth step is dedicated to the establishment of partnerships with specific stakeholders to enables the promotion of specific focus points, the contribution to brand image and lead to financial success. In a fifth step, companies evaluate their practices before implementing real corporate social responsibility initiatives. The improvement of business practice requires efficient communication with the stakeholders to get relevant feedback and create a virtuous circle for social and business performance.

Every agreement, collaboration, or even confrontation with a stakeholder can generate a new marketing implication. Stakeholders together set up the application and the parameters of corporate social responsibility. A universal definition is no longer necessary as it is formed by the actors and change along with society, making the concept polymorphic (Isa, 2012).

Commitment and trust are cornerstones of relationship marketing and stakeholders. Relationship marketing is defined as *"all marketing activities directed toward establishing, developing, and maintaining successful relational exchanges."* (R. M. Morgan & Hunt, 1994, p. 22). According to the authors, these two dimensions favorize the cooperation between partners in a long-term relationship and reduce the risk of acting opportunistically.
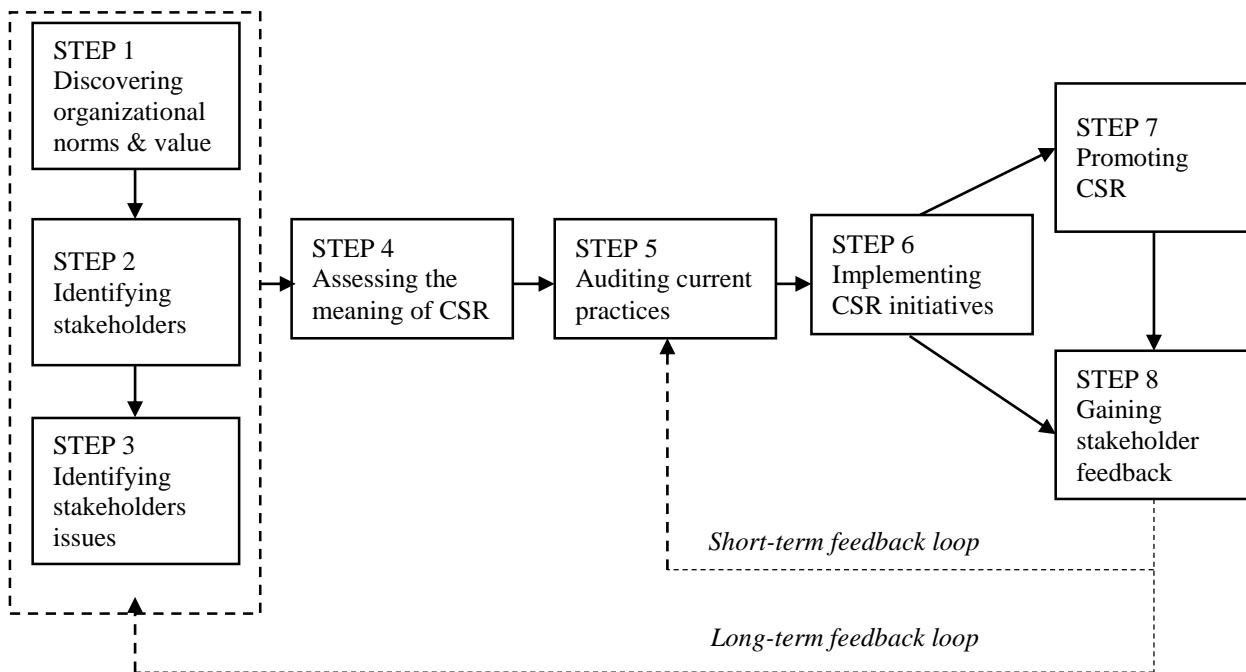
Qualitative relationships with partners lead to the performance of the network. They develop opportunities and make the market clearer and more transparent. The firm must establish good relationships with the actors that may be the most beneficial for the company in terms of image, negotiation, cost, and benefits. The marketing can enhance and highlight certain types of partnerships and relationships, as highlighted above in the model of corporate social responsibility.

The predominant theoretical paradigm in corporate social responsibility marketing is the stakeholder approach. However, this theory is closely related, non-exhaustively, to the institutional theory, resource-based view, resource-dependence-theory, legitimacy theory, and information theory (Eteokleous et al., 2016). The firms have numerous tasks at hand to make corporate social responsibility a success, such as cooperating with the best stakeholders, delivering the appropriate message, managing the brand image, finding the most adapted distribution channels, and sustaining the consumers' awareness.

The product is a physical medium that can be communication support and deliver messages social responsibility implication including labor practices, social welfare, animal rights, or environmental concerns. Besides, the distribution channel can strengthen corporate social responsibility implications with their own signals. The research on the distribution channels highlighted the importance of sustainability in the global value chain and the competitiveness on the market. The higher cost of these practices requires specific strategies, including a market

segment that can support and absorb socially responsible products. The contrast between the conventional global value chain and the sustainable global value chain lies in three concepts (Cruz & Boehe, 2008) that mentor relationship marketing.

Table 12 Distinctive features of sustainable global value chains (Cruz & Boehe, 2008, p. 1203)

Concept	Conventional commodity global value	Sustainable global value chain
Bargaining power	Quasi-hierarchical chain governance (power asymmetry) Global buyers set parameters that make other chain components (local producers) work according to these parameters	Network-type chain governance Certification agency sets and enforces parameters and thus creates power symmetry between global buyers and local producers
Differentiation strategy	Differentiation is rare in commodity business; if there is differentiation, then global buyers and retailers craft differentiation strategies through their marketing, branding, and packaging strategies	Customer needs to be familiar with the certification and believe in its integrity All chain components actively contribute to the differentiation
Awareness building	Awareness building regarding common goals, ethics, or moral standards are not necessary. In the absence of awareness building, relationships between chain players tend to be governed by global buyers' power	Awareness building addresses social and environmental issues. Each player is responsible for sustainable awareness building in the entire global value chain

Marketing is a managerial asset to implement efficiently corporate social responsibility actions. Customers are a peculiar stakeholder for marketers and numerous academic articles focus on this specific stakeholder. The marketing literature suggests that the value created for consumers is the first step to enhance the firm value, first from a consumer's perception but later from a financial approach.

<u>The creation of value for consumers</u>

In the literature, the role of corporate social responsibility on firm performance is found either positive, negative, or neutral. These impacts are either environmental, social, and economic. Also, negative impacts can have a societal or cultural dimension. The consumers' perception of these negative impacts has two characteristics. First, the assessment of the sustainability of a product depends on personal criteria. The attitude towards ethics varies between cultures and sub-cultures, and socio-demographic characteristics must be evaluated. Second, they change over time if the moral evaluation, including deontological and teleological judgment, changes among a population. The valence of a moral assessment of product criteria can change following the psychological and sociological changes.

Corporate social responsibility is considered as a latent variable as it depends on several attributes hardly observable and measurable (Jitmaneeroj, 2018). Related actions are beneficial for the company if the consumers perceive them as altruistic and beneficial for society (Ellen et al., 2006). The firms can enhance this perception with the use cause-related marketing (CRM), defined as *"the process of formulating and implementing marketing activities that are characterized by contributing a specific amount to a designated non-profit effort that, in turn, causes customers to engage in revenue-providing exchanges"* (Brønn & Vrioni, 2001, p. 214). The literature states that if price and quality are equivalent, the consumers are more likely to choose the product with cause-related marketing benefits. Social investment is perceived as a competitive advantage that can increase the market shares of the firm. Cause-related marketing in campaign message influences the attitude of the consumers, and the understanding of the contribution of the firm to worthy causes promotes positive changes (Grau & Folse, 2007). It also enhances the reputation and influences other economic actors. Nevertheless, the results of studies about the effects of cause-related marketing are heterogeneous, some relationships have been established. Cause-related marketing has a positive influence on consumers' perception of the product (Green & Peloza, 2011), willingness-to-pay (Magistris et al., 2015), and their purchase intention (Mohr & Webb, 2005).

> *" […] when consumers are given information that they trust about a company's level of social responsibility, it affects how they evaluate the company and their purchase intentions. Furthermore, a low price did not appear to compensate for a low level of social responsibility."(Mohr & Webb, 2005, p. 142)*

The information is important, and the marketing role is to deliver the right message at the right moment. In that sense, the marketing of CSR is important because it generates value for consumers.

> *"Emotional and social values appear to be somewhat "expendable" with consumers in a context of economic uncertainty, while corporate social responsibility that provides functional value can become an even more salient criterion for decision making." (Green & Peloza, 2011, p. 52)*

Figure 6. A consumption value model of CSR effectiveness (Green & Peloza, 2011, p. 52)
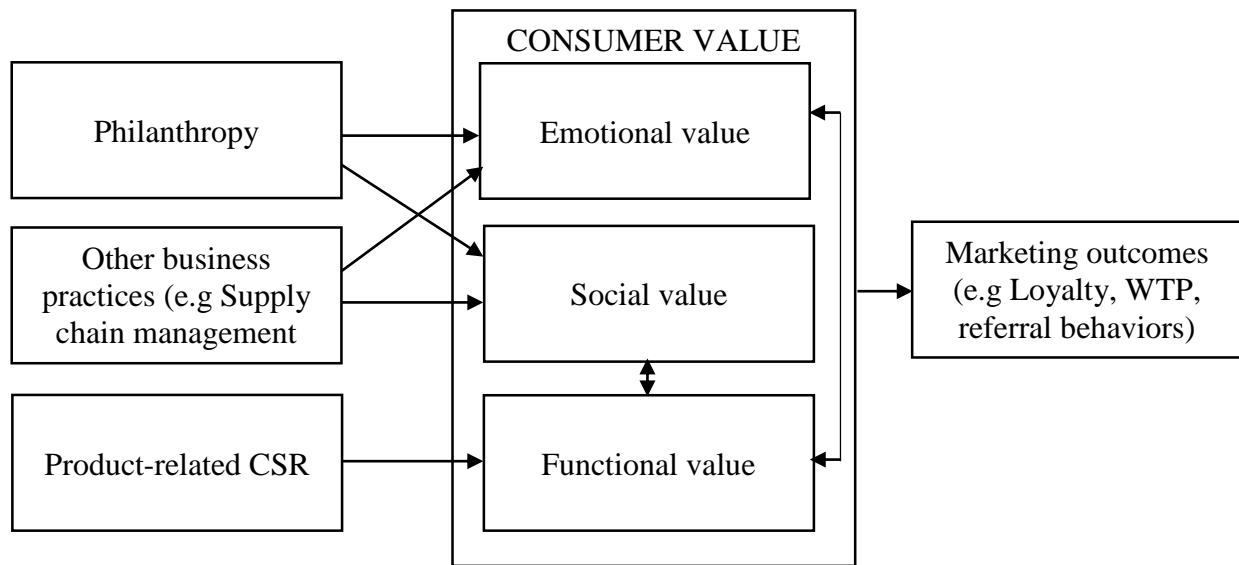
We should not omit the studies that found no significant or unclear relationships between corporate social responsibility and consumer response (Boulstridge & Carrigan, 2000). The positive impacts depend on how correctly the company developed and communicate about social responsibility policy to stakeholders (Pivato et al., 2008). Stakeholders might be willing to reward ethical actions by paying a price premium (Auger et al., 2008). This price premium would be directly related to the revenue incomes of the company and is a lever to positive financial results. The willingness-to-pay is a largely studied variable that is central in value creation, especially in terms of market value. The price and the purchased quantity are two indicators that are obvious in the linkage between marketing and financial outcomes. They are perceived as the self-evident joints on the market that make a linkage between the two scientific disciplines. The creation of value for consumers may generate financial value (Eteokleous et al., 2016). These variables will be developed and discussed in the next chapter as a measurement instrument for performance.

2.5.2 CSR and corporate financial results

As previously exposed, marketing establishes, maintains, and promotes corporate social responsibility. The investment in corporate social responsibility programs, relationship marketing, and cause-related marketing is made with the hope for corporate financial results. The research on corporate social responsibility and corporate social performance relations are notwithstanding heterogeneous and not convincing (Margolis & Walsh, 2003). A large number of marketing factors may be mediating the relationship, such as consumer satisfaction, brand

image, reputation, or marketing capability, customer loyalty, and willingness-to-pay (Peloza & Shang, 2011; Yim et al., 2019). Cause-related marketing might be first perceived as a financial burden as it implies investment and therefore risks, but the marketing competence in CSR (Bai & Chang, 2015). Marketers might see the changes in society as the opportunity to develop new markets, and financiers perceive the same social changes as pressure. All research in marketing expects that market results turn into financial results. We express below the list the expected financial results and the indicators to assess corporate social responsibility as financial outcomes.

<u>Corporate social performance and financial results</u>

Research on the relation between corporate social responsibility and firm financial performance generated mixed evidence. The most quoted reason for this uncertainty and heterogeneity is the measurement problem. Despite the difficulty of assessment, corporate social responsibility has been first measured with the satisfaction and the profit of shareholders (Murray & Vogel, 1997) before academic research enlarges the scope of corporate social responsibility to other stakeholder groups. Corporate social performance is often perceived as the mediating factor between corporate social responsibility implementation and financial performance. Financial performance can be assessed in many different ways, and the indicators vary in studies. The choice of indicator may be relevant and accessible.

The measurement of *the firm value* has been largely used in the literature. The firm value is empowered by good stakeholder relationships (Peloza & Shang, 2011). All corporate social responsibility actions do not contribute to firm value. For example, environmental performance is less correlated to firm value than charity. Nevertheless, even if weighted unequally, all corporate social responsibility activities such as social, environmental, and corporate governance performance should be included in firm valuation because their underestimation may lead to mistakes in-stock selections (Jitmaneeroj, 2018). The influence of corporate social responsibility on the *cost of equity* has also been investigated. The cost of equity is *"the internal rate of return (or discount rate) that the market applies to a firm's future cash flows to determine its current market value. In other words, it is the required rate of return given the market's perception of a firm's riskiness."* (El Ghoul et al., 2011, p. 2389).

A firm highly implicated in corporate social responsibility should have a lower cost of equity capital than other firms. Another study found that this relationship works only if combined with the protection of shareholders against expropriation by insiders (Breuer et al., 2018). Also, low

corporate social responsibility firms show a reduced investor base and higher perceived risk on the market. The corporate social responsibility activities lead to an improvement of the firm value by lowering financing costs and increasing the value of the firm (El Ghoul et al., 2011).

Brand-equity is also improved by high corporate social performance. It is a stakeholder resource of corporate social responsibility outcomes. *"The findings that corporate social performance contributes positively to brand equity suggest that by investing in corporate social responsibility, managers not only can improve a brand image but also can successfully achieve competitive differentiation and reap tangible returns in the form of brand equity."* (Deanna Wang, 2010, p. 341). Also, in terms of indicators, the *ROA* and the *stock market returns* are negatively affected by a decrease in corporate social responsibility (McGuire et al., 1988). The measure of financial performance and the relevance of the different indicators will be developed in the next chapter.

<u>Corporate social responsibility and stakeholders influence on corporate financial results</u>

A firm with low social responsibility encourages its stakeholders to doubt the ability to meet the demand and may affect negatively the reputation of a firm. Moreover, it exposes the firms to additional risk from lawsuits and fines, influence the firms' strategy and affect the behavior of the managers and the other persons interested in the financial results (McGuire et al., 1988). Corporate social responsibility implementation contributes positively to risk management and the maintenance of good relationships, and by extension to long-term profitability (Heal, 2005). On the other hand, better collaboration with stakeholders could increase the bargaining power of certain actors, such as channel members. In case of productivity shocks, the firms must either reduce their corporate social responsibility goals and decrease the well-being of stakeholders (e.g. firing workers, limiting their benefits, reducing donations to local communities, the quality of environmental rules…) or change their target earnings and hurt financial performance.

Corporate social responsibility implies a reduction of flexibility in responding to productive shocks, and lead to a lower risk of conflicts with the stakeholders and decrease the predictability of earnings (Becchetti et al., 2015). The corporate social responsibility implies a new resource-allocation to adapt the firm to stakeholders, and flexibility in case of market-failure or market changes. The pursue of corporate social responsibility implementation proceeds together with the maximization of the short-term financial performance of the organization as it destroys value (Jensen, 2002).

3. The quality signs in corporate social responsibility practices

The industrialization of food production and distribution increased the complexity of the food chain. Several stakeholders asked for improvement in the chain such as wage and work conditions, animal welfare, sustainable resources use (overfishing, water use), health security (antibiotics, pesticides), etc. The food industry is exposed to numerous criticisms and corporate social responsibility is used as a response to consumers, non-governmental organizations, and governmental authorities' expectations. Corporate social responsibility is a staple in the agri-food sector with specificities and specific challenges (1). The quality signs present several dimensions of this CSR (2) and are a highly common tool to inform and communicate on the market (3).

3.1 The corporate social responsibility in the food sector

The consumers' preferences changed over intangible factors, from a hedonistic quality to moral and ethical quality. Corporate social responsibility in the food sector is presented as a summation of height dimensions perceived as interrelated from a consumer perception.

Figure 7. Dimensions in CSR food supply chain (Maloni & Brown, 2006, p. 38)
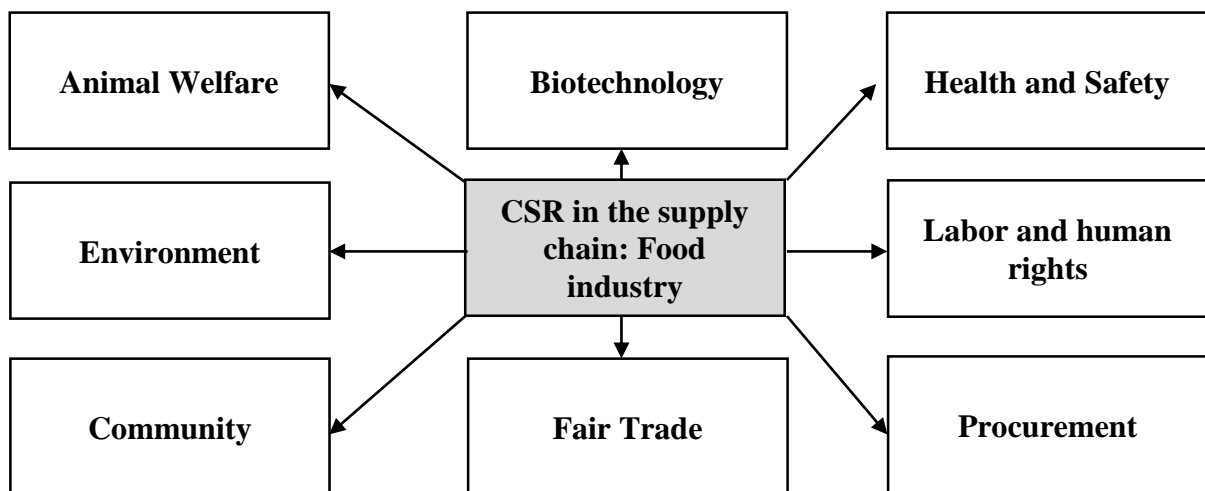
For example, animal welfare is often associated with health and food security. Every dimension presents advantages and limits.

The firms must benefit from the advantages and avoid the limits with operational solutions. The goal of corporate social responsibility initiatives is to add value for consumers. It appears that the firms may be affected if they do not implement corporate social responsibility actions. The small and medium companies should be proactive to compete, and they must show strong social and environmental aspects and coherence with stakeholders (Hartmann, 2011).

Table 13. Advantages and limits of CSR dimensions in the supply chain (Maloni & Brown, 2006)

Term	Definition	Advantages	Limits
Animal welfare	Guided by the premise that animals should not endure unnecessary suffering, animal welfare includes humane approaches to handling, housing, transport, and slaughter.	For consumers, it is related to food security and health. It responds to NGOs' expectations.	Difficulties for consumers to evaluate animal welfare and to make a relation with the living animal and meat consumption.
Biotechnology	The "use of biological processes to make useful products" (Gosling, 1996), including DNA, GMO, cloning, etc.	It can increase production, improve animal health, and lower the costs.	Consumers remain apprehensive and perceive biotechnology as risky and can boycott brands.
Community	A broad set of activities that provide support for the local community (educational support, job training, health care...)	Philanthropy activities can improve the brand image with cause-related marketing.	The community does not appear to be a major element of supply chain CSR.
Environment	Caring about the environmental issues (use of chemicals, water and soil damages, forest destruction...)	The consumers' concerns led to the growth of the organic market.	Logistic challenges, improve the cost of production, and decrease yield maximization.
Fair Trade	Food retailers should support prices to the suppliers that allow these suppliers to not only avoid poverty but also sustain business longevity.	Fairtrade labeling is gaining momentum and is a tool to respond to NGOs' requests. It also may help alleviate public criticism of financial fairness with suppliers	There are several barriers to fair trade product penetration in grocery sales (promotion, unawareness of consumers, cost,...). Fairtrade may not be profitable.
Health and Safety	Concerns about human and animal disease, nutritional value,	Traceability helps with control and information delivery.	Require coordination with stakeholders in the supply chain,
Labor and Human Rights	Concerns labor conditions in the supply chain such as dangerousness, low wages, precarity...	Social and ethical improvement.	Wage increases do not have much impact on price in the apparel industry but also advised that even if the price is raised, supplier labor may not benefit.
Procurement	Transgression and impropriety in the procurement process (favoritism, bribery, gifts, obscure contract terms, and rebidding past deadline,...).	Fairness and transparency with stakeholders.	The operationalization is complex in practice.

3.2 The characteristic of quality signs

Withing the literature questioning the social well-being benefits, Gray and al (1995) identified two main approaches in accounting activities, where corporate social responsibility is either an addendum to the main activity or the heart of the firm. Davis (1973, p. 321) wrote: *"The question is: shall business assume a much more significant role, or shall it not?"*. The quality signs are numerous and they do not respond to the same criteria. They have been segmented

into categories, such as certification, labels, or mark (1). Quality signs are mostly based on a joint and voluntary approach coming from producers or a group of producers (2). Strict production conditions can be approved by the State, and regularly checked by independent bodies approved by the State (3). These characteristics are used together in order to generate positive outcomes on the market (4).

3.2.1 The diversity of quality signs

For decades, the social, environmental, and health security signs bloomed on the agri-food market. The eco-label index[5] catalogs 464 ecolabels, spread on 199 countries within 25 industry sectors. The website does not have an exhaustive list, so the real number of ecolabels worldwide must be even higher. But among what is called on the website "ecolabel", some are private certifications, and others are official quality signs that we call in this thesis "labels". The large majority of these labels are made for food production. Their success depends on the value they create for consumers and how they influence their behavior.

The *certification* may be defined as *"a process whereby an unobservable quality level of a product is made known to the consumer through some labeling system, usually issued by a third independent party."* (Auriol & Schilizzi, 2015b, p. 106). The Larousse dictionary defines the term *label* as *"a label or special brand created by a professional union and affixed on a product for sales, to certify the origin, to guarantee the quality and the conformity with specifications."*[6] The public law of the United States defines *mark*s as *"used upon or in connection with the products or services of one or more persons other than the owner of the mark to certify regional or other origins, material, mode of manufacture, quality, accuracy, or other that the work or labor of the goods or services was performed by members of a union or other organization"* *(Taylor, 1958)*.

The *quality signs* are named *collective brand* by the national institute for intellectual property[7] (INPI). It is defined as *"a sign that guarantees a specific quality to consumers. It aims to be used by independent persons. It respects a settlement of use that has been established by the collective brand owner, which is provided at the creation of the brand"*[8]. This definition does

---

[5] Ecolabelindex.com

[6] Definition from the online Larousse dictionary - http://www.larousse.fr/dictionnaires/francais/label/45761 - view 26.03.2018

[7] https://www.inpi.fr/fr

[8] https://www.inpi.fr/fr/comprendre-la-propriete-intellectuelle/la-marque/les-cas-particuliers-de-la

not explicitly mention the control of the quality in the chain. To clarify the terms, the national institute for intellectual property distinguished two different collective brands: the simple collective brand, as defined above, and the certification collective brand. The *certification collective brand* implies the mandatory control from an impartial third-party, that ensure the compliance with certifications' specifications. Then, *official quality-signs* are certification collective brands. They are defined as *"a sign for the identification of a set of quality criteria corresponding to a specification brief and controlled by an independent organization that has been approved by the public authorities"* (Larceneux, 2003, p. 35). In the case of official labels, a design brief gives a list of technical criteria, and the conformance of farmers or firms to these specifications ensure the quality. There are three official signs to indicate the origins or the traditional recipes for agri-food products, and two signs to ensure a superior credence quality is not related to origins. The organic label is a guarantee of respect for the environment, and the Label Rouge is a guarantee of superior technical quality. If the firms respect the chart of one (or several) official quality signs, they gain the right to use the related logo. The logo is affixed to the packaging or to the accompanying document to inform the consumers and deliver a homogeneous message to the market, national or European. Public policies are often requested to influence the organic food sector. Policies are perceived as support to justify price differences, and a great influence on stakeholders for a corporate social responsibility implementation, to improve the sustainability challenge (Aschemann-Witzel & Zielke, 2017).

3.2.2 A joint and voluntary approach

Food security policy is a matter of public health. Public authorities developed official quality signs to identify the quality and the origin of the products and respond to social expectations. The official quality signs are based on the principle of the joint and voluntary approach, following the liberal corporate social responsibility. It is made to meet social expectations without constraining the business actors and affecting their economic growth. They support the advantages of social responsibility and avoid the disadvantages that are perceived by the liberal economy. This perception of optional constraints for corporate social responsibility empowers firms' decisions above state regulations and satisfies the independence of business and liberty of action.

The official quality signs answer the double constraints of firms by meeting social and environmental requirements and aiming for an economical enhancement. The institutionalization of environmental and social norms combine economical rationality with

environmental and social considerations (Griethuysen, 2009). Official quality signs respond to the external pressure of the firms. An important area of study is the role of new institutions and government/policy interventions of price spreads and marketing margins creation (Wohlgenant, 2001).

3.2.3 Strict production and regular checks by independent bodies approved by the State

Official quality signs are an integral part of the process to respond to social demand (Davis, 1973). They emerge from the executive to respond to new stakes and aim to modify the behavior on the market by changing the perception of performance (including environmental and social performance). Then, these regulations become resources for companies to inform the stakeholders about their practices and they modify procedures and strategies to implement the new market expectations. The official quality signs are signaling an environmental or social performance that is not perceived on the market.

Official quality signs is a peculiar source of information for the consumers because it is free, available directly at the point-of-purchase and is easy to analyze thanks to the notoriety (Larceneux, 2003).

It is also contenting the necessity of "trust" into a label, with a legal and controlling third party (authorized agency for food label delivering) (Hartmann, 2011). The official quality signs are controlled by an assumed disinterested third party. This is the sine qua non condition for credible information about the social responsibility of companies (Green & Peloza, 2011). The global objective goal is to secure and facilitate the transactions between the buyer and the seller.

The trust into official quality signs is related to the trust in the public authority. The issuing authority for those quality sign is an important actor. The official quality signs are collective trademarks with public goods characteristics, as they signal the positive externalities promoted by the European communities or national collectivity, they are non-exclusive and have a non-rivalrous character (Sylvander et al., 2007). These characteristics must be associated with the legitimacy of public policies and the credibility of the certification system contribute to the notoriety and the public image of official quality signs.

3.2.4 The expected results

Official quality signs respond to socio-cultural norms and public expectations. The globalization and the industrializing production, along with the unique objective of making a profit, generated practices that have been described as unacceptable by some communities

(Bouslah et al., 2013). The environmental and social concerns of consumers guide new challenge for firms that can be faced with official quality signs, in recognition of new matters and the pursuit of multiple goals rather than just profit (Davis, 1973).

Official quality signs signals long-run welfare, either for consumer welfare (organic label for health) or social welfare (organic label for the environment or Label Rouge for the social welfare). Official quality signs help to reach the objectives of public health or ecological goals (Larceneux et al., 2012). The perception of the official quality signs by consumers changes the expectation of immediate satisfaction through consumer believes. For example, Label Rouge products are perceived as tastier and become desirable products. A better perception of the product is an advantage for business and a tool for long-run self-interest. Official quality signs contribute to the stakeholders' interests, support the marketing relationship with partners, and enhance the viability of the business. The expected consequence of the use of official quality signs are financial results and a strengthened business.

3.3 The quality signs in the relationship marketing

The quality sign changes the stakeholders' relationships in several ways by delivering information. The additional message in the market brings about more transparency concerning the firm's organization and/or production process. Transparency is a good asset to trust in relationships and generate a better relationship. Moreover, the increase in clients' demand due to the growth of sustainable products empower the bargaining power of certified suppliers. A balanced negotiation depends on the bargaining power of both parties. The rate of return obtained by the suppliers decreases when the bargaining power of the buyer increases (Ailawadi et al., 1995). The sustainable value chain empowers the actors along the value chain, end divide profits along the chain, creating power symmetry between parties (Cruz & Boehe, 2008). In a sustainable global chain, all the actors along the chain contribute to product differentiation and enhance the perception of the certifications. The coherence in corporate social responsibility practices empowers the credibility of certifications. The quality sign alone is not systematically powerful but gains effectiveness with the use of homogeneous stakeholder orientation. We believe that the certification in keeping with the chain and the responsibility of sustainability enhance the awareness building and promote together values, morals, and ethics (Cruz & Boehe, 2008). Official quality signs support relationship marketing and respond to the issue of information asymmetry that can jeopardize the market, especially in the agri-food industry. Nevertheless, non- or less-processed products are not favorable to differentiation. We question the use of official quality signs for these markets.

Conclusion of section 1

Definitions and applications of corporate social responsibility evolved over the centuries and became a hot topic with the liberalization of trade and industrialization. The scope of corporate social responsibility has been largely discussed and there is no consensus concerning the limits of the responsibility. Corporate social responsibility is nowadays implemented in the liberal economy with a voluntary approach. It is an optional opportunity for firms. In this context, firms perceive corporate social responsibility either as uniquely economical or as a fully-fledged social and environmental actor. In the latest case, firms have a responsibility toward direct stakeholders (employees, customers, suppliers…) and indirect stakeholders (society, associations…). They must develop a good relationship and collaborate to improve social and environmental performance. On the contrary to the liberal perception of business with the unique consideration of shareholders' and firm value, corporate social responsibility changes relationships and rebalances the bargaining power among stakeholders. Marketing plays a role in corporate social responsibility implementation by managing stakeholders' relationships and the objective of value creation with direct stakeholders (with a focus on consumers) and indirect stakeholders (relationship and communication). Financial results are expected from marketing actions and strategies.

A high social responsibility is more likely to meet the demand, and affect the reputation of a firm, but the assessment of social performance is tricky. The corporate social performance can be assessed with several methods. We retain the 3C-SR method because it combines three aspects of the responsibility of the firm: the degree of commitment in social responsibility, the coherence in the choice of partnership, and the consistency along time in terms of decision making. Altogether, these aspects give a global consistency to the message sent on the market and influence the performance. The firm must use its resources correctly to reach non-financial goals and respond to social expectations. The use of quality signs is implemented to achieve and show the responsible actions of the firms. They deliver information in the market to increase social and environmental value. Quality signs send messages in the market to increase transparency and improve relationship marketing. Signaling corporate social responsibility actions is essential to give stakeholders the capacity to assess the degree of firm social performance. Signaling responsible actions is highly important in agri-food markets because the liberal economy drags agriculture in industrial practices. Social, environmental and health security concerns emerged from part of consumers who asked for more transparency and moral obligations into the food sector.

Section 2. Information and corporate social responsibility

Economic academicians agree that information is a valuable resource (Stigler, 1961). Plenty of information is directly available at purchase, such as prices, quality, and products' features, but it is common to find an informational gap between the seller and the buyer on the market (Spence, 1974). Each economic actor has a certain amount of information, and information on the market modifies the behavior of economic actors (Urbany, 1986). The lack of information can be risky, and knowledge is a strength (Greenwald & Stiglitz, 1990), and may threaten the CSR implementation.

This section explains the necessity of labeling the products, especially in the agri-food sector. To understand the use of labels on the markets, it is firstly important to examine existing theories (1), and more specifically the informational asymmetry theory which highlights the constraints that may arise on the market, and the signaling theory which offers a solution to curb the lack of information. Quality is a large and important concept for stakeholders (2). Creating good relationships with stakeholders depend on the similitude between expected quality and experienced or technical quality. The specificity of the agri-food sector and the quality signs are exposed to give a better overview of the challenge faced by agri-food industries.

1. Addressing information asymmetry

The role of information on the market has been largely studied by academicians, especially economics. Information asymmetry has been observed on the market since the origin of trade and is discussed from a moral perception (1). The market must support the risks of defects. Economists theorized the information in the market and identified the related economical risks (2). Sending signals in the market about the product quality appears as a solution for more transparency, trust, and partnerships (3). Nevertheless, we call into question the systematic advantage of more information in the market and discuss potential negative outcomes (4).

1.1 Information and quality

According to theologists, Saint Thomas d'Aquin started to discuss the quality as a key term of trade with a moral perception. The author base the trade on reciprocity and fair price, and consider that price must reflect the intrinsic value of a product. If the price is superior to the value, it is unfair and illegal. The assessment of product value is made with information about the product. Any default concerning the product quality must be expressed. Saint Thoms

d'Aquin identified three types of fraud that affect the product quality: a process that affects the quality, distortion of quantity measurement, and an over-estimation of the real product quality (Lupton, 2009; A. E. Monroe, 2014, p. 56,57).

The defaults which can be noticed by the consumers are not the responsibility of the seller. But if the information about the default is hidden, the seller must indicate the product's defects. Nevertheless, it is undeniable that the claim of a defect at least decrease the value, and can block the sale. Until the twentieth century, the asymmetry of information concerning product quality is discussed as a fraud in the business. Nevertheless, this perception denies the complexity of evaluating value. This complexity leads to a risk for both clients and sellers. In the twentieth century, the economists approach the theory of information from another angle and consider that the market can also hide a superior quality.

1.2 The information economics

During a transaction, information economics assumes that each party has information. Some pieces of information are shared and well-known, and others are exclusives. The disparity of information influences the terms of the transaction and reveals an asymmetry. This asymmetry appears in several marketplaces between various dyads, such as the employer and the employee, the insurance and the policyholder, and on the goods and services market between the seller and the buyer (Kirmani & Rao, 2000). This informational issue concerning the uncertainty about the quality of a good or service interested the economists from the seventies. Most of the assumption is based on the fact that consumers know less than buyers about the product and the firm (Spence, 1974). Indeed, consumers may suffer from information scarcity about the product. Moreover, the complexity of the product increases the information failure and exacerbate the difficulty of comparing products. The consumer can be considered as the actor with the least information because the seller knows its products and selects the information given (Akdeniz et al., 2014).

The transactions on the market depend on the available information for both consumers and sellers. It affects the behavior of the actors, and it can even lead to the cessation of transactions (Akerlof, 1970; Starbird, 2005). The economic theory of imperfect information has been largely explored since the seventies'. Information about the quality is more difficult to obtain and to compare than information about prices (Nelson, 1970). Three concerns emerged from this literature of principal-agent, which is the source of the asymmetry information approach.

- The asymmetry of information can lead to moral hazard. It occurs when the agent has more information than the principal, and that the agent can have an incentive to use this asymmetry, and exploit the other party. It arises when a product has a higher quality compared to competitors, and this superior quality implies extra expenses but the buyer is unable to assess the quality of this product or service (Starbird, 2005).

- The adverse selection depends on information asymmetry and the incapacity of buyers to assess the quality. The producers offering low-quality can disadvantage high-quality producers if the consumers are not able to differentiate the quality before and sometimes after purchase. The producers should be able to give information about the quality. The firms develop or use signals that they sent on the market to indicate specificities about their product (Akerlof, 1970). The principal-agent theory is directly linked to the use of quality signals, through the signaling theory (Milgrom & Roberts, 1986).

- The asymmetric information brings confusion in consumers' minds. The inability to assess and compare the quality of similar products is compensated with signals that deliver information. The signaling theory emerged from the study of the information asymmetry (Spence, 1974).

1.3 The signaling theory

This theory conceptualize information asymmetry and aims to give information to curb the lack of knowledge of consumers (Basoglu & Hess, 2014). It identifies the cost and the benefits emerging from revealing information to the consumers (Milgrom & Roberts, 1986). Signals are *"informational cues sent out by one party to another in order to influence desired outcomes."*(Taj, 2016, p. 339). Consumers are continually making choices among products, and the information disparity makes it even more difficult (Nelson, 1970). This lack of information is compensated by signals that indicate some characteristics, rebalance the information between the parties, and may fulfill the consumers' demand. The signaler helps the receiver developing a different perception of the product, the organization, the brand, or the person, and influence consumer behavior (C. Shapiro, 1983). In economics terms, the quality is part of the demand function and additional information can modify this function (Akerlof, 1970). The signal involved mostly sellers and buyers, but it can reach a large number of stakeholders.

According to Kirmani and Rao (2000, p. 72), four conditions are identified to ensure the success of the quality signal.

- Pre-purchase information sending is a worthwhile action only if the quality is unobservable before purchase.

- Quality signals might have limited effects when it is hardly possible to establish quality after purchase.

- The payoff transparency, which means that the buyers should be able to evaluate the cost of the information.

- The bond vulnerability should be clear for consumers, especially concerning revenue-risky signals which rely on repeat-purchase.

Firms can use various mediums to send information. Brand name and brand equity are quality signals that are a source of information for consumers that indicates the products' attributes (Erdem & Swait, 1998; Rao et al., 1999). The price is another signal on the market (Milgrom & Roberts, 1986) that consumers can expect rationally and successfully as an indicator of quality (Klein & Leffler, 1981) as price should reflect the value of a product. The packaging is considered by Zeithalm (1988) as an intrinsic signal (shape, color…), and information on the packaging (the brand name, price, logo…) is considered as extrinsic signals. Other signals can be gathered by consumers to compile information such as the share of shelf space, the warranty, or the word-of-mouth (Kirmani & Rao, 2000; Milgrom & Roberts, 1986; Tellis & Wernerfelt, 1987). Kirmani and Rao (2000) established a typology which classifies the marketing signals in two main groups: the default-contingent signals and the default-independent signals.

The *default-contingent signals* do not imply systematic expenditure, but can generate a loss if the quality claimed does not meet consumers' expectations. Within this category, the signals are classified into two sub-groups: revenue-risky or cost-risky. The revenue-risky signals compromise future sales, such as a high increase in price for example. The cost-risky signals imply an eventual extra cost for the firm after the sale, such as warranties or money-back guarantees (Boulding & Kirmani, 1993).

The *default-independent signals* involve a systematic expenditure that can be either sale-contingent or sale-dependant. The sale-contingent signal category gathers the short-term sales promotion either by low introductory price, special slotting allowance, or coupons. The private expenditure occurs during the sales transactions and is an immediate revenue loss per product. The sale-independent gathers the signal that requires investment such as advertising, brand name, and reputation. These investments have a fixed monetary loss, and the repeat purchase

is determinant to ensure profitability. Such quality signals are publicly visible but the buyer does not receive direct utility and does not pay less the product.

Two limitations of the signaling theory are addressed by Kirmani and Rao (2000). First, the theory assumes perfect consumers' knowledge concerning firms' cost and payoff. This suggests perfect transparency, whereas even firms do not know exactly their costs. The second limitation is the limit of the signal effect. The signal might be useless if the information is not perceived as worthful. Firms must evaluate the true stakes of the risk before investing in quality signals. In other words, the buyers must know that the expressed quality is lowering a well-known risk, and that quality is costly for the seller.

1.4 All information reduces asymmetry?

The theory considered information on the market as a benefit. Nevertheless, the excess of information can generate negative outcomes. Numerous signals might highlight a lack of efficiency in the information system (Bismuth et al., 2018). Moreover, information must be credible and reliable to generate positive externalities. The quantity of information is less effective than quality information. We suggest that information increases their quality if they are not too numerous and coherent with each other. Related to the 3C-SR approach, a quality signal must be in a socially responsible environment that suits the delivered information. A weakness in ethical and social commitment, connections with partners in the value network, or consistency of behavior will decrease the efficiency of corporate social responsibility action implementation. If the commitment is contradictory or unexistent, the firm risks a narrower profit. A lack of connections decreases operational efficiency, while a weak consistency in the long term would affect the management system and the assurance standards (Meehan et al., 2006).

We also suggest that information can increase the asymmetry in the market by hiding the quality of other actors that are not able to send the proper signal.

2. Information in agribusiness

Food products are directly related to consumers' health, as well as culture, morals, and symbols. The peculiar perceived risks and value of agri-food, either personal or cultural, is the basis of the development of quality signs. Quality information is a stake for food products (1), especially for agribusiness which presents special issues (2). The quality signs have been developed to send a message on the market and face the consumers' lack of information (3).

2.1 The stake of quality

The quality is a multifaceted concept that can be approached from several perspectives to conduct relevant studies. It is necessary to define the concepts of quality and to identify the related risks and opportunities. Quality occurs all along the chain of production, from producers to customers. It states in the heart of the business, and have externalities on customers, firms, and states. A large number of researches in the academic field reflect the importance of quality as *"Firms compete on quality, customers search for quality, and markets are transformed by quality."* (Golder et al., 2012, p. 1). The quality can either concern the product or the firm. For instance, the ISO norms generate several sets of requirements and recommendations about several management aspects of the firms such as environment or quality management. In this thesis, we focus on product quality. The product quality is studied at three stages: production, experience, and evaluation of the offering. These stages help to measure several aspects of product attributes' performance (Golder et al., 2012).

Objective quality depends on specific criteria or components. At a product level, the quality can be tackle according to nature and the features of a good or service and is called objective quality (Zeithaml, 1988). According to Afnor, *"a quality product or service is a product including characteristics which meet the implicit or explicit needs of the consumers"*. This definition confronts the quality against the consumers' evaluation. In marketing, true quality is sometimes considered non-existent because it is directly related to somebody's perception and expectations (Zeithaml, 1988). The marketing literature has largely explored the quality from the perception of the consumers.

The *perceived quality* is defined as *"the consumer's judgment about a product's overall excellence or superiority"* (Zeithaml, 1988). It is essential to distinguish the objective attributes and the consumers' perception of these attributes. The perception gives value to attributes and affects the behavior (Howard, 1977). Consumers' perception is directly linked to the available information (Nelson, 1970). Numerous articles compare it to prior-consumption expectations and post-consumption satisfaction (L. Sirieix & Dubois, 1999). Information about the quality can be collected by several sources and signals, at different stages of the product research. The search quality lies in the information collected by the potential customer before purchase, whereas the quality by experience is verified after the purchase.

Darby and Karni (1973) defined the *credence quality*, which concerns criteria that cannot be ascertained by the consumer, neither before nor after consumption (Darby & Karni, 1973;

Nelson, 1970). Two credence qualities can be distinguished. The consumer-credence gathers all the advantages that have a direct impact on the consumer, such as health attributes. Society-credence is linked to quality such as social-quality, fairness, or environmental quality (Larceneux, 2003). As an illustration, the search quality of an apple corresponds to the color, the variety, and the size. The experience quality would mainly depend on the taste. Finally, the credence quality is linked to the environmental footprint, health, and safety-related to eventually used chemicals and the nutritional composition (Auriol & Schilizzi, 2015a). The credence attribute can be easily checked by the third party such as the nutrition attribute. The third-party might be an institution, a lab, or an audit company. If disinterested, this party may be a source of credible information, and ensure the responsibility of a company (Mohr & Webb, 2005). The role of third-party ties up the necessity of control of corporate social responsibility. Another category of attributes emerged in the literature: the Potemkin attribute. It concerns *"process-oriented qualities, which are hidden for third parties as well as for customers at the end product level"* such as animal welfare or fair trade (Achilleas & Anastasios, 2008, p. 831).

To summarize, product quality can be perceived either in terms of technical quality, experience quality of perceived quality. Golder, Mitra, and Moormon (2012, p. 2) define quality as a *"set of three distinct states of an offering's attributes' relative performance generated while producing, experiencing, and evaluating the offering."*. All the quality types are related. The perceived quality of a product can be associated with its technical attributes but also to the social quality, environmental quality, or nutritional quality for instance. The quality is perceived by the consumers, thanks to information both before and after consumption. The customers compare the attributes performance to their ideal' expectations (Golder et al., 2012, p. 6).

2.2 The special issue of agribusiness

Agribusiness is related to a set of criteria that makes the market very specific. Agri-food is related to several dimensions of the consumers' concerns, such as health risks and cultural habits (1). The risks and economical stakes are threatening society. Agriculture is a central matter for politics. They intervein in the agri-food markets to regulate the economy and diminish the associated risks (2).

2.2.1 Specificities

Food products present heterogeneity of the living matter and a non-durable aspect, in other words, there are perishable. The risk is related to health and food safety. It generates fears for consumers, and sales can be affected (Apfelbaum, 1998). Scandals in the agri-food sector are

serious matters for consumers that may change their behavior and disrupt the market. The sadly familiar scandals are mostly about health, like avian influenza, but the market can also suffer from moral or cultural scandals like the horse meat lasagna scandal.

Several characteristics make the agri-food market fragile and heterogeneous. First, food purchase and consumption are inherently hedonistic. The essential criterion for consumption is taste (Larceneux & Renaudin, 2016). The preferences of consumers are diverse and may change from one consumer to another, and from one culture to another. Personal and societal factors affect the taste. Beyond the appreciation of the flavor, other dimensions are significantly shaping the food market. Sociologists and psychologists discussed the relations of population and food consumption. The psychological dimension as well as the cultural dimension (Philippe Aurier et al., 2012) encompass bodiless values and play a role in social relations. For instance, personal values, trust, identities, and motivations drive the behaviors (Hansen et al., 2018). For the last decades, the agri-food market had to adapt its products to changing moral values and to new considerations from the audience, such as sustainability and animal welfare (Botonaki et al., 2006; B. Clark et al., 2017; Keeling, 2005; Pieniak et al., 2013). Food security is another central concern for consumers. The increase of agri-food products trade offers a wider choice to consumers such as exotic products. But these exchanges developed the need for regulation to curb asymmetry about safety (Curzi & Pacca, 2015) and generated food scandals (Zingg & Siegrist, 2012). The consumers paid more attention to the health and nutritious values of food products (Curzi & Pacca, 2015), and they required information. Health security is specifically important because food consumption is directly linked to a physical impact. This concern is even more crucial for some products that show a particular freshness attribute, like fish and aquaculture products. *"People are not food secure until they feel that they are food secure, and they do not feel secure when market prices for staple foods are highly unstable."* (Timmer, 2012, p. 12315). The demand of customers for a set of information related to freshness, potential health, safety risks, and production process is comprehensible and can be useful for the consumers (Pieniak et al., 2013).

On the food market, the price is an important quality signal but it can generate an unexpected effect. The price, as in-store information, influences the perceived quality with the assumption of "you get what you paid for". The positive relation between price and perceived quality has been confirmed in the literature and lower prices are not necessarily a good signal for consumers. But the heterogeneity of the results depends on several product characteristics (vice

or virtue food perception, perceived health risks…), consumers' information (fairness in trade), and consumers' criteria (justice sensitivity, environment concerns, wage…).

Numerous research papers identified and analyzed a multitude of factors that influence consumers, but the heterogeneity of agri-food products make impossible the generalization of the results. Marketing science includes psychological and sociological analyses, referring to symbols, identity, and physical outcomes. The signaling theory benefits consumers' research with an approach to consumer behavior prediction. Firms and researchers aim to understand *"how consumers will respond to firms' actions under a set of market conditions; hence, the approach is "market-focused". This market-focused, game-theoretic perspective leads to propositions about how consumers respond to firms' actions, such as warranties and advertising expenditures." (Boulding & Kirmani, 1993, p. 121).*

From an economic perspective, agri-food products are mostly tackled according to a quantitative approach, relying almost exclusively on economic analyses and volumes. If rarer, a qualitative approach can be conducted (natural resources concept, environmental impact, variety of landscapes) (Le Roy, 2008).

2.2.2 A politic matter

Food safety and availability is a public concern. In 2018, the French national assembly had a focus on the Common Agricultural Policy (CAP) and the new national challenge for the agri-food sector. A European report expresses the need for more transparency about agri-food products by offering more information to the consumers about the production methods, the know-how in production and transformation and the regional specificities (*N° 1017 - Rapport d'information de MM. Alexandre Freschi et André Chassaigne déposé par la commission des affaires européennes sur une agriculture durable pour l'Union européenne - XVe législature - Assemblée nationale*, s. d., p. 65). The report claim that the Common Agricultural Policy must promote the economical, social and environmental sustainability, and rely on the official quality signs to upgrade the food quality in the European Union (*N° 1017 - Rapport d'information de MM. Alexandre Freschi et André Chassaigne déposé par la commission des affaires européennes sur une agriculture durable pour l'Union européenne - XVe législature - Assemblée nationale*, s. d., p. 167). The 23d august of 2019, the ministry of agriculture published an article about the valorization of the agri-food products with quality signs.

2.3 The quality signs as quality signals

Firms use quality signals to deliver information about the product, its production process, or the related experience. Firms must not fraud, and consumers have the responsibility of seeking information and make choices. Quality-sensitive buyers can be suspicious and may not believe the true unobservable quality (Kirmani & Rao, 2000). Quality signs play the role of guarantee with the quality charter, the certification agency, and the control. Numerous quality signs are on the market and all are aimed to send a strong signal about the firm "good" practice.

Based on the typology of Kirmani and Rao (2000), the quality signs are sale-independent default-contingent signals, as they generate a fixed monetary loss independently of the firm defaults. The quality signs belong to the same category as advertising and brand name, and can be qualified as a special brand that is used but not created by the firms, and acts as a that "security-brand" (Larceneux, 2003). Quality signs are closed to umbrella branding, *"in which the same brand is used for a number of products, serves as a signal of the new product's quality."* (Erdem & Swait, 1998, p. 134). Umbrella branding creates a parent branding effect, and by extension risk of a negative knock-on effect on all the branded products. Montgomery and Wernerfelt (1992) showed that the risk-reducing effect of umbrella branding is stronger when the product is expensive. That shows the interdependency of quality signals.

Quality signs are a publicly visible expenditure before sales that run on a long-time period, and for which the buyers do not receive direct utility. According to the information economics perspective, they contain information about quality that may respond to consumers' research. The quality signs must show several product characteristics, either technical or experiential. The unobservable quality must be verified or trust by the consumers, otherwise the sellers might suffer from the lack of repeat purchase or informed consumers that may spread the word (Erdem & Swait, 1998). Quality signs are an aid for freedom of choice and help to reach objectives such as public health, social fairness, or ecological goals (Larceneux et al., 2012).

Quality signs improve the reputation, credibility, and image of the product, the brand, or the firm. The reputation has been defined by Gotsi and Wilson (2001) in that terms *"A corporate reputation is a stakeholder's overall evaluation of a company over time. This evaluation is based on the stakeholder's direct experiences with the company, any other form of communication and symbolism that provides information about the firm's actions and/or a comparison with the actions of other leading rivals."* Reputation consists of additional information that may distinct the firm from its competitors, and reduce the cost of gathering

information for the consumers (Landon & Smith, 1997). A good reputation ensures product quality and commands a price premium (C. Shapiro, 1983). Quality signs build a collective reputation. The individual and collective reputation influence each other (Tirole, 1996) and have the same positive influence on price (Landon & Smith, 1997). If a signal falsely claims high quality, the firm runs the risk of losing reputation, which would affect the market performance of the product with a decrease of repeat purchase or willingness-to-pay.

Quality signs also influence positively the confidence of consumers. The confidence can be defined as a *"psychological state, likened to a security feeling, expressed consciously or not toward a partner (person, brand, company) in a situation of trade, despite the potential risk which can arise"* (Amine, 1999). Official quality signs emerged from consumers' demand and public authorities' actions and rules (Auriol & Schilizzi, 2015b). The confidence towards quality signs is closely related to an independent third-party, the charter, and the quality control system (Benghozi & Paris, 2003). A firm self-assessment has lower perceived credibility (Bouslah et al., 2013). Erdem and Swait wrote that *"credibility is the key element in the signaling perspective"* (1998, p. 152). Official quality signs empower the credibility of the firm or the brand by delivering information about credence and technical quality. The confidence of consumers generated a large number of studies, research models, definitions and approaches. The confidence is often studied with other marketing variables such as loyalty, satisfaction, perceived quality and value of a product. The marketing literature evaluated the influence of trust and skepticism about labels on consumers' behavior (Pivato et al., 2008; Lucie Sirieix et al., 2013). Several correlational studies have confirmed the positive influence of quality signs on perceived quality (Larceneux et al., 2012; Roe et al., 1999; Zeithaml, 1988).

Conclusion of section 2

Actors in the market do not share the same type and amount of information about the product and the related features and quality attributes. Information is valuable to avoid fraud, increase market transparency, decrease the risks, and improves relationships. In history, scarcity of information was mainly addressed with religious dogma and morals. The seller must signal the defects of their goods and not lie about the quality. In the twentieth century, economists pointed out that information asymmetry is not only due to hidden information about defects, but also information about unassessable superior quality. Credence or experience quality cannot be assessed by the buyer before or after purchase and may lead to adverse selection. Information about production practices, attributes, or know-how, must be available to signal excellence and superiority of their product. Customers gather technical, social, cultural, and environmental information to evaluate and compare available products and make a purchase decision. Marketing research focuses on perceived quality measurement, because it generates value, either as a direct financial outcome or in terms of intangible value such as reputation, trust, and customer satisfaction.

Agri-food products have a direct influence on health and are culturally loaded with support to tradition, morals, and value. The scandals about health security (mad cow disease), disinformation about product content (baby milk contamination), and cultural unacceptance (horse meat lasagna) increased the perceived risks. Information is an important stake in the market and shapes the market dynamic. The use of quality signs is common and acts as a guarantee to consumers, especially for credence attributes.

Food safety is a matter of public health. The European commission as well as the French government and national assembly take care of the food system and implement tools to improve market information and support high-quality food. They manage a set of official quality signs to signal either traditional production process or social and environmental quality, including Label Rouge and organic label. The official quality signs reflect the commitment of firms to ethical standards and social objectives. They act as an optional security brand that helps firms to acquire intangible value by delivering easy-to-gather information.

CONCLUSION OF CHAPTER 1

In this chapter, we present the theoretical reference framework that defines the research topic and explain the dynamic relationship between social and environmental concerns, the market, and the public authority. The theoretical concept which has been selected is corporate social responsibility. It is used in marketing, finance, and the economic research domain to explain social aspiration, market actions, financial outcomes, and public policy concerns.

The first section is dedicated to the theory of corporate social responsibility over time. The dense literature highlights several debates and contradictory perceptions of corporate social responsibility, its implication, and its measurement. As stakeholders' relationship and firms' coherence in terms of practice are important, we selected the 3C-SR model as a basis. The model includes three dimensions that drag corporate social responsibility to performance: commitment (what the firm does), connection (with whom the firm works), and consistency (how consistent is the firm in its actions). We also highlight that the food sector needs socially responsible actions (divided into nine dimensions) that must deliver information about food safety, tradition, experience quality, and social fairness. Using quality signs for food is common to signal socially responsible actions in the market.

The second section expressed the paramount importance of information in the development of corporate social responsibility. We present the risks related to information asymmetry from a moral and economic perception and mention the risk of delivering a large quantity of information. Agribusiness is a concern for public authorities. They manage official quality signs – a legal and optional public solution –, that might be used in marketing – for communication, and relationships –, to enhance intangible value and lead to financial outcomes. Official quality signs support socially responsible actions with criteria to enhance trust, such as an independent third-party for production control. Official quality signs offer to firms the possibility of a clear and homogeneous message to deliver in the market to enhance their performance.

Performance is a complex and heterogeneous concept that is treated in the literature of marketing, finance, and economics. The assessment of the value creation requires considerable thinking about the type of performance we aim to measure and the required criteria we may use. The following chapter deals with the performance by presenting the related theory, and the value creation assessment.

Key elements

- Corporate social responsibility extend the society moral obligations to firms

- Corporate social responsibility includes the stakeholders relationship management

- 3C-SR is one of the model to assess corporate social responsibility performance with three elements:

    - Commitment (social practice)

    - Constitency (over time and within the organization)

    - Connection (constellation of actors and firms decisions)

- Liberal economy expect profits from corporate social responsibility

- Liberal economy refuse legal obligation to respond to social issues

- Firms need to send signals in the market to inform about their social responsible actions.

- Food products show specific risks related to health security, social concerns, respect of tradition, cultural acceptance, and consumption experience.

- Quality signs is a common tool in agribusiness to signal social responsible practices

- Quality signs increase the information in the market, decrease the cost of information seeking for customers and signal quality that cannot be assessed before or after purchase.

- Quality signs enhance firms intangible value such as trust, reputation and satisfaction

- Official quality signs are managed by public authority to respond to social demand for safety, taste, tradition and social issues.

CHAPTER 2. THE EFFECTS OF QUALITY SIGNS ON MARKETING PERFORMANCE

Elizabeth Barhan from the department of rural sociology states that *"because the values-based labeling programs can be costly and risky for producers, research results that help prevent or correct problems with these schemes should be welcome."* (Barham, s. d., p. 358). The necessity of re-embedding the capitalist economy in the social and environmental concerns requires to not refer to consumers as "self-interest maximizer", but a person that assesses the quality of product through a variety of non-economic values such as ethics and cultural criteria. This second chapter discusses the theoretical framework of performance with a cross-sectional prism.

In the first section, we present theories about value creation and performance assessment, and we illustrate the concepts with a literature review about quality signs' influence on quantitative performance. Corporate social responsible actions can be costly for firms. Financial risk requires the identification of related opportunities. We aim to answer three questions:

- What is the role of quality signs in firms' performance?

- To what extent the price and the purchased quantities are key variables for performance assessment?

- What is the most adapted measurement of the marketing outcomes?

The second section presents the research questions based on the literature review, and shows the research and the required methodologies to answer the questions and test the model. Then, we will present the research field by going through the official quality signs markets, the history, and their influences.

Section 1. The performance of quality signs

Performance is a polymorphic and cross-sectional concept in management. The multidimensional nature of performance requires a clarification of related concepts and uses (1). Three main perspectives define the performance in the literature: the goal approach, the resource approach, and the process approach. The resource-based view considers quality signs as a resource that can be used to enhance performance and create value for the firms (2). We focus on price and purchased quantity as performance indicators (3).

1. Conceptual clarification about performance

Researchers take up the challenge of defining performance, understanding its importance, and developing measurement methods. The plurality of definitions relates to productivity, efficiency, or effectiveness. Nevertheless, several approaches to performance are complementary (1). Quality signs contribute to performance through customer perception, behavior, and financial outcomes (2). We retain price and purchased quantity as two key elements that transform the perceived value into financial value (3).

1.1 Theoretical background

There is no unanimous model to assess performance. The marketing productivity chain makes a linear model from customer to financial outcomes in a cross-analysis perception of performance. Authors tried to develop models, but they faced numerous limits mostly due to the multifactorial nature of marketing (S. Shapiro, 1990). The literature review below presents marketing productivity and its dimensions.

1.1.1 The marketing productivity: from marketing action to performance outcomes

Performance is an evaluation of the relationships between firms' decisions and outcomes. Managers make the presumed best decisions for company performance. The definition of performance depends on the assumed relations between a wide variety of factors. These factors can be of several kinds: accounting considerations, marketing-mix choice, firm value criteria, or human resources strategy. It creates a vast web of complex and interdisciplinary relationships. Rust and al (2004) modeled part of these relationships in a chain-of-effect called "Marketing productivity". They clarify how the marketing activities create shareholder value, from the investments (marketing assets) to profit. The literature developed an integrated conceptual framework to understand and establish the unclear link between marketing and performance (N. A. Morgan, 2012). Rust and al (2004) consider that investments in marketing enhance managerial, marketing, market, and financial performances. The elements of the chain are all interrelated and influence each other, directly or indirectly.

The marketing productivity starts with the strategies adopted by the firm (promotion, distribution channels…), which is a guideline for tactical actions and related investments (advertising, improvement…). The objective of these investments and management is to change customer behavior (attitudes, satisfaction…) and empower the market results (sales, market shares). A good market position is supposed to lead to financial impacts (ROI, EVA…) and

financial position (Profits, cash flow…). The criteria for performance assessment are discussed below. With a better financial position, the value of the firm increases (Rust et al., 2004).

Figure 8: Marketing productivity channel (Rust et al., 2004)
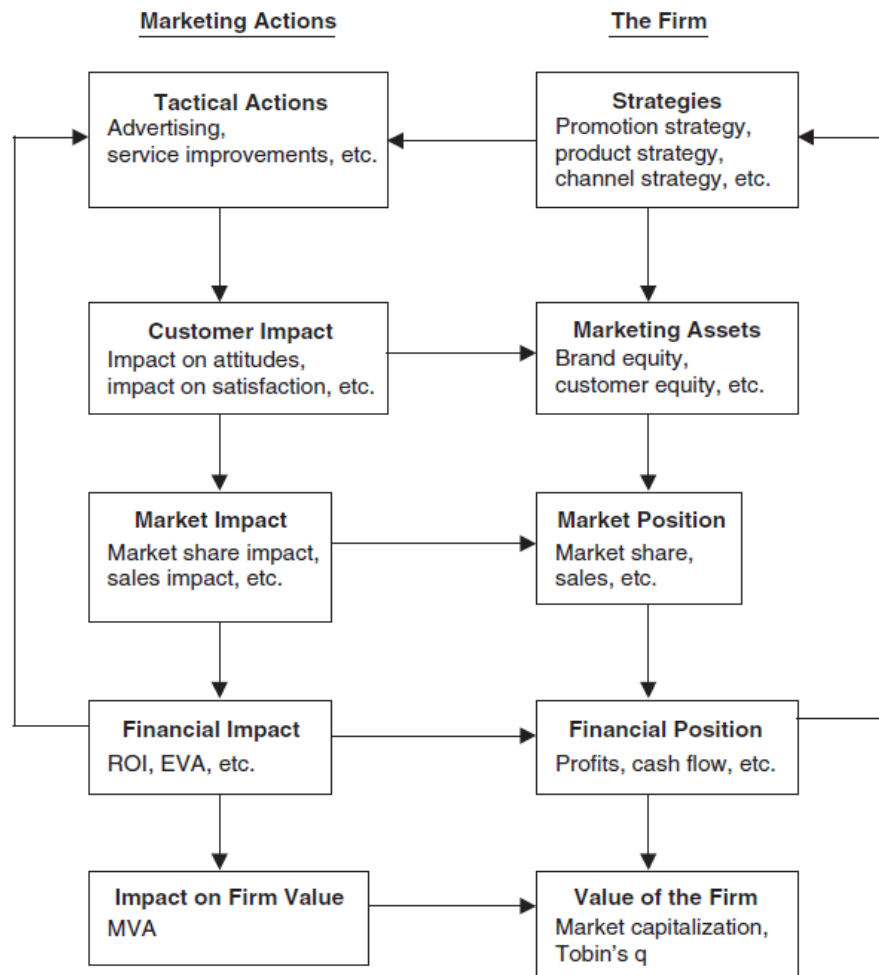
The chain of productivity offers a frame to understand and control the economic feedbacks of marketing (Rust et al., 2004). The authors raise a central question for managers and shareholders: what type of expenditure, tactics, has a better influence on the firm profitability? Firms expect returns on the investment in quality improvement that they signal in the market. Strategies and tactics are central to create competitive advantages and intangible assets development. Nevertheless, the measurement of the marketing activities' impacts requires specific and complex methodologies (Hanssens & Pauwels, 2016). The measurement of marketing productivity is a challenge because it includes long-terms effects, conjoint effects with other actions, and nonfinancial metrics. The financial methods are inadequate for marketing assessment. Based on the previous model and other researches, Katsikeas and al. (2016) present two different performances: the operational and the organizational approach.

Figure 9: The Marketing–Performance Outcome Chain and Exemplar Measures (Katsikeas et al., 2016)
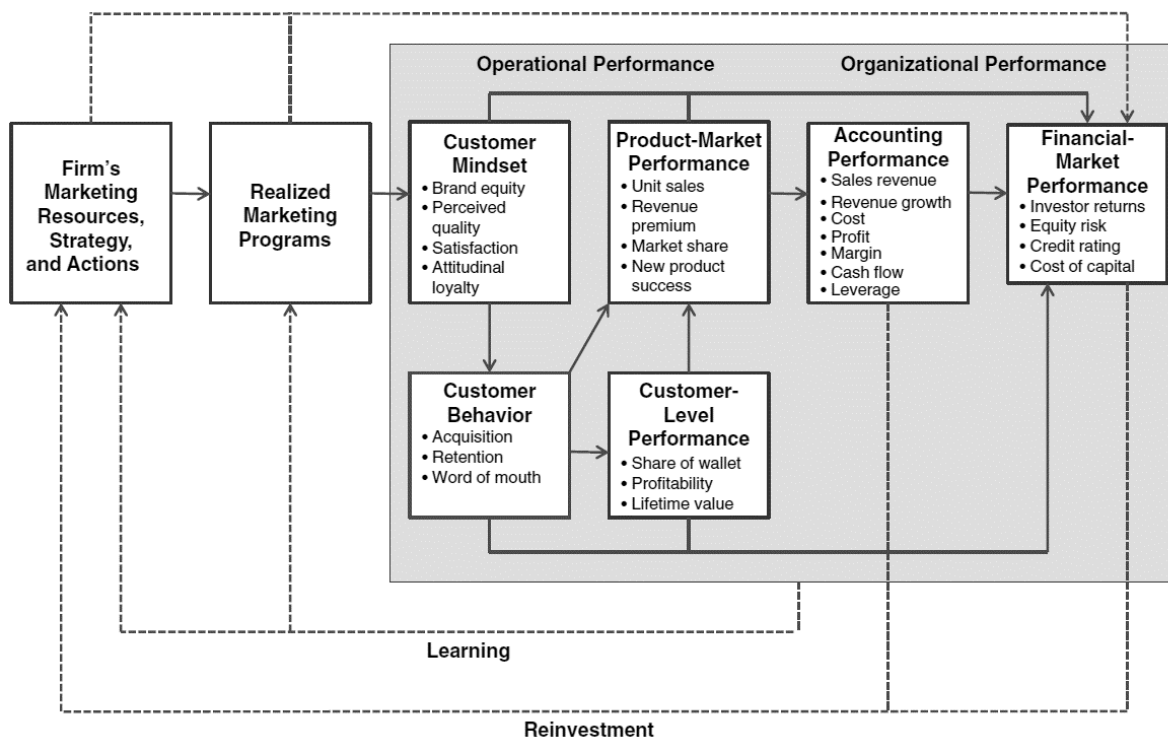
In marketing research, performance is mostly assessed by customers' perceptions. This marketing chain implies market and financial results from marketing actions, resources, and strategies, and distinguish three performance outcomes with economic metrics :

- *Product-market performance*: measures of performance of the product in the market place.

- *Accounting performance*: measures reported in the financial statements and reports of the firm.

- *Financial-market performance*: analysis of the stock or debt markets.

These three dimensions of performance generate positive feedback in learning and re-investment in marketing capabilities, marketing resources, marketing strategy, and positional advantages (N. A. Morgan, 2012). The objective of this chain-of-effects is to better understand value creation for the customers, and its transformation to economic performance through the market.

The literature selects a set of metrics that is adapted to analyze a part of the marketing productivity chain. The metrics are often classified as consumer-based, market-based, or financial-based. But the marketing value is really difficult to assess. *"The challenge of demonstrating this value is complicated by the fact that its core metrics—attitudinal,*

behavioral, and financial—fail to correlate substantially with one another." (Kumar et al., 2016, p. 5). Nevertheless, the ability of firms to measure marketing performance has itself an influence on firm performance (O'Sullivan & Abela, 2007). Researchers' and professionals' stubbornness to find good indicators is motivated by the outcomes from a good marketing performance measurement. Selecting relevant criteria for assessment to reduce the risks and avoid the effect of "what you measure is what you get".

1.1.2 The customer-based performance

The firm aims to create value for consumers but *"a major difficulty in researching value is the variety of meanings of value held by consumers."* (Zeithaml, 1988). Firms' resources are employed to create intangible "customer impact" in five dimensions (Rust et al., 2004, p. 78) :

Table 14. Definition of customer impacts (Rust and Al., p.78)

Customer impact	Definition
Customer awareness	the ability of consumers to recognize and recall a firm, its products, and services
Customer associations	the strength, favorability, and uniqueness of perceived attributes and benefits for the firm and the brand
Customer attitudes	the overall evaluation (quality and satisfaction) of the consumer toward the firm, the brand or the product
Customer attachment	The customer's loyalty toward the firm or the brand
Customer experience	the result of every interaction a customer has with a firm or a brand, but also the consumption or use of the product or service, the seek for promotion, events,... related to the firm, how the customers talk to others about the brand, etc.

Another segmentation has been made by Katsikeas and al. (2016). They identify customer mindset outcomes, which gather customer awareness, associations, attitudes, and attachment, customer behavior outcomes, related to purchases, post-purchases, and future purchases, and customer-level performance outcomes that define the economic outcomes of customers.

Multiple indicators have been developed and used by academics to assess the different aspects of customer behavior. Grønholdt and Martensen (2006) realized a literature review that provides a list of the most valuable marketing performance measures. They established two lists of indicators for consumers' performance: A mental consumer results, and a behavior consumer results.

Customer-based measures started in the 1980s with customer satisfaction, customer loyalty, and brand equity. Consumer performance is measured by the loyalty compared to competitors, as well as the clients' loyalty and satisfaction growth since N-1. They have been considered interrelated, but several questions remained unanswered such as the period from customer satisfaction to loyalty.

Table 15 Short-list of Marketing customer-based performance measures (Grønholdt & Martensen, 2006, p. 248)

Mental consumer results	Behavior consumer results
Brand awareness*	
Relevance to consumer	
Perceived differentiation	
Perceived quality/esteem*	Customer loyalty/retention*
Relative perceived quality*	Churn rate
Image/reputation	Number of customer complaints*
Perceived value	Number of transactions per customer
Preference	Share of wallet
Customer satisfaction*	
Customer loyalty/retention (intention)*	
Likelihood to recommend	

* One of the 15 most commonly used measures according to Ambler and Puntoni (2003)

The Marketing Science Institute (MSI) wrote in a report *"One of the most important tasks in marketing is to create and communicate value to customers to drive their satisfaction, loyalty and profitability"* (Marketing Science Institute, 2013). Customer value is an umbrella term that gathers all the value that can be perceived by the customer. Various definition of "value" has been used in the literature, and all are converging to the general comparison of the "give" elements and the "get" elements. We simplify the customer value in terms of costs and benefits. Both are either monetary or non-monetary. The cost can be assessed in terms of price, but also in terms of time for seeking information and risks associated with the purchase. Benefits are mostly perceived in terms of attributes. Perceived value is one of the most influential determinants in consumers' purchase decision process, and that depends on the price perceived by the customers. For Zeithalm (1988), the perceived value is divided into four consumer definitions.

Table 16. Type of perceived value for the customer, adapted from Zeithalm

Perceived value	Perception of the benefits
Low price definition	A decrease in cost for equivalent attributes
Products' attributes definition	An improvement of consumers benefits closed to utility perception. Related to usefulness or consumption satisfaction. It gathers all the quantitative and qualitative, subjective, or objective factors of shopping experience.
Good deal	The difference between the price paid and the received quality
Transaction benefits	A comparison between all costs and benefits to define the value in a global picture of what the customer give and receive for the transaction.

The value is directly related to the perceived quality and the price, among other factors. The means-end model shows the relations between price, quality, and value.

Figure 10 A mean-end model relating price, quality, and value (Zeithalm, 1988)
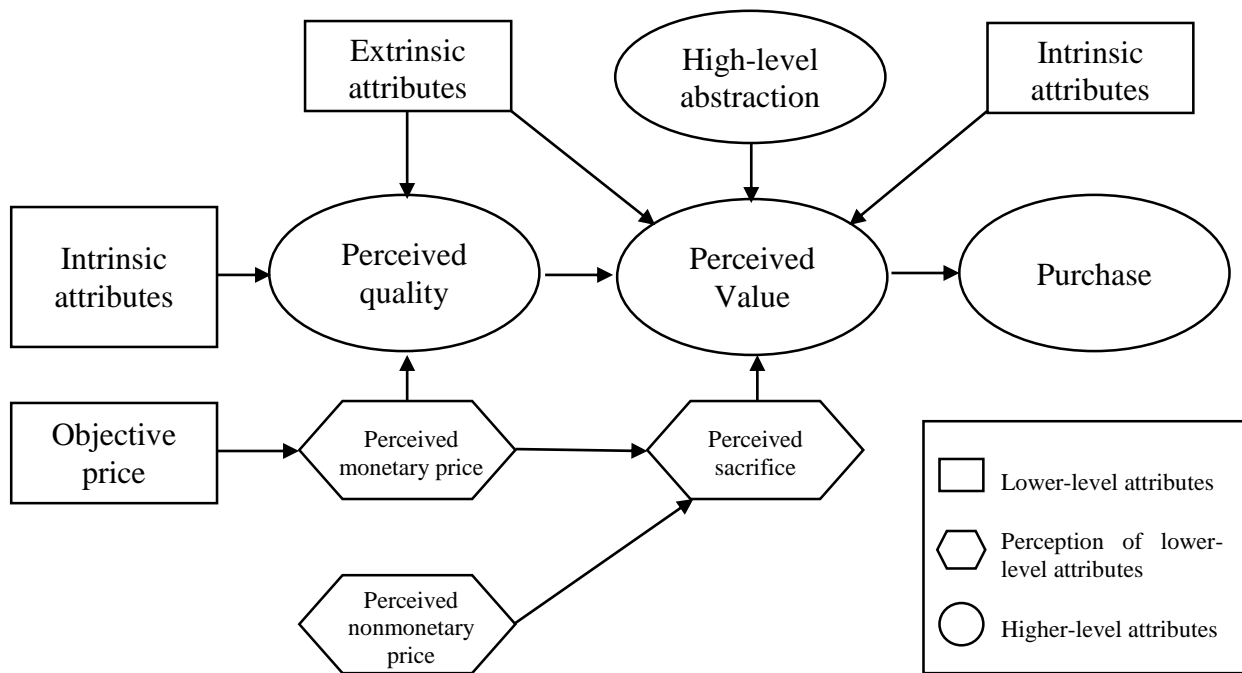
The attributes – intrinsic or extrinsic –, and the perceived monetary price – the price as encoded by the consumer, instead of the actual (objective) price of a product – influence the perceived quality. The perceived quality influences the perceived value, simultaneously with the high-level abstraction (e.g. emotional payoff) and the extrinsic attributes (e.g. reputation, brand name, advertising,…). The perceived value is more individualistic and personal than quality (Zeithaml, 1988). The purpose of creating perceived quality and value for the consumer is to extract the value in the form of profit. The consumers' perceived value is expected to be converted into an increase in market-based performance (Kumar & Reinartz, 2016).

1.1.3 The market-based performance

Before the use of customer-based measures, the performance of marketing was assessed with single financial outcomes. The most frequent measures were in order profit, sales in terms of units and value (price), market share (combining the variables of units and price), and cash flow. The market shares were perceived as a strong predictor of profitability.

Quality signs can increase firm market shares. For example, Forest Stewardship Council certification (FSC) is internationally known, and beneficiate from good credibility and a dominant market position in Brazil, and eastern and central Europe. The fame of the certification makes it difficult for the other certifications to increase their market shares (Cruz & Boehe, 2008). The market strength of FSC generates the ability to create marketing assets

(brand, name), bargaining power (lobby), and competitive advantage (credibility, prevent imitation).

Table 17 Short-list of market-based marketing performance measures based on the literature review (Grønholdt & Martensen, 2006)

Market results
Sales (volume and value)*
Sales to new customers
Sales trends
Market share (volume and value)*
Market trend*
Number of customers*
Number of new customers
Number of new prospects
(leads generated/inquiries)
Conversion (leads to sales)
Penetration
Distribution/availability*
Price
Relative price (SOM value/volume)*
Price premium
Price elasticity

* One of the 15 most commonly used measures according to Ambler and Puntoni (2003)

Market performance is based on a comparison of market data with competitors. Indicators are mostly sales volumes, the products' value (market price), and market shares. Consequently, market-based performance is not available for innovating products. Product-market measures are used to calculate the accounting measures such as profit and sales revenues.

1.1.4 The finance-based performance

The relation between market power and financial results was formalized with the structure-conduct-performance paradigm of Bain in 1968. It states that an increase in the industry concentration decreases competition and creates higher profit rates. The basic relation between market and profit has not been questioned. We divide the finance-based performance into two measures categories: the accounting measures and the financial-market measures.

The *accounting measures* are often calculated based on product-related measures such as sales-revenues (volumes and price) or profit (related to sales revenues). Indicators try to assess the accounting efficiency of marketing actions. For example, the return-on-investment (ROI) is a performance outcome relative to the consumed resources, and assess the efficiency of the investment. It has been fashionable for marketing productivity. In marketing is also used the return on marketing investment (ROMI) because marketing expenditure is not a regular investment. Six indicators are associated with ROI for marketers: incremental sales revenue, the ratio of cost to revenue, cost per sale generated, Changes in the financial value of sales

generated, cost of new customers (sic), and cost of old customer retention. But marketing is sometimes perceived as a cost of maintenance instead of an investment (Ambler et al., 2004). This categorization of the marketing expenditure changes the expected outcomes (systematic incremental sales and profits for investments). Apart from the revenue related measures (e.g. Sales revenues, sales revenue growth) and profit-related measures (e.g. "Return-on" measures) the cost-related measures are important for the prediction of profitability. The marketing expenditure is studied as a cost, but also tends to reduce other expenditures to achieve the same product-market performance. Finally, the accounting measures include data related to cash flow.

The *finance-related measures* are focused on returns (e.g. Abnormal returns, shareholders returns) and risks (e.g. Equity risks) (Katsikeas et al., 2016).

Table 18 Short-list of financial-based marketing performance measures based on the literature review (Grønholdt & Martensen, 2006)

Financial results
Profit/profitability*
Gross margin *
Customer profitability
Customer gross margin
Cash flow
Shareholder value/EVA/ROI
Customer lifetime value

* One of the 15 most commonly used measures according to Ambler and Puntoni (2003)

Marketers mention the marketing margin of products, based on the distinction between the factory or farm prices and the purchaser price. It has been defined by the FAO as *"[…] the percentage of the final weighted average selling price taken by each stage of the marketing chain. The margin must cover the costs involved in transferring produce from one stage to the next and provide a reasonable return to those doing the marketing."*[9] The performance is not only a matter of the current statement but also the evolution according to the actions and decisions of the firms. The growth of the indicators is important and relevant. Shareholders want to know if the customer value influences positively the financial performance through market capitalization or any other market-related variable. The transformation of intangible customer performance (customer value) into financial outcomes has heterogeneous results because of the multitude of factors that may interfere in the process (Hogan et al., 2002). *"The multidimensional nature of marketing is expressed in a variety of performance metrics— attitudinal, behavioral, and financial—that turn out to be weakly interrelated. This makes it*

---

[9] Source: http://www.fao.org/3/W3240E/W3240E12.htm

difficult to assess marketing's value and often results in skepticism about marketing's contributions and a reduction in the role of marketing at senior levels of decision making." (Hanssens & Pauwels, 2016, p. 187). Numerous other factors that are not in the marketing value chain affect financial performance, such as the marketing department power (Feng et al., 2015).

The challenge is to understand how marketing resources create value for consumers that turns into market-based performance and finance-performance. There are no unanimous metrics of the process to assess the marketing performance and all metrics have limits and advantages (Ambler et al., 2004).

1.2 Conceptual clarification about the resource-based view

The idea of using marketing resources to achieve better financial performance converges with the resource-based view theory (1). The chain of marketing value implies that a competitive advantage influences positively the market and financial performance. Penrose (1959) suggests that the firm's resources influence its growth and the inadequate use of them can constrain the growth. From a resource-based view, tangible and intangible resources and capabilities, such as quality signs, are keys to develop competitive advantages for firms (2).

1.2.1 Resource-based view theory

The term resource is a key element of the performance approach, and is defined as *"facilities that are potentially controllable by social organizations and that are potentially usable – however indirectly – in relationships between the organization and its environment."* (Yuchtman & Seashore, 1967, p. 900). A resource is used to create tangible and intangible assets that can generate returns for the firm under appropriate circumstances. Barney (1991) made a non-exhaustive list of resources and proposed a categorization.

Table 19. Firms' resources typology (from Barney, 1991)

Resources	Example
Physical resources	Equipment, geographical location, raw material access
Human capital resources	Training, experience, intelligence, relationship
Organizational capital resources	Formal and informal planning, controlling, informal relations among groups within or between a firm and those environment

Information, attributes, and knowledge are firms resources that may improve their efficiency and effectiveness. For example, reputation is defined as a resource itself, and not as the symbol of large firms resources. We notice that the categorization of Barney does not include the intangible marketing assets of the firm such as the brand name, customer loyalty, and reputation. The firm aims to acquire competitive forces by using a specific strategy that is not

simultaneously implemented by a competitor. This advantage becomes sustainable when the competitors can't duplicate the strategy and get its benefits. Consequently, all resources are not systematically generating competitive advantage, and the elaboration of competitive advantage requires heterogeneity on the market (Barney, 1991). A conceptual model of marketing resources impacts on performance has been drawn to understand the relationships between marketing support resources, market-based resources, and performance. The model follows a similar path to the chain of marketing productivity (Rust et al., 2004).

Figure 11 Conceptual model of marketing resources performance(Hooley et al., 2005, p. 21)
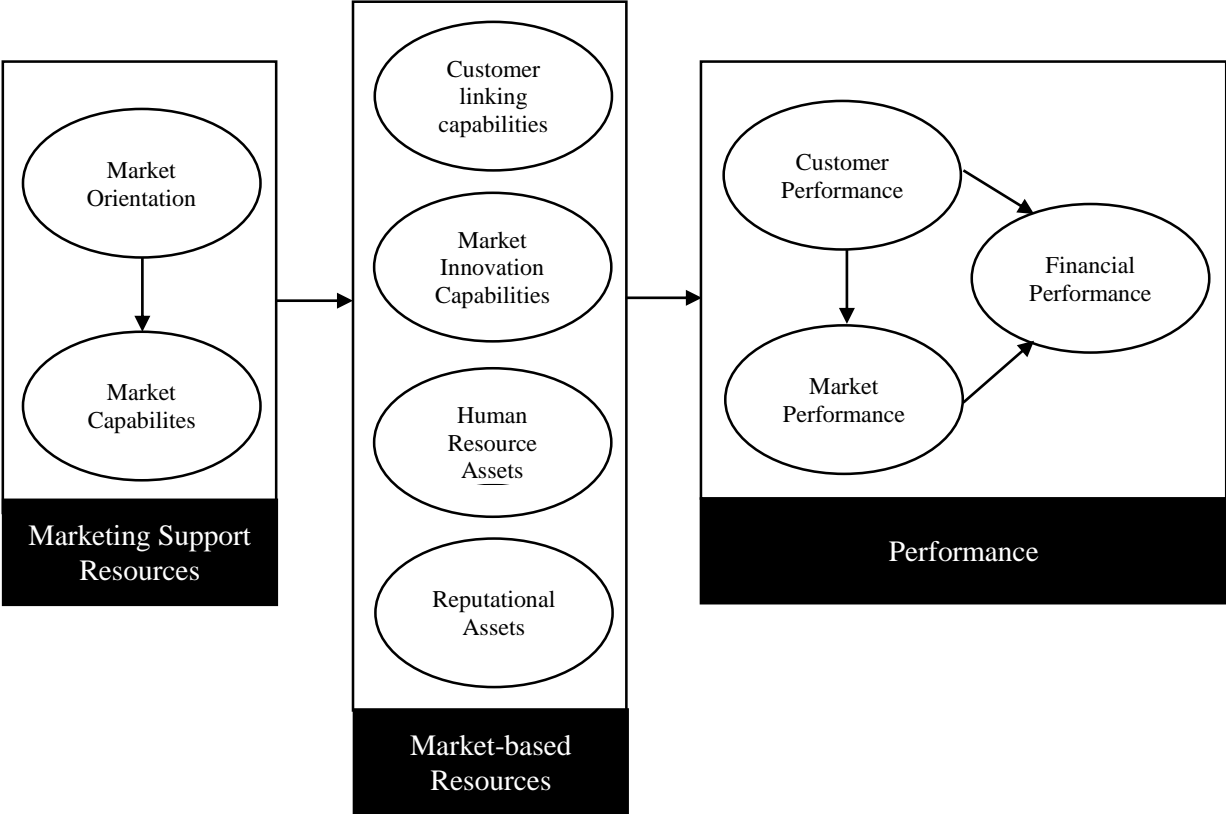
A firm resource turns into a competitive advantage if valuable (exploiting opportunities or avoiding threats), rare, not imitable, and not replaceable. Consequently, all resources do not necessarily differentiate the firm. A firm can maintain a relative position with rational acts. For example, the firm can protect a resource from opponents during a period (patent, research, and development…), and benefits from the first-move advantage with a resource position barrier. It can also benefit from mergers and acquisitions of other firms that dispose of complementary resources, are in different markets, and sell different products (Wernerfelt, 1984). Allocating resources with the objectives of "doing good by doing well" mays have positive long-term impacts (S. Waddock & Graves, 1997). In a dynamic perception, the resources can be

combined, organized, and used to generate a competitive advantage. *"Efficient production with heterogeneous resources is a result not of having better resources but in knowing more accurately the relative productive performances of those resources."* (Alchian & Demsetz, 1972, p. 793). The challenge for firms is to use resources for both consumers and products to generate value for and to customers (Kumar & Reinartz, 2016).

1.2.2 Official quality signs as a resource

Official quality signs can be considered as a firm resource but not as a competitive advantage. Indeed, official quality signs are neither new nor rare to generate a "first-mover advantage". Official quality signs tempt to homogenize the market, whereas the competitive advantage is elaborated with heterogeneity and the impossibility to duplicate the asset. A competitive advantage implements *"a value-creating strategy not simultaneously being implemented by any current or potential competitors."* (Barney, 1991, p. 102).

Nevertheless, official quality signs generate benefits if we consider the competitive advantage with a more dynamic perception of assets. The social complexity of a resource, such as relations, culture, and reputation, can generate competitive advantage (Barney, 1991). Credibility and reputation generate a sustainable competitive advantage creation (Hooley et al., 2005). Official quality signs are marketing capabilities which, combined with other capabilities can generate performance Following the 3C-SR model, quality signs indicate the degree of commitment to ethical and environmental standards and social objectives. Official quality signs alone are not a competitive advantage but, with connections and consistency, they generate market value. Connections in agri-food may be related to the choice of channel's members or partnerships with other actors such as associations. The general coherence among the relationships creates value for consumers. The consistency is the global coherence of the firm in its commitment. We suggest that the 3C-SR model contributes to socially responsible reputational assets.

2. The performance of quality signs

Studies about the relationship between corporate social responsibility and profitability show heterogeneous results (McWilliams & Siegel, 2000). The marketing productivity chain and the resource-based view model are complex and cannot be assessed as a whole. Official quality signs are expected to affect consumers (1). In a domino effect, consumers' behavior changes market performance and generate financial results (2). We acknowledge a lack of studies concerning the effects of Label Rouge on the market compared to organic quality studies.

2.1 Consumers' attitude and behavior toward quality signs

In the seventies, the researchers in marketing wonder *"which consumers constitute the market products, services, or other corporate actions that promote social and/or environmental well-being?"* (Anderson & Cunningham, 1972, p. 23). Holt (1995) distinguishes consuming for experience, integration, classification, and play. A large literature focuses on consumers' social consciousness to understand their socio-psychological variables and their behavior (Mohr et al., 2001; Webster, 1975). Pivato and al (2008) consider that corporate social responsibility influences positively consumers' trust, a fundamental asset for the company that leads to brand loyalty and higher sales volumes. Numerous research assessed the relevance of specific corporate social responsibility implementation to customer responses. In this thesis, we focus on the influence of quality signs on customers' attitudes and behavior.

Consumers' risk perception and concerns about food production alter the demand for food products in the marketplace (Huang, 1996). The quality sign is free information available in-store that reduces the cost of seeking information to customers. The signal is an extrinsic attribute, such as brands and advertising (Zeithaml, 1988), and must be risk-reducing to change the value perceived by the consumers. The choice for consumption is made of multiple values that influence the consumers.

Table 20 The five values influencing consumer choice (From Sheth et al., 1991)

Value	Definition
Functional value	The perceived utility is acquired from an alternative's capacity for functional, utilitarian, or physical performance. An alternative acquires functional value through the possession of salient functional, utilitarian, or physical attributes. Functional value is measured on a profile of choice attributes.
Social value	The perceived utility is acquired from an alternative's association with one or more specific social groups. An alternative acquires social value through association with positively or negatively stereotyped demographic, socioeconomic, and cultural-ethnic groups. Social value is measured on a profile of choice imagery.
Emotional value	The perceived utility is acquired from an alternative's capacity to arouse feelings or affective states. An alternative acquires emotional value when associated with specific feelings or when precipitating or perpetuating those feelings. Emotional value is measured on a profile of feelings associated with the alternative.
Epistemic value	The perceived utility is acquired from an alternative's capacity to arouse curiosity, provide novelty, and/or satisfy a desire for knowledge. An alternative acquires epistemic value by questionnaire items referring to curiosity, novelty, and knowledge.
Conditional value	The perceived utility is acquired by an alternative as the result of the specific situation or set of circumstances facing the choice maker. An alternative acquires conditional value in the presence of antecedent physical or social contingencies that enhance its functional or social value. Conditional value is measured on a profile of choice contingencies.

The organic label aimed at the following objectives: reduction of pesticides, improved management of plant nutrients, better soil protection, preservation of biodiversity and nature, and positive impact on animal welfare. The social and environmental values of the organic label are obvious (Pivato, Misani, Tencati, 2008). The Label Rouge is used to enhance the taste, valorize specificities in the production process that are related to tradition and farmers' know-how (I. Dufeu et al., 2014) Holbrook (1999) characterizes the process of value creation for customers as interactive and expresses it in a consumer value typology in dualistic dimensions.

Table 21 A typology of consumer value (Holbrook, 1999, p. 12).

		Extrinsic	Intrinsic
Self-oriented	Active	Efficiency (O/I, convenience)	Play (Fun)
	Reactive	Excellence (Quality)	Aesthetics (Beauty)
Other-oriented	Active	Status (Success, Impression, Management)	Ethics (Virtue, Justice, Morality)
	Reactive	Esteem (Reputation, Materialism, Possessions)	Spirituality (Faith, Ecstasy, Sacredness, Magic)

The quality signs interfere with the cognitive and/or affective dimensions in the decision-making process, sometimes creating a halo effect. They modify the perception and attitude of consumers by decreasing the adverse selection (Bonroy & Constantatos, 2008) as the information integrates the cognitive treatment of consumers more effectively (Larceneux, 2003).

Product differentiation can be based on two different dimensions, either the experiential dimension or the technical dimensions. The experiential dimension refers to experience quality that cannot be distinguished by consumers before purchase but can be assessed after consumption. The experiential labels are used by producers and distributors. They indicate the opinion either of experts or consumers (Larceneux, 2003). The technical quality is a matter of credence quality, for example, genetically modified organisms and pesticides free agriculture, animal welfare conditions, or fair-price for farmers. The technical label is assessed by the consumers, neither before nor after consumption (Larceneux, 2003). For example, the creation of fair trade, Child labor free, or Rainforest alliance logo roots in these social movements is a response to both social movements and Non-Governmental Organisations (NGO) claiming for humans, animals, and environmental protection. They call for transparency of firms about the production and management practices for the benefits of consumers and stakeholders, and the implementation of environmental-friendly and ethical practices. These are credence qualities

that do not affect directly the product taste or attributes. The technical labels ensure the respect of technical know-how that insures consumers atypicality and protect firms from imitations, counterfeit, and usurpations (Trigui et al., 2012). The conservation of traditions and specific practices emerged from social movements. In 1911, champagne wine was the precursor in terms of indication of origins. In 1935, a decree-law created the Indication of origins to define, protect, and control the wine market[10]. In that case, the production know-how is assumed to deliver higher quality or at least specificities product in terms of taste. Norms and specifications bloomed on the market to prove the quality of the regional cultural heritage. Some technical labels are dealing with credence, such as "Label Max Havelaar" for fair trade or ecological certification as the "Label Farre" for environmental-friendly farmers. Some labels are simply explicitly claiming the taste of the products such as "*Saveur de l'année*".

Quality signs express a product's attribute that is experienced at consumption and enter the evaluation process. In the case of credence attribute that cannot be assessed by the customer, the perceived attributes may be affected by emotion, and the measurement knowledge and motivations. The three quality processes are interconnected and model the quality framework (Golder et al., 2012).

Figure 12: Quality framework adapted from the Details of integrative quality framework (Golder et al., 2012, p. 7)
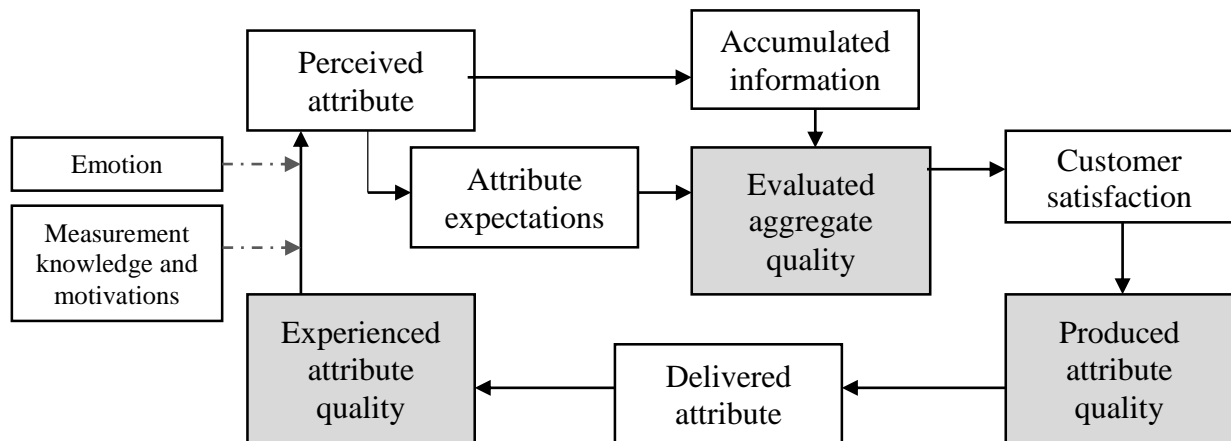
Quality is an endogenous variable included in a large model. Several factors influence perceived quality (McConnell, 1968). Perceived attributes must meet customers' expectations to impact positively customers. Official quality signs have a strict framework. They reduce the asymmetry of information but also lowers the flexibility of producers to meet consumers' expectations.

---

[10]   http://agriculture.gouv.fr/les-appellations-dorigine-protegee-aop-pour-les-produits-agricoles-et-les-denrees-alimentaires - view 26.03.2018

They must play with attributes that are adaptable to the design brief of the quality signs. Quality signs can increase the measurement knowledge[11] and motivations[12] with relevant information, but also generate a contrary effect by distortion of attributes perception. Trust in quality signs is crucial, even more than the quality and ethical charter. *" […] high levels of consumer trust are required for a labeling system to be successful. The importance of consumer trust is also confirmed by the fact that different labels based on the same standards (such as the Bio-Siegel logo and former EU logo) were evaluated completely differently by consumers in the present study."* (M. Janssen & Hamm, 2014, p. 446). The more a label is known by customers, the more they trust the label. Although, consumers are sensitive to certification labels for organic products if the product is trustworthy. The trust acts directly on the purchase decision of the consumers (M. Janssen & Hamm, 2014, p. 439). *" […] better organic labeling information and related knowledge perceived by consumers have critical effects on consumer trust in organic foods, which in turn will influence their attitudes and intentions to purchase organic foods"* (Teng & Wang, 2015, p. 1076). Consumers trust in organic private labels sold by retailers and are correlated to brand loyalty (Pivato et al., 2008). The emotion gathers the feeling of a customer at the stage of the experience process.

Along the chain of effects, quality signs increase perceived quality and therefore the perceived value of a product if the quality sign fills in few criteria: trust by consumers, well-known, and if it suits other signals like the product type. The change in customers' attitudes generates modification in terms of purchase.

2.2 The value created for firms

The challenge for companies is to transform the perceived value into a monetary value and create an advantage to the firms. We identify two dimensions of the value of official quality signs. A product-based advantage is generated and shared with all actors using the official quality signs, and an image-based positional advantage (brand image, quality reputation, corporate image) (N. A. Morgan, 2012). The market value is directly related to the customers' acceptance of the purchase. The product-based and image-based value affects all direct and indirect stakeholders on the market. The evaluation of corporate social responsibility actions is

---

[11] "Measurement knowledge is the customer's ability to assess attribute performance with minimal bias and variance relative to more objective measures." (Golder et al., 2012, p. 9)

[12] "Measurement motivation is the customer's desire to assess attribute performance with minimal bias and variance relative to more objective measures" (Golder et al., 2012, p. 9)

interest-based and is more important than the action itself (Green & Peloza, 2011). *"The economic and social purpose of the corporation is to create and distribute increased wealth and value to all its primary stakeholder groups, without favoring one group at the expense of others. Wealth and value are not defined adequately only in terms of increased share price, dividends, or profits."* (Clarkson, 1995, p. 112). Quality signs contribute to the socio-economical market movement with a message about social and environmental performance (Bouslah et al., 2013). Stakeholders with similar morals, values, and priorities must be willing to trade and cooperate (Green & Peloza, 2011). Theoretical papers suppose that social performance influences positively the financial results of a firm. As labeling implies up-front expenditure, the firm invests with the expectation of positive future impacts such as repeat purchase (Kirmani & Rao, 2000). A reciprocal relation creates a virtuous circle consumers demand that increase market shares, and market shares increasing the consumers' willingness-to-buy.

Empirical research supports the positive influence of quality on business performance. But assessing the performance of the use of quality sign is a difficult task for two main reasons. First, the costs related to official quality signs itself conduct to changes in production methods and materials. The expenses are fixed (land and building development, farming technology,…), but also related to the operating costs (animal food, fertilizers,…) and to the decrease in terms of production volumes (fewer animals per square meters, a longer time for production,…). Moreover, the marketing actions are run at the same time and the identification of the precise influence of each marketing action is not measurable. The return of quality signs is blended amongst return from other signals and the effect of signals together used in a strategy. Nevertheless, the sciences of business, economics, and sociology developed many models and methodologies thanks to theoretical and empirical works conducted on a variety of samples and indicators (Bahadir et al., 2009; Grønholdt & Martensen, 2006).

The intangible capital is important for agribusiness but their performance is difficult to measure (Srivastava et al., 1997). Expenses are not necessarily a financial success (Amadieu & Viviani, 2010) but influence the market, either from a customer perception (increasing sales performance) or from a stakeholder perception (attract investors, creating better partnerships, satisfying the NGOs demand,…). Linking marketing actions to financial performance requires the establishment of correlation.

Effective marketing can contribute to the growth of a firm by anticipating opportunities and risks, generating faster adjustments on the market to win and retain customers (Bahadir et al.,

2009, p. 276). The marketing resources used for customer-oriented strategy can affect long-run growth and profitability through customers' satisfaction and brand equity (Angulo-Ruiz et al., 2014). Moreover, advertising and product development have an indirect influence on financial value (Hogan et al., 2002), increasing the customer equity that represents a proxy for shareholder value (Schulze et al., 2012).

In the case of market turbulence increases and for highly incertain markets, corporate social responsibility is significantly influencing firm performance (growth rates, returns on investment, and overall profitability) (Bai & Chang, 2015). Corporate social responsibility commands upfront costs that have positive effects on intermediate- and long-term cash flows and may affect the firm probability of survival (A. Fatemi et al., 2015). A virtuous circle is generated by investment in quality that generates returns on quality investment (Nelson, 1974; Phillips et al., 1983). Corporate social responsibility benefits to the general wellbeing of stakeholders. For example, it secures a *"more loyal customer base, hires and retains a more dedicated workforce, avoids the costs associated with adverse actions by labor unions, consumer advocacy groups, or governmental agencies empowered to monitor its activities."* (A. Fatemi et al., 2015, p. 190). Fatemi and Fooladi (2013, p. 112) argued that *"the old approach to shareholder wealth maximization is no longer a valid guide to the creation of sustainable wealth."* and state that the value must be seen as a shared value among the firm and other communities that benefit from the firms.

Quality signs create a surplus that must be shared with other stakeholders, and externalities may affect the margins of actors (Linnemer & Perrot, 2007). Bargaining power is distributed differently along the value chain and creating value creation disparity. The retailers have a cut in their margin in benefit to other actors (Bonnet & Bouamra-Mechemache, 2015).

3. Price and purchased quantity as performance indicators

Market performance is mostly assessed with the price and purchased quantity. These two indicators are complex and polymorphic. They require to be identified and selected (1). Price and quantity data can be collected with several methods (2). All methodologies present pros and cons and must be chosen under the research question.

3.1 Nature and roles of indicators

Price and purchased quantity are studied differently depending on the domain of research. Marketing focused on the customers' analysis, perception, and acceptance, whereas finance

relates price to cost, gross margins, and profitability. The interdisciplinary aspect of the two indicators requires specification and a good understanding of the concepts.

3.1.1 The interdisciplinary concept of price: the variety of approaches

Price is part of the strategy of the firm in terms of marketing (positioning strategy, competition…) and finance (profitability, margins…). Numerous types of prices can be studied (market price, price variation…) and perception of the price (internal price, willingness-to-pay…). We first present different concepts related to price (1) and enumerate the main variables that influence the price (2).

Definitions

The researchers did not define precisely the role of price as a hinge point between the marketing and the financial performance of the firm. However, Monroe (1979) discussed the price through the perspective of the related margins and consumers' reactions in a period of economic scarcity. This period might be caused by uncertainty about the economic environment, limited availability of productive resources and working capital, or the change of government policies and regulations. The firms respond to economic uncertainty with a pricing response of several kinds: eliminating low-margin products, unbundling a service, or establishing "one-price" policies. We would add that new consumers' concerns and new social trends may also create uncertainty. From a financial perception, price is *"the value of a thing with real or perceived worth. Price represents the amount of value the market has assigned, fairly or unfairly, to a good or service."* [13]. But the mechanisms on the market that defines the price are complex and do not only depend on the Marshallian law but the customers' psychology and behavior on the market. From a customer perception, price is an important variable in the process of decision making. It is the third reason for choosing a store (Von Freymann, 2002). The consumers have several key prices in mind that lead their evaluation and behavior. Consumers use their **reference prices** to compare the available offer on the market. This reference price is either from the price of the products' substitute available on the market, called an *external reference price*, or from the consumer memory, called an *internal reference price* (Gall-Ely, 2009). The external reference price is multidimensional and cannot be defined in a single definition. It varies among consumers because of their differences. Moreover, the reference price varies across products and may be different from the price range acceptance and the market price (Von

---

[13] Source : https://financial-dictionary.thefreedictionary.com/price

Freymann, 2002). Nevertheless, the previous researches highlighted its decisive role in making decisions, especially for brand choice (Chandrashekaran, 2001). Consumers have a range of prices that are acceptable for a good or service. The maximal value of the **acceptable prices** is commonly called the **willingness-to-pay** (WTP). At the time of purchase, consumers compare their willingness-to-pay with market price and reference price to assess utility. Willingness-to-pay and reference price are correlated, with reference often less the WTP is higher than the reference price. These types of prices increase with information (Gall-Ely, 2009). This quality can change according to one single attribute (Gall-Ely, 2009).

Price is directly related to value, defined as the *"evaluation of experiences for an object of a product range (value in use), thanks to the sacrifices and benefits that are associated (exchange value)."* (Gall-Ely, 2009, p. 95).

Figure 13: The transactional utility through consumer comparison (Gall-Ely, 2009)
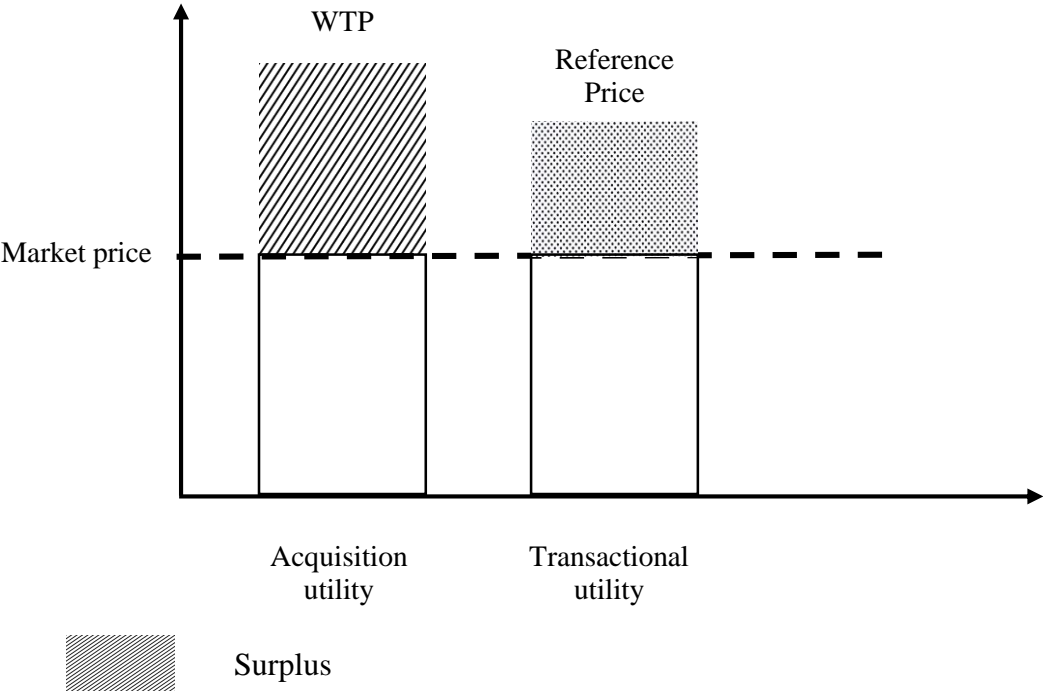
The influencing variables on price

Price is often mentioned as a perceived barrier to buy high-quality food products, except for early-stage market development or regular purchasers (Aschemann-Witzel & Niebuhr Aagaard, 2014). Nevertheless, the perceived price is also related to many other variables, including the quality that gathers technical elements and marketing variables such as packaging and services. *" [...] Superior quality on average does command a higher price and that the price-quality*

correlation increases with information." (Tellis & Wernerfelt, 1987). The quality information is a high-quality media for pricing at high-price (Bagwell & Riordan, 1991). Consumers assess the fairness of price with their perception of the firm's cost. Signaling quality can increase price fairness perception, decrease the inequity aversion, and increase the willingness-to-pay to customers (Guo & Jiang, 2016). A high price can be a signal to high quality and increase desirability, but can inhibit the purchase because of low-income households, low price knowledge, lack of experience, price sensitivity or lack of trust (Aschemann-Witzel & Zielke, 2017; M. C. W. Janssen & Roy, 2010).

Table 22. Direct and indirect influences of point-of-purchase and brands on price acceptance

	Influenced variable	Authors
Point-of-purchase		
Type	Internal reference price	Von Freymann, 2002
Price image	Price level	Rondán Cataluña et al., 2005
Name	Perceived quality	Dodds et al., 1991
	Price acceptance	Hsieh & Stiegert, 2011
Brands		
Name	Internal reference price	Grewal, Krishnan, et al., 1998
	Price premium	
Type	Price premium for national brands	Sethuraman & Cole, 1999, p. 348
Price-quality inference	Price premium	Sethuraman & Cole, 1999, p. 348
Quality signs	Cobranding effect if coherent	Larceneux & Renaudin, 2016
	Perceived quality	

The relation between the different stimuli, price concepts, and the perceived quality is complex. The different cues (price, store, brand, and quality signs) have indirect relationships and influence evaluative variables that are assumed to lead to a purchase intention and a price premium acceptance.

Figure 14. Conceptual model of the effect of prices, brands and stores (Dodds et al., 1991; Grewal, Krishnan, et al., 1998)
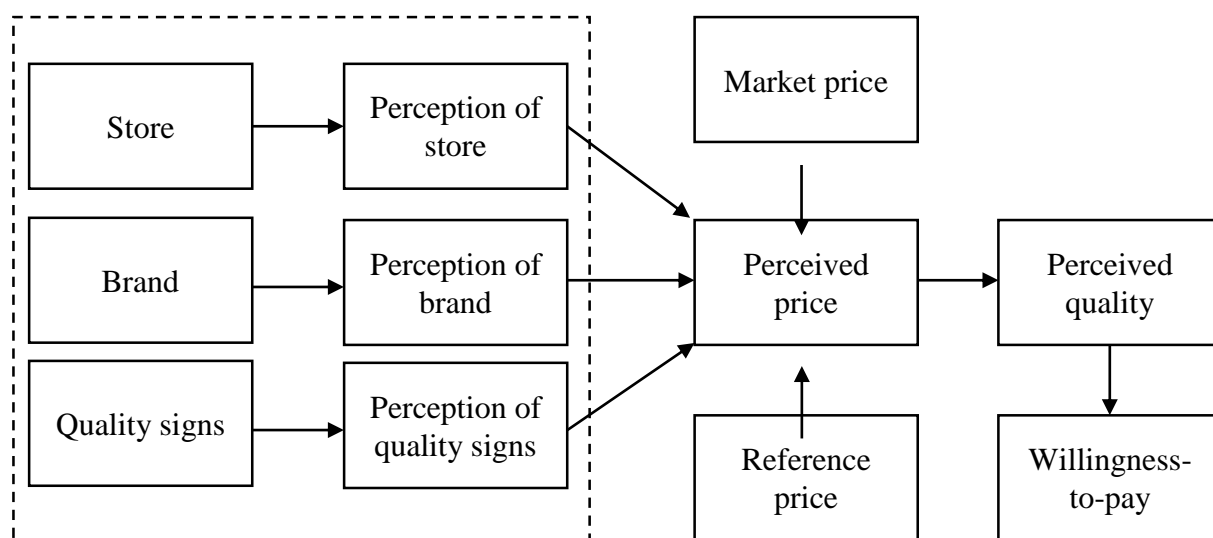
The perceived value is a mediator between perceived quality and perceived price (Zeithalm 1998). Previous researches tested the relation of perceived quality and perceived value (Chapman & Wahlers, 1999; Grewal, Krishnan, et al., 1998) based on the integrative model that measures the effect of a quality sign (the brand, the store, the price…) on perceived quality and perceived value. Marie-Christine Renard discusses the implications of quality in the agri-food sector. She states that the emerging model of consumption *"is developing around new socially constructed, shared values such as health, nutrition, nature, authenticity, and ecology, on the one hand; and convenience, ease, and adaptability to new lifestyles, on the other."* (Renard, 1999, p. 483). The relation between the price and the perceived value has been studied in several causal directions (Sweeney & Soutar, 2001).

Kapferer (2013, p. 130) stated that the brand is the way of market growth and market value for companies. Brands send signals to the consumers concerning the unobservable quality of the product. If the consumers buy a product with good perceived quality but it turns out to be poor quality, the consumers will not repeat purchase, and also can affect the brand negatively (word of mouth, legal complaint,…) (Rao et al., 1999). Brand equity generates a price premium. Brand equity is divided into four main dimensions, including the product quality (taste, texture, packaging,..), consumers' awareness and loyalty (two marketing variables commonly used and studied in the literature) and association, gathering credence quality and extra information (region-of-origin, nutritious criteria, environment and social benefits…). The four dimensions contribute to uniqueness, which is a determinant of price premium acceptance (Anselmsson et al., 2014). Store, brand and quality signs have a simultaneous effect and may influence each other under the congruity theory. *" […] rather than brand name or other cues suppressing price as an indicator of product quality, a reinforcing effect is likely if the multiple cues are consistent in their signaling of quality."* (Rao & Monroe, 1989, p. 355). The consumers gather information and try to make sense of it. The different perception of the stimuli influences each other (Grewal, Krishnan, et al., 1998; Olbrich & Christian Jansen, 2014). When consumers are well informed about the social and environmental quality of a product, they modify their purchase intentions and reevaluate the firm (Mohr & Webb, 2005).

3.1.2 Quantity

Purchased quantity is expressed in the number of items that are sold in the market. Less complex than price, the concept is nevertheless assessed in several ways with either market data, often referred to as sales volumes, or purchase intention, also called willingness-to-buy or

willingness-to-purchase. Quantity is in a reciprocal relation with price, as the price can influence the purchased quantity, but the need for a certain quantity modify the price acceptance. The change in price, either internal, market price, or willingness-to-pay changes the related purchased quantity because *"price sensitivity measures are systematically related to characteristics of the consumers in the market area and the competitive environment."* (Hoch et al., 1995).

Buying behavior is influenced by consumers' previous purchases and related information, as well as in-store information such as quality signals (brand, quality signs, stores) and product-related information (price, promotion, novelty) (Zielke & Dobbelstein, 2007). A part of the studies supports that frequent buyers have a higher price-sensitivity than infrequent buyers (Thomas & Menon, 2007; Briesch et al., 1997). Gootschalk and Leistner (2013) found that in the specific case of organic products, consumers that are used to buy organic quality are more likely to purchase organic, and are less price-sensitive than the first-time buyer.

A high introductory price signals a high quality to customers, in opposite to low-pricing that generate an increase in sales volumes, indicating a low-cost firm. In a price-quantity ratio, the low-quality firms have a lower marginal cost of production than high-quality firms and find it more profitable to sell a higher quantity (M. C. W. Janssen & Roy, 2010). Many marketing actions can accelerate product purchases, such as coupons, retailer advertising, price cuts, and advertised price cuts (Neslin et al., 1985). Quantity information is as important as price information to evaluate the product value creation.

3.2 Measurement methods

Price and sales can be studied either from the market with secondary data, or from consumers' perception. Both data are complementary and present the pros and cons. Secondary data have aggregate information but reveal real statements of the market prices, volumes, and value. Primary data mostly relies on customer intention or perception; including several psychological biases. Misassessment of customers' willingness-to-pay and willingness-to-buy lead to a market strategy failure (Gall-Ely, 2009). We present below some of the measurement technics for both indicators.

3.2.1 Price measurements: identification of the willingness-to-pay

Willingness-to-pay is the measure of the price premium that consumers consent to pay for a product. In economics, willingness-to-pay follows the Marshallian demand curve. The consumers' consent to pay a maximal price which corresponds to the marginal utility of the

product (Milanesi, 2010, p. 8). Market data assessment does not consider sociological and psychological influences. Marketing literature investigated the willingness-to-pay to understand the mechanism of value creation for the consumers and the related behavior. A gap between the attitudes of consumers and the behaviors on the real market has been detected and raised the question of the efficiency of the technics to measure willingness-to-pay. Price sensitivity, morals, and values of consumers lead to changes in intention and behavior (Donaldson & Preston, 1995).

The measurement of willingness-to-pay is a challenge to simultaneously assess the customers' psychology and authentic non-influenced behavior. Several methodologies have been developed and tested to collect the most realistic data (See Figure 15. Classification framework for methods to measure willingness-to-pay (Breidert et al., 2006; Gall-Ely, 2009)). We focus here on consumer willingness-to-pay and do not investigate the producer's willingness-to-pay. The willingness-to-pay assumes that consumers can choose the level of quality of a product, while quality is an exogenous variable. The estimation of willingness-to-pay is made with a change in quality (J. L. Lusk & Hudson, 2004). Willingness-to-pay can be evaluated with revealed preferences such as experiments and market data, and the stated preferences that collect attitudinal data with a direct and indirect survey in hypothetical situations (Breidert et al., 2006, p. 10). Four main data types are identified.

Table 23. Type of data collection to assess willingness-to-pay

Type of data collection	Nature of study and data
Qualitative studies and survey data	Purchase and expenses intentions
Field experiments	In-store observations of consumers' behavior
Laboratory experiments	Artificial and controlled labs special conditions of purchase encouraging respondents to buy products for real
Sales data	Analysis of past purchases, limited in terms of consumers' profiles analysis

Figure 15. Classification framework for methods to measure willingness-to-pay (Breidert et al., 2006; Gall-Ely, 2009)
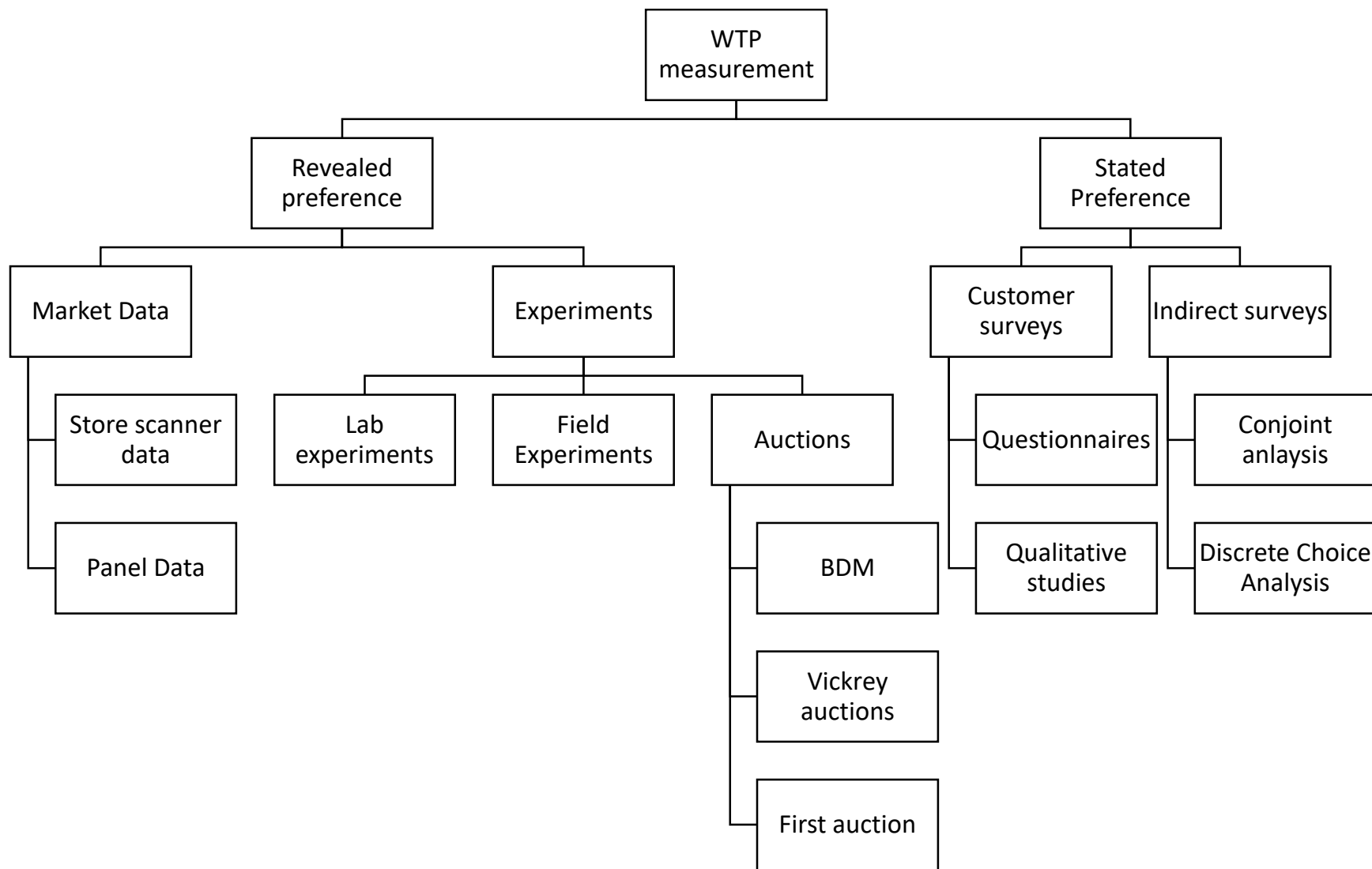
Several authors identified the pros and cons of each method type (Breidert et al., 2006; Gall-Ely, 2009; Hansen et al., 2018; J. L. Lusk & Hudson, 2004; Miller et al., 2011; Wertenbroch & Skiera, 2002). The objective of this classification is to make a better choice to answer the research questions.

Figure 16 Comparative evaluation of competing methods for measuring willingness-to-pay (Breidert et al., 2006)

| | Market data | Experiments | Direct survey | Indirect surveys | |
				Conjoint analysis	Discrete choice analysis (CBC)
Cost effective	+/-	--	++	+	+
Time efficient	+/-	--	++	+	+
Flexibility to include new price/products combinations	--	++	+/-	++	++
Validity of estimations	++	+/-	--	+	+
Real purchase behavior	++	+/-	--	--	-
Observed choice behavior	++	+	--	--	+
Individual levels estimations	+/-	+/-	++	++	+

(+) + (Strong) advantage
(-) – (Strong) disadvantage
+/- No clear advantage or disadvantage

Within the *revealed preference*, researchers use either *market data* or *experiments*. Market data others *panel data*, individual purchases reported by members of a customer panel, and s*tore scanner data*, sales recorded from the retailers. Market data have quite low detailed information, do not deliver information about consumers' attitudes, and cannot be used for new product prediction or inexistent price and product combinations. *Experiments* can be made either in a *laboratory* with a controlled environment to simulate purchase with real money transactions or in the *field (in-store)* to avoid artificial conditions issues but less control (Breidert et al., 2006). *Auctions* are specific experiments with a system of bids. Participants pay for the product if they win the auction. Many variations of this system exist, sometimes conducted in the laboratory and sometimes on the internet (Gall-Ely, 2009). The auction method is largely used in experimental economics because of the assessment of specific factors, such as brand type or quality.

There are two main types of auctions that are used in experiments to assess private value for agri-food products: the *Vickrey auctions* and the *BDM mechanism*. In a Vickrey auction, also known as the second price auction (Vickrey, 1961), the respondent who expressed the highest price win the auction and pay the second-highest price instead of its price. The more important bias is the under-estimation of the price that influences negatively the results. Other procedures

have been invented by drawing by lot the price paid by all participants that expressed a price equal or superior to the drawn price.

Table 24 Auction Types

Auction type	Principles	Paid price	Winner
English	Common and well-known, with bidders progressively raising asking prices. The last bidder pays the amount he or she indicated.	The highest bid	The last bidder
Vickrey	Simultaneous submission of sealed bids from auction participants, the person who wins the bid pays the price equal to the second-highest bid.	Second highest bid	The highest bidder
Random nth price	Same as Vickrey but the winner is randomly sorted out (n).	The price of n-1	The bidder with the n price.
Dutch	The procedure is the opposites of English auctions, as asking prices therein begin high and progressively fall until one bidder stops the process	The price that has been stopped by the first bidder	The first bidder
1st Price Sealed	Simultaneous submission of sealed bids from auction participants, with the highest bidder winning the item in question and paying an amount equal to his or her bid.	The highest bid	The highest bidder
BDM	Simultaneous submission of sealed bids from auction participants	The price is selected randomly (n)	All bidders with a higher price than n

The BDM method, named after the authors Gordon M. Becker, Morris H. DeGroot, and Jacob Marschak, is similar to auction methods but selects the random price by random draw. Then, all the respondents who bid a superior or equal price buy the products. *"The use of incentive-compatible auctions or equivalent selling procedures such as BDM for eliciting willingness-to-pay has been validated scientifically in the best literature, both theoretically and empirically, thanks to the 'induced-value' methodology introduced by Smith"* (Muller & Ruffieux, 2011, p. 182). In the case of experiments, a strategy bias is identified (Gall-Ely, 2009, p. 101). This strategy bias *"appears when a person modifies in purpose its answers to influence the survey results in its own interests"* (Gall-Ely, 2009, p. 98) or when the respondent has an objective of financial gain (Voelckner, 2006).

The *revealed preference* includes the possibility of using the *hedonic price method*. The term "hedonic" as an analytical concept has been invented by Andrew Court (1939) but has been seriously used in economics in the second part of the 20th century (Goodman, 1998). The hedonic pricing approach has been later introduced by Rosen (1974) who presents a model based on the characteristics of the products. This method analyzes the price structure and the value of a peculiar product's attribute. Rosen defined hedonic prices as *"the implicit prices of attributes and are revealed to economic agents from observed prices of differentiated products and the specific amounts of characteristics associated with them"* (Rosen, 1974, p. 34). The

hedonic price method calculates the price of each attribute. Mostly used for the analysis of the property assets and automobile market because the characteristics are evident, the method has been extended to other products, including food products. The divisibility of goods is the theoretical basis for the hedonistic method. *"When goods can be treated as tied packages of characteristics, observed market prices are also comparable on those terms. The economic content of the relationship between observed prices and observed characteristics becomes evident once price differences among goods are recognized as equalizing differences for the alternative packages they embody."* (Rosen, 1974, p. 54). Quality is perceived as an attribute of the food product (Waugh, 1929). Two main theoretical questions are addressed in hedonic literature. First, the relevance of the model to give significant demand responses and market outcomes. Second, the difficulty of giving a proper interpretation of the results. The quality-adjusted price index is satisfying in terms of research if interpreted with caution (Griliches, 1988).

We assume that the consumers' satisfaction depends on the products' attributes and not the product itself. In the theory of consumer demand, the good possesses multiple characteristics in a fixed proportion on which the consumers evaluate their preferences (Lancaster, 1966). This theory provides a way of predicting future demand for commodities. Firms aim to maximize their profits, managing either the price, the volume, or another strategy that improves their profitability (cost reduction). Equilibrium is at the intersection of attributes' supply and demand function of the product. This equilibrium defines how consumers value the product and how the sellers should value their product. The hedonic supply function is expressed by Rosen as

$$P_i(Z) = G^i(Z_1, Z_2, \dots, Z_n, Y)$$

where P_i is the price of the product i and $Z_1, Z_2, \dots, Z_n$ are its attributes. Y is an exogeneous-supply cost-shift variable that corresponds to the customer characteristics. Linear and semi-log are used for the methodology (Goodman, 1978). Researchers can evaluate the monetary value conceded for each defined attribute. Valuable information is extracted concerning the weight of each attribute. The hedonic price approach has been used to analyze the structure of markets, product heterogeneity, the price structure, the effect of an additional quality on product prices, and investigate the demand. It relates to willingness-to-pay but does not reveal it entirely, because the marginal implicit price is also determined by the producers' offer curve, which varies with the cost of providing each characteristic. The efficiency of the hedonic price method has been discussed for varied food products. Nevertheless, several publications use the hedonic price for raw food products (Chang et al., 2010; Karipidis et al., 2005).

Within the *stated preference*, the *direct surveys* can be addressed to managers and marketing managers in *expert judgment*, to have price-responses functions estimates and experts' feedback and experience. Mostly, they are addressed as *customer survey*s but the researchers face an unnatural focus on price and numerous psychological biases that distort real purchase intention and consent to pay. *Indirect survey* methods present products at a certain price and the respondents indicate if they would buy the product or not at that price. It is either realized with *conjoint analysis*, in which the products are referred as a set of attributes or with *discrete choice analyses* (also called *choice-based conjoint analysis* (CBC)), which also decompose the product into attributes but also estimate part-worths of these levels. They are both largely used in marketing literature.

A set of studies have been run to determine the real differences in willingness-to-pay estimation methods. Difference between hypothetical and real willingness-to-pay can be significant if the payment is real (instead of hypothetical), the perceived competition is high and in case of purchase obligation for a small part of the participant (Adalja et al., 2015; Voelckner, 2006; Welsh & Poe, 1998). The hypothetical bias is the most pointed out by the researchers for survey studies (List & Gallet, 2001; J. L. Lusk & Hudson, 2004). Nevertheless, the results for hypothetical and non-hypothetical are difficult to compare because the questions and answers are drastically different. Consumers misstate their actual preferences when they answer hypothetical surveys (List & Gallet, 2001).

3.2.2 Evaluating quantity as a function of price

Quantity and price are interrelated variables that are key indicators to calculate market-results. The price premium should not exceed a certain point otherwise it would hurt purchased quantity (Ngobo, 2011). Pricing must be optimized to establish the optimum price and the most adapted price structure because market competition is not limited to the price itself, but the price-quality relation. In the case of saturated markets enabled to increase the sales volumes, the pressure on price and quality is higher. In any case, an increase in quality for customers may allow the firm to increase the price without hurting quantity. The pricing process is a system of rules and methods to the determination of prices (decision making toward pricing…) and entering of prices (acceptance, competitions..) that can help to increase the sales volumes. The firms must establish correctly the prices under marketing, sales, and financial concerns, and improve the price process to improve its profitability (Simon et al., 2006). Cost is also another important variable to calculate profitability but is perceived by the firm perception and not the market.

Official quality signs increase operational costs with the hope of a market valorization. Additional returns should exceed the costs and generate surplus for shareholders. The assessment of quantity in addition to price unable the calculation of marketing margins, total margins, price competition and elasticities, market shares, and turnover.

Agricultural economics refers to *marketing margins* as the profit made thanks to the difference between economic actors' prices in a supply chain. It is transactional information often used as a metric to assess the profitability at the store-level (Petersen et al., 2009) The researchers mostly focus on farm-to-retail marketing margin, which is the difference between the farm value and retail price. *"it represents payments for all assembling, processing, transporting, and retailing charges added to farm products"* (Wohlgenant, 2001, p. 935). Marketing margins are often studied from a market perspective taking into account the entire volumes of sales to understand the fixed and variable expenses, and when possible the cost of the firms.

In the agri-food sector, actors' independent *margins* can be affected by factors such as the type of brands. National brands register a higher margin than private labels, due to the price competition and lack of loyalty. The price sensitivity of private labels' buyers decreases the potential of margin creation, but retailers have a market advantage because they react immediately to competitors' price change for their private labels (Bonnet & Bouamra-Mechemache, 2015). Nevertheless, a price decrease for a high-quality product can generate a negative influence on the price-quality relationship, and send a negative message in the market. Gross profit is positively and significantly impacted by the assortment of organic options, and the breadth of organic and conventional products.

Price elasticities are an indicator of the market structure, competition, and performance independently of price-increase. Price elasticity and demand are widely used to set the prices on the market (Dietsch et al., 2000; Gall-Ely, 2009). They *"summarize how conditions of the marketplace (e.g. patterns of prices and promotions) translate into changes in market shares or sales"* (Cooper, 1988, p. 707). Price elasticity is calculated according to the variation of sales volumes according to price variations, in a log-log econometric model. The method requires a time series database about prices and quantity of similar products. It states that consumers demand depends on all available prices in the market and all prices of consumption basket's goods. The use of a log-log system calculation based on a general form of the multivariate model is required:

$$lnY = f(lnX_1, lnX_2, lnX_3, \dots, lnX_n)$$

where Y is the egg type sales volumes (dependent variable); and X1 to Xn are different relevant factors affecting the demand (independent variables). The log-log functional form provides direct estimates of the respective elasticity of the independent variables to the dependent variable. It is relevant in a time series data with specific criteria for segmentation and very useful for demand analysis (Kinoshita et al., 2001). Own and cross-price elasticity are both interesting and deliver distinguished information. The own-price elasticity highlights the price sensibility of the product's customers, and indicate how easily they shift to another quality range or brand. Cross-elasticity indicates the importance of the studied characteristic in customers' decisions, and if better offers from competitors can have an impact on the product market share. Also, cross-price elasticity shows the (non-)substitutability of products and their characteristics.

Organic elasticities have been found mostly asymmetrical and with heterogeneous results. Organic, no-pesticides, and non-GM product versions are revealed substitutable in a price elasticity study (Bernard & Bernard, 2010). Nevertheless, the organic segment switches largely for the Non-GM option, whereas the no pesticides segment switched to the conventional option. Also, conventional and organic products have smaller own-price elasticity than No pesticide and Non-GM options. Bonnet and Bouamra-Mechemache (2015) also found an asymmetrical elasticity with organic buyers less likely to change to conventional in case of a price increase, than the opposite. It appears that marketing activities such as the promotion of organic product hurt more the conventional versions of the same products than the opposite, especially for virtue products, and even more directly from the farm products (eggs, dairy, meat, and poultry) (Bezawada & Pauwels, 2013). Organic buyers are less sensitive to a price increase. It is important to note that elasticity and the related strategy can affect the gross margin and by extension the financial results of the firms.

3.2.3 The special case of agri-food products

The theory of planned behavior and means-ends chain analysis study the perceived benefit of each attribute in a product to foresee customer behavior. Means-ends chain analysis generated the food-related lifestyle, a quantitative approach that focuses on the underlying values as a key point to understand organic consumption (Shepherd et al., 2005). Each attribute and information gathered by consumers change their attitudes and behavior. The general attitude toward official quality signs is mostly positive, with a large majority of consumers who express an interest or preference for organic products. Nevertheless, the consumers assess simultaneously several

attributes and information to construct their global attitude toward the product. The multi-attributes setting for a product changes the consumers' perception in a congruence effect. The willingness-to-pay for the whole product is inferior to the sum of each attribute separately, because the values of each attribute may overlap. There is a double constraint for firms to have a coherence and complementarity of the attributes. *"Firms engaged in product differentiation to offer higher value-added product must not only constantly seek attributes that are most attractive to consumers, but also carefully evaluate whether any of those favorable attributes are competing or conflicting with existing attributes."* (Meas et al., 2015, p. 1064).

The special issue of willingness-to-pay in agribusiness

Lusk and Hudson (2004) identified and detailed three types of specificities of agri-food products that might affect the success of willingness-to-pay evaluation methods. First, agribusiness is largely exposed to cross-price effects. In a real situation, consumers face several products, several quality ranges, and several prices. Cross-price elasticity is a key issue for agribusiness as consumers can easily compare the purchase option in-store. The hedonic price methodology seeks the causes of variation in its variation among economic and non-economic factors. An experiment or a survey can miss an important cross-price effect that changes thoroughly the hypothetical behavior. Second, the mean willingness-to-pay does not consider the existence of a niche market which could reveal high profitability and indicate an opportunity to gain market shares. Finally, customers' heterogeneity must be considered. The marginal utility of a specific attribute might vary from one population type to another. The information on customers can be essential in a willingness-to-pay assessment to understand to whom the firms would gain the most important market segment, and establish relevant marketing strategies.

Market performance impact: the most important variables

Willingness-to-pay and purchased quantity is influenced by several types of variables. We classify the variables into four categories: product variables, consumer variables, environment variables, and demographic factors. The consideration of these variables is important to avoid overinterpretation.

Figure 17 Classification framework for methods to measure willingness-to-pay (Breidert et al., 2006; Gall-Ely, 2009)

CATEGORY *Factor*	Effects	Reference
PRODUCT	Marketing-mix criteria, such as brand, price, advertisement, or product display, are determinant in consumers' perception (Ngobo, 2011). The product itself modify the perception of the other signals and related to different consumers' perception and concerns (Grunert et al., 2014). The results of an analysis realized on one food product is barely not extendable to another.	
Virtue product	The organic feature has a higher positive influence on customer behavior for virtue food	Van Doorn & Verhoef, 2015
Degree of processing	One of the determinants for organic purchase is the naturalness of the food, also called cleanliness which implies the absence of pesticides and unprocessed food	Shepherd et al., 2005
	Unprocessed organic food can benefit from a higher willingness-to-pay	(He & Bernard, 2011)
Naturalness	Willingness-to-pay for the organic version	Bernard & Bernard, 2010
Non-GM	The non-GM and non-organic versions of a product might be a substitute for organic buyers.	Bernard et al., 2006
	The addition of the premium for Non-GM and No pesticide is equal to the organic premium	Bernard & Bernard, 2010
Taste	Generate a repeat purchase	Akaichi et al., 2012; Bauer et al., 2013; Bezawada & Pauwels, 2013; Paul & Rana, 2012
Brand and certification	The increase in perceived quality not necessarily increase the purchase intention	Larceneux & Renaudin, 2016
	Private labels are more likely bought by consumers than national organic brands, due to a lower price of private labels, and the price sensitiveness of consumers	Ngobo, 2011
	Quality signs offer the opportunity to private labels to be more competitive to national brands	Larceneux & Renaudin, 2016
	Co-branding effect	Lucie Sirieix et al., 2013
CONSUMER	The source of consumer motivations lies in their consciousness and interests in several concerns. For organic food purchase, environment, health, and social concerns are the most quoted (Hansen et al., 2018). The consumers' motivations for food products are often classified according to their egoistic or altruistic characteristics. The personal considerations are equal for organic and conventional food, but altruistic considerations are more prevalent for organic purchase (Kareklas et al., 2014).	
Health concern	Organic is often seen as a better choice for health than conventional food products	Akaichi et al., 2012; Hansen et al., 2018
Food safety	Sanitary crisis is a motivation for purchase for food-safety attributes	Tsakiridou et al., 2008
Health consciousness	Influences positively a price premium acceptance	Botonaki et al., 2006

Sustainability awareness	Increases willingness-to-act or actual action for sustainability	Paul & Rana, 2012; Tsakiridou et al., 2008
Environmental concern	Second organic consumers' leitmotif, and one of the most quoted reasons for organic food purchase by consumers	Bauer et al., 2013; Bezawada & Pauwels, 2013
	When consumers associate organic food with environmental-friendly methods, they are more likely to buy organic food	Hansen et al., 2018; Kareklas et al., 2014
	A determinant of willingness-to-pay only for the first unit of product bought by the consumers, and non-existent in the case of several units purchase	Akaichi et al., 2012
Farm animal welfare perception	Modifies positively consumer behavior	Bezawada & Pauwels, 2013; Grunert et al., 2014; Kareklas et al., 2014; McEachern & Warnaby, 2008
Biospheric value	Willingness-to-pay a higher price for organic products	Van Doorn & Verhoef, 2015
Quality signs awareness	Can decrease purchase intention and willingness-to-pay because of quality signs misunderstanding	Akaichi et al., 2012; Larceneux et al., 2012
Previous experiences	The previous organic purchase increases willingness-to-buy organic food	Akaichi et al., 2012; Tsakiridou et al., 2008
	First-time buyers are more price-sensitive than others	Gottschalk & Leistner, 2013
Satisfaction	Conventional food dissatisfaction of conventional leads to a higher purchase intention for organic	Tsakiridou et al., 2008
	Organic food satisfaction depends on product availability, amount, and varieties, as well as information delivery about the organic process.	Paul & Rana, 2012
Price consideration	Influences organic purchase intention	Aschemann-Witzel & Niebuhr Aagaard, 2014
ENVIRONMENT	The environment of a purchase experience includes a lot of signals sent by the firm and the store at the point of purchase.	
Firm size	Conducts a positive effect on organic sales	Bahadir et al., 2009
	Does not conduct a higher willingness-to-pay	Schott & Bernard, 2015
Advertising	Positive influence on organic food purchase if it delivers a message about simultaneously personal benefits (more nutritious, more natural...) and environmental concerns (contribute to a cleaner environment...)	Kareklas et al., 2014; Bahadir et al., 2009
Quantity	Influences the willingness-to-pay	Bertini et al., 2012
Store location	Isolated stores display less price sensitivity than stores located close to their competitors. Distance increases shopping costs	Hoch et al., 1995
Price difference	One of the most quoted deterrents for buying organic	Kareklas et al., 2014
DEMOGRAPHICS	Few sociodemographic information is important for the purchase of organic food (Tsakiridou et al., 2008) and has heterogeneous effects among studies (Brantsæter et al., 2017).	

	Young consumers do not express an interest in buying organic	Tsakiridou et al., 2008)
Age	Young consumers show a low frequency of purchase	Aslihan Nasir & Karakaya, 2014; Bernard & Bernard, 2010; Jolly, 1991
	No significant relationship between age and organic food purchase.	Paul and Rana 2012
	A high level of education conduct higher willingness-to-pay for organic quality	Tsakiridou et al., 2008
education level	High and professional education buy more organic products in term of quantity	Aslihan Nasir & Karakaya, 2014; Paul & Rana, 2012
	Educated consumers are also less price-sensitive	Hoch et al., 1995
Urban area	Consumers living near towns are more likely to purchase organic food	Paul & Rana, 2012
Gender	Women require more information and are more willing-to-pay for organic quality	Aslihan Nasir & Karakaya, 2014; Bernard & Bernard, 2010; Grunert et al., 2014; Tsakiridou et al., 2008
Incomes	High incomes conduct higher willingness-to-buy and to-pay	Tsakiridou et al., 2008
Children in the household	Higher is the number of children, higher is the probability of organic purchase	Bernard & Bernard, 2010; Thompson & Kidwell, 1998
Household size	Large families are more price-sensitive	Hoch et al., 1995
Employment	Positive impact on organic purchase especially people with high-level occupations such as executive and businesspeople	Ngobo, 2011
	People with a professional activity prefer buying organic food, especially for public sector employees and pensioners who have the highest willingness-to-pay	Tsakiridou et al., 2008

Conclusion of section 1

The chain of marketing productivity represents performance as a domino effect from marketing actions to financial results. Marketing performance focuses on intangible customer value creation, customer behavior, and market outcomes resulting from marketing actions. The measurement of the influence of official quality signs integrates simultaneously qualitative criteria (environmental concern, producers concerns…) and quantitative data (price, volumes of sales…) (Le Roy, 2008). The firms elaborate strategies by combining many types of signals to create firms' marketing assets and improve customers' intangible value. The final objective is to make quality signs a success and to improve the firms' results (Kirmani & Rao, 2000, p. 76). Market performance is mainly measured with the price and sales volumes. Both variables act as a turning point between customer price acceptance and financial profitability. Marketing research mainly conducts attitudinal data collection, but an attitude-behavior gap decreases the reliability of the studies. For instance, organic food price is perceived too high by consumers, in contradiction with the self-reported answers that claim the ability of consumers to pay a price premium for a social or environmental quality increase. The gap is due to a large number of factors including measurement methodology limits, which hardly reproduce the real purchase situation (competition, environment, in-store signals…) (Aschemann-Witzel & Niebuhr Aagaard, 2014; Giraud, 2001). Nevertheless, studies point out a positive influence of quality signs on willingness-to-pay and willingness-to-buy but under certain conditions concerning the product, the environment of purchase, and the consumers. These conditions and the existence of the gap require more investigation to understand customer behavior and market performance with combined and complementary methodologies.

The marketing-value chain process transforms intangible value for consumers – perception, attitude – into tangible value for the firms – sales revenues, marketing margins. We retain official quality signs, brand types, and store types as key signals. Studies revealed a higher performance for a conventional national brand, but private labels have a better cobranding effect with an organic label. Moreover, the store type influences the willingness-to-pay because of the displayed environment, its location, its promotion, price image, its image, and its associated private labels.

Section 2. Measuring performance: access to reality with reveled data

This doctoral thesis aims to understand the mechanism of intangible customer intangible into market tangible value. The research model has been elaborated based on the literature review and conducted to the use of the adapted methodology to increase results relevance and avoid misinterpretation (1). The field of official quality signs for agri-food products has been chosen because of the specific history of the organic label and Label Rouge. Both show distinct and interesting market trends and market influences (2).

1. From the literature review to the research model

The literature review concerning the performance of quality signs shows heterogeneous results due to the plurality of methodologies and the specificities of each case study. Studies reveal a positive customers' performance, but the market performance appears to have been stunted by a lack of transformation from customers' value to financial value.

1.1 The research question

Based on the marketing productivity chain (Katsikeas et al., 2016; Rust et al., 2004), this research focuses on the agri-food market results in marketing actions for social responsibility, and more specifically the use of official quality signs. On one hand, the consumers demand higher product quality, food safety, and responsible practices in production. On the other hand, taste and price are still the most important criteria for purchase decisions. Some specific segments of consumers are responding positively to quality signs and accept a higher price to meet their quality expectations. Our research investigates the official quality signs influence among two other quality signals: brand types and store types. A certain consistency and commitment among the signals should increase the price acceptance for consumers. We question the ability of official quality signs to enhance the value of agri-food from two perspectives: the consumer and the market. The required financial investments for enhancing the production process are perceived as risky because of the complexity of the consumers' choice process. The main objective is to give a better understanding of the value creation mechanism for official quality signs. The studies seek to deepen the understanding of the value creation mechanism in the market through the research question:

To what extent do official quality signs influence the sales revenues of agri-food products?

This main research question is divided into three sub-questions:

- *To what extent does the consistency between official quality signs, brand types and store types enhance value creation?*
- *To what extent are customers' benefits from official quality signs transformed into sales revenue through price and purchase quantity?*
- *To what extent do official quality signs generate greater profits than the standards for other quality range products?*

1.2 Research methodologies and epistemology

We adopt a deductive approach that consists of reading literature, elaborate hypotheses, and models in which the theories suits the topic and answer the research questions. The methodology must test and either infirm or confirm the hypotheses, the model, and the theories. The methodology which is selected must be appropriate and able to answer the question we used. The literature in marketing gathers a large amount of research that explores and analyzes attitudinal data, and more especially the organic label consumers' value. The researchers already explored the consumers' attitudes and self-declared behavior in qualitative and quantitative surveys. Consumers declare accepting a price premium for organic and high-quality food, and to be sensitive to information, especially in-store. Nevertheless, the customers tend to self-declare higher price premium acceptance that they accept in-store, and the high quality of food products market is not necessarily gaining market shares.

The goals of the research call for quantitative revealed data. The considerable prior knowledge of the research question conducts to study market data and experimental economics. Moreover, as we are specifically interested in market responses and trends, the "cold" data are preferred, as well as a research method that investigates real customers' responses (Bryman, 1984). The research design must be consistent with the research questions, the theoretical framework, and the methodologies that seem the most adapted.

1.3 Research design

The design of the research is elaborated to look at three types of performance: Market performance, customer performance, and financial performance. Three studies are conducted to understand better each of them and to observe the mechanism that creates value. The market data analysis at the retailers' stage helps us understand the trends and market phenomenon in a time series. With general trends and observations, we can analyze the influence of quality signs, store types, and brand types in market price formation, and the role of quality signals and price in sales volumes. A consumers studies on willingness-to-pay is further elaborated to test the variables and hypotheses we identified in the market study (market trends and price formation)

and the literature review on consumers' attitude (perception). Finally, a study on market data compare the gross margin formation of products according to the different quality signals, and more specifically the official quality signs combined with store types.

Research question:

To what extent the official quality signs influence the market performance, customer performance and financial performance of agri-food products?

---

1. Literature review and selection of markets

Theoretical research, research model elaboration and main research questions

Literature review	→	Field selection Research model

---

2. Market performance study

Market dynamics analysis – Understanding the trends and price formation

Market data – store scanner and consumer panels	→	Excel - Market trends R - Hedonic prices R - Elasticity

---

4. Financial performance study

Marketing margins – Understanding profitability

Market Data – store scanner	→	R analysis – Tobit Model Excel – Theoretical price

---

3. Customer performance study

Experiment – Understanding the customers and their behavior

Online Experiment – Auctions Questionnaire	→	R analysis – Tobit Model SPSS – Data treatment

---

General discussion

2. Presentation of the research field

Bearing in mind the characteristics that enhance the willingness-to-pay for agri-food products, we selected the organic Label and the Label Rouge because of their history (1) and their current place in agribusiness (2).

2.1 The official quality signs system

The actors of food value chains evolve in a competitive environment which encourages them to create novelty and value. The quality signs are tools that aim to attract consumers and increase margins with a higher price acceptance. Nowadays, organic and Label Rouge have a special room in French stores. Both official quality signs show a specific history that built their notoriety in France. The associated constraints of production control and delivery evolved in Europe over the decades and contributed to the potential influence of official quality signs in the market. They are part of marketing productivity and enhance market performance.

2.1.1 History of official quality signs

Label Rouge and organic label are a part of the food labeling rules managed by the European authorities. These official quality signs imply a political implication and regulation, managed by the General Direction of competition, consumption, and Fraud control[14] that follows the rules from the European Union concerning quality signs. The National Institute of agriculture of origin (INAO)[15] is the organism that spearheads these legal actions (**Erreur ! Source du renvoi introuvable.**). The INAO delivers several labels since 1935. It has been created thanks to a legislative-decree[16] and supported the approach administratively, legally and professionally. Its main mission is to promote and protect the quality, know-how, and geographical origin of food products, and to create value in the market. The INAO inspired the European Union (EU). In 1990, the success of the controlled origin (AOC[17]) in the wine sector was conducted to the entry into force of law concerning other agricultural produce, raw or processed[18]. In 1992, the EU developed the concept of protected regional origin (AOP[19]), a European equivalent for agricultural products, including wine from 2009. The AOC products

---

[14] https://www.economie.gouv.fr/dgccrf/Publications/Vie-pratique/Fiches-pratiques/Signe-de-qualite

[15] Translated from French "Institut National de l'Agriculture d'Origine"

[16] Legislative-Decree of 30 July 1935

[17] Translated from French "Appelation d'origine controllée"

[18] Law of 2 July 1990

[19] Translated from French "Appellation d'origine protégée"

became gradually AOP (Institut National de l'Origine et la Qualité, s. d.) to homogenize and clarify the situation to the consumers. the Traditional culinary specialty guaranty[20] is another logo managed by the INAO, often associated with AOP and AOC. This certification protects the know-how of a regional specialty but the product can be produced outside from the traditional area. Thus, this indication is not geographical, but signal the respect of cultural heritage in the production process. These official quality signs are technical and experience quality signs that are valuing a region or a cultural heritage. They relate to specific literature on the "country-of-origin effect" which is the value of a specific geographical area because of its cultural identity, history, or landscape (Abraham & Patro, 2014; Brij et al., 2011; Carter et al., 2006).

The INAO also delivers the famous organic label and the Label Rouge in France. These two labels do not refer to location, but other quality dimensions: the environmental quality, protection of quality know-how, and social quality. We focus on these two specific labels that are well known in France because they are available in France.

Figure 18: Logo of official quality signs

Label Rouge	European organic label	French organic Label

2.1.2 Label Rouge

The first Label Rouge has been created in 1961 by a professional syndicate to distinguish chicken products in the market. Since that date, numerous plant-based or animal-based products obtain the official logo of Label Rouge. In 1991, the notoriety of the Label Rouge was already pretty high with a mean of 81% of the population aware of the label. The poultry sector first embraced this opportunity. Nowadays, Label Rouge is the most famous label with 97% of French consumers who know it[21]. The Label Rouge gathers 434 specifications (INAO, 2018), called "cahier des charges", which deliver all details for the entire supply chain (Westgren, 1999). For example, farmers who produce table eggs with a Label Rouge have commitments for the type of hens, hens' food, cross-breeding, animal density in the farm, health, and safety

---

[20] Translated from French "Spécialité traditionnelle garantie"

[21] https://www.labelrouge.fr/une-histoire

procedures, among other criteria[22]. It is a voluntary approach that farmers can undertake to obtain the national sign. The aim is to signal a higher quality compared to similar products without the label. It indicates a global superior quality, and aim to meet implicit and explicit consumers demand, but does not ensure a location of production as it can be obtained by producers outside the European Union. The Label Rouge is both experiential and technical quality sign. It implies the respect of precise specifications, the control of an independent third-party, and tasting sections by experts and consumers (Larceneux, 2003). In 2018, the sales revenues of Label Rouge products is estimated at 1,5 billion euros (including taxes), with a 7.8% increase since 2017. It represents 1.5% of food products sold in France. It is used in the production of meat and eggs.

2.1.3 Organic Label

Organic agriculture appeared in Europe at the beginning of the twentieth century. This period is characterized by excess supply and short distribution channels. The organic movement was driven by ethical considerations. It became stronger in the fifties due to the intensification of agriculture which used excessively pesticides and artificial fertilizers. In the sixties, the environmental and health risks associated with intensive agriculture were already defined. The environmental movement and the concerns about food safety and health became stronger from the seventies (Latacz-Lohmann & Foster, 1997). Organic agriculture was associated with a new economic and technical approach on one hand and was perceived as a part of a more global social project on the other hand (Fédération Nationale d'Agriculture Biologique, s. d.). In the eighties, agricultural policies emerged, and support the conversion of farms to organic agriculture. France adopted a proactive approach to organic agriculture with the creation of the label Organic Agriculture (A.B)[23] in 1985. In 1992, the EU allows countries to modify and supplement the rules made for organic vegetables. France implemented strict rules and included animal products. The specifications of the Label AB are enriched. In 2009, the European Council homogenized the label for organic products in the regulations of the 21 October and displaced the Label AB, which became an optional procedure. Nowadays, European citizens can find these labels on fresh and processed food, from staple to convenience products. But they are not the only organic agriculture quality signs, and the official quality sign is entangled in an intense competition.

---

[22] https://www.inao.gouv.fr/produit/14809

[23] Translated from French "Agriculture Biologique"

2.2 The influence of official quality signs in the market

The public authorities managed the official quality signs to modify the market structure and create value in the market. They interact in the marketing productivity chain thanks to positive customer response.

2.2.1 Market mechanism

Official quality signs constitute a promise by the public authorities to create a trustworthy alternative to intensive agriculture (Guérin, 2017) and launch the marketing-value chain. Some quality signals can substitute each other to achieve better performance or avoid expenses. They can discharge the farmer to invest in the label obtention process (Veldstra et al., 2014). For instance, in the case of direct sales, producers who farm organically are not required to invest in the label, because the relationship between farmers and buyers generate trust. This voluntary labeling system may affect competition intensification and impedes the positive outcomes for consumers, such as lower prices and innovation (Bonroy & Constantatos, 2008). Labeling is part of a tactical marketing action including many signals. Marketing tactics are central in attracting and retaining consumers by creating customers' value. The market responses should be higher price acceptance and volumes of sales.

2.2.2 Generalities

The organic label and Label Rouge markets evolved differently and present two distinct segments. They are not similar in their market trends and the customers respond differently to the stimuli.

General market trends

In 2018, France was the second biggest organic market in Europe with 9.7 billion of revenues, behind Germany (10.9 billion). Other countries register a stagnation (the United Kingdom) or low growth (Sweden and Italy). The exponential growth rate in France shows that organic continue creating market opportunities (Agence Bio, 2016, 2019b). In 2017, the Label Rouge represented 1.5 billion euros, mostly due to the poultry sector. The dairy sector registers a small rate of growth for Label Rouge compared with geographical indications. The meat sector, except poultry, recorded a growth of 10% in sales volumes, with a high rate for pork and sheep products. Beef decreased slightly. The Label Rouge shows a positive rate of growth for cured meat products. We note a significant growth for vegetables and seafood with the Label Rouge (INAO, 2018). The growth of organic and Label Rouge products is related to the availability of

136

the products. For organic products, the supermarkets are leaders (49% of total sales), followed by specialized stores such as organic stores (34%) and direct sales (14%). The delicatessen, restaurant, and convenience stores play a small role in the organic quality food chain (5%). The organic quality represents 4.8% of market shares for these distributors.

Figure 19. Evolution of organic sales revenues per distribution canal since 2011 (Source: Agence Bio / AND-International 2019)
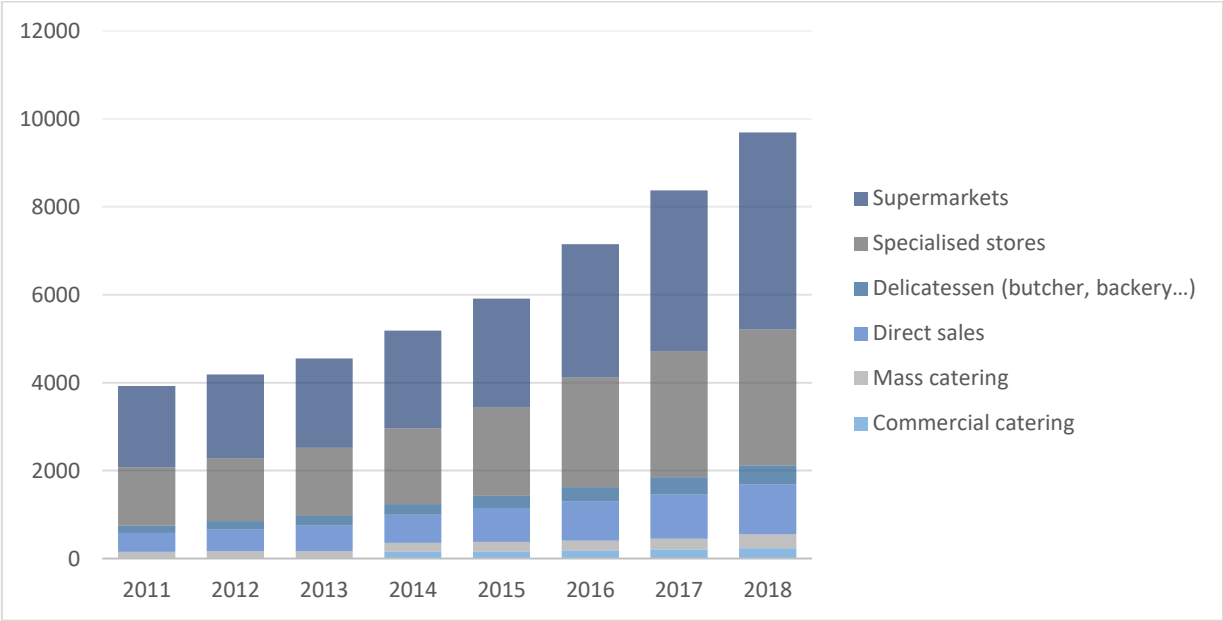
If a quality range is dominant on the market, it could make it difficult for the other quality range to increase its market shares (Cruz & Boehe, 2008). We wonder to what extent official quality signs can compete, and if the sectors that already show a large organic or Label Rouge market share can make some room for the other quality signs.

Consumers and official quality signs

Official quality signs are very well known by French consumers. In 2018, the Label rouge was the second label with the highest rate of trust for French consumers (83%), right after the organic label (88%). Both labels include credence and expectations from the consumers. Concerning organic agriculture, science faces difficulties to assess the real health outcomes. Indeed, the comparisons between organic and non-organic consumers are complicated because of the healthier global lifestyle of organic consumers (Brantsæter et al., 2017; Shepherd et al., 2005). This lack of proof and the inability of consumers to evaluate themselves the benefits, make the label a credence quality label. According to the International Federation of Organic Agriculture Movements (IFOAM) (*Principles of Organic Agriculture | IFOAM*, s. d.), organic agriculture has four principles: health, ecology, fairness, and care. Also, consumers make

confusion between organic and ecological logos, natural product mentions, and brands (Larceneux, 2003). But despite a biased perception of the organic label criteria and benefits, 92% of French consumers declare that the organic label influences positively their purchase. Consumers purchase mostly organic quality for grocery products (23%), fresh fruits and vegetables (19%) and dairy products, and eggs (17%). In a study conducted in France in April 2016, 91% of the consumers declare that it encourages the purchase (INAO, 2016). Studies revealed a global positive attitude toward organic quality increases the purchase intention. In a survey conducted by the "Agence Bio" (2018), the French organic agency, 43% of the respondents declared buying more and more organic products, and 28% declared that they diversified their point of purchase. They record a dynamic for higher quality products. But consumers show some restraint to buy organic products. The price is the third most important criteria after the taste and the French origin of the organic product. It is the first criterion for 57% of organic consumers, whereas 62% of non-organic consumers use the price as the first criterion in the food purchasing decision. The price of organic products is an important variable in the purchase decision for 91% of organic consumers. The consumers claimed that they changed their point of purchase for organic food (39%). Their motivations are diverse and include mainly the will of turning to local producers, the better organic offers, the new offers in convenience stores, and the product quality. For 28% of the respondents, the availability of organic products in conventional stores encouraged their purchase. They are willing to find more organic products in artisans and local stores, especially respondents between 50 and 64 years old (57%) in the French region of Occitanie (59%). For organic consumers, the unavailability of the product in their usual point of purchase is the second most important obstacle in purchasing organic, after the price. Only 5% of the organic consumers declared that they changed their purchase location to get a better price. This information is pointing out the importance of the point of purchase in the organic purchase and the price in an organic purchase decision. The point of the purchase offers organic products at different prices. They use the price acceptance to make margins, and by extension make the product more profitable. The association "UFC Que Choisir" denunciated the large margin on organic that is estimated at 75% larger than conventional products[24]. The excessive margin capture of some economic actors in the organic sector is a hot topic in France.

---

[24] https://www.lemonde.fr/planete/article/2019/08/22/les-marges-de-la-grande-distribution-75-plus-importantes-sur-certains-produits-bio-selon-ufc-que-choisir_5501626_3244.html

Concerning the Label Rouge, a blind test has been conducted on a salami product in-store, with and without indications. The experiment did not prove the higher hedonistic quality of the Label Rouge product, and consumers gave a better grade to Label Rouge products only with the information about the official quality signs. The experiment shows the influence of credence in the taste evaluation of a product (Giraud, 2001). We note that experience attributes are evaluated by consumers after purchase. If the product does not meet the expectation of consumers, there is a risk that customers do not repeat purchases.

Conclusion of section 2

Based on the literature review, we identified a research question that must be answered to complete the literature and understand better the mechanism of value creation along the marketing-value chain due to official quality signs. We selected the Organic Label and the Label Rouge because they are both signals for credence quality and are related to know-how and production processes independently of the country-of-origin effect. Moreover, they are elaborated by the public authorities to create more value in the market. This liberal and political strategy is implemented in a corporate social responsibility development, to respond to new social, environmental, and health concerns.

The main objective is to assess the ability to turn the customers' benefits into market value, reflected by sales revenues – price and sales volumes. We also integrate into our research the importance of consistency with other quality signals, namely brands and retailers. The marketing literature largely explored the results of marketing actions with attitudinal data, and identified hypothetical financial performance. We adopt a hypothetico-deductive method and formulate hypotheses. To answer our questions, quantitative methods are the most adapted for several reasons. First, the exploration of consumers' perceptions of high quality in food products has already been often conducted. Second, we move away from attitudinal data and focus on revealed preference to assess real market results with economic indicators. Finally, because we work on mature markets, market data are available to establish a market overview.

We elaborate on three studies to investigate market performance according to quality signals. We use real market data from store scanner data and consumer panels to explore price formation and marketing margins. Then, we conduct an experiment to analyze customer behavior, observing price acceptance, and purchase decisions.

CONCLUSION OF CHAPTER 2

Firms' performance is a central concern for managers to increase their profitability and viability, and researchers to understand the mechanism of success. The ability to foresee marketing actions performance protects from market failure, but performance is difficult to measure. Among the plurality of concepts that have been developed, the chain of marketing productivity draws a theoretical design of the influence of marketing actions on several performance dimensions. The mean-end chain starts with marketing actions and generates customer responses (perception, attitude), market effects (competitiveness, price, sales volumes), accounting results (sales revenues, gross margins), and financial benefits (ROA, shareholders revenues). Marketing research focused on customer intangible value created by quality signals, but a gap between the intended behavior and market results has been detected.

The official quality signs are marketing resources that firms use to enhance customers' performance such as perceived value or quality. The creation of new customer assets influences customer behavior, especially two main variables that modify the product market results: customer willingness-to-pay and purchased quantity. Price and sales volumes increase are two indicators of market performance that lead to financial results. Following the 3C-SR model of performance, we assume that one signal alone is not sufficient and must be associated with other quality signals that present a similar commitment, good coherence, and represent consistent connections. All in-store information must be coherent to send an efficient message and generate higher performance (Zeithaml, 1988). We focus on the Organic Label and the Label Rouge, two official quality signs supported by public policies to increase the value of high-quality agri-food products, and suppose that their market performance depends on the associated brand type and the type of store where it is available.

We designed a doctoral study based on revealed data to fill in a multifactorial gap between self-declared preferences and the market trends (Aschemann-Witzel & Niebuhr Aagaard, 2014). The product-market performance is assessed with market data and experimental economics focusing on price and quantity as key indicators to evaluate price formation, product elasticity, marketing margins, willingness-to-pay, and price acceptance.

Key elements

- Marketing performance is designed as a mean-end chain

- Marketing actions performance is evaluated according to related customers, market, accounting and financial results

- Customers intangible assets can be transformed into tangible results in the marketplace

- Price and sales volumes are key product-market performance indicators

- Official quality signs are marketing resources for the firms

- Official quality signs are used in marketing actions to influence product-market performance

- A quality sign alone is not sufficient and must be associated with other consistent quality signals

- The set of quality signals must have similar commitment, good coherence and show consistent connection to generate positive results

- Price and quantity can be measured by several methods:
    - Quality attributes performance (hedonic prices)
    - Purchased quantity (sales volumes)
    - Price-elasticity
    - Marketing margins
    - Customer willingness-to-pay (maximum price consented by customer)
    - Customer willingness-to-buy and purchased quantity

- This doctoral aims to answer the following main research question:
    - To what extent do official quality signs influence the sales revenues of agri-food products?

- And three sub-questions:
    - To what extent does the consistency between official quality signs, brand types and store types enhance value creation?
    - To what extent are customers' benefits from official quality signs transformed into sales revenue through price and purchase quantity?
    - To what extent do official quality signs generate greater profits than the standards for other quality range products?

CONCLUSION OF PART 1

The use of quality signs is embedded into the desire of signaling responsible practices in the marketplaces. Corporate social responsibility has a long history and pushes the firm to act *"in relation to business ethics' fulfillment that includes corporate obligations and commitments to society."* (Lussier 2000, Ferrel and Geoffrey, 2000). Corporate social responsibility is a joint and voluntary approach of business to maintain benefits for all stakeholders and responds to public pressure and social expectation (Wang, Chen, Yo, Hsiao, 2015). According to the 3C-SR approach, social responsibility must show a global coherence between the resources to generate higher performance. The quality of a product has no significant influence on consumers in case of a low corporate social responsibility implication, but as a significant positive effect when the implication is high (Mohr & Webb, 2005). Quality signals must show a certain commitment (involved in CSR – quality signs), connection (between brand values, quality signs values and store values), and consistency (store image – brand image – quality sign image) to maximize the results. The marketing-value chain presents the performance of marketing in a mean-end chain. The marketing actions' results can be assessed on customers (perception, attitude), market (competitiveness, price, sales volumes), accounting (sales revenues, gross margins), and finance (ROA, shareholders revenues).

Official quality signs are quality signals managed by public authorities to enhance the high-quality agri-food product performance by reducing the information asymmetry. Organic label and Label Rouge are two official quality signs that signal specificities in the production process with environmental and socially responsible practices. They both are common in stores and well-known from French customers.

We call into question the influence of these official quality signs in market value creation. Based on the literature, we suggest that the official quality signs must show commitment, connection, and consistency with two main other quality signals – the brand type and the store type – to generate positive results. To complete the literature, we elaborated studies to assess performance with several types of revealed data. We want to analyze market data – from store scanner data and specific consumer panels –, and economic experiments to observe and understand willingness-to-pay and purchased a quantity of customers.

PART 1. FIRM'S RESPONSIBILITY, QUALITY SIGNS AND MARKET PERFORMANCE – A THEORETICAL APPROACH
Chapter 1. The role of quality signs in the corporate social responsibility
Chapter 2. The effects of quality signs on market performance

Figure 20. Theoretical model of value creation for products with official quality signs
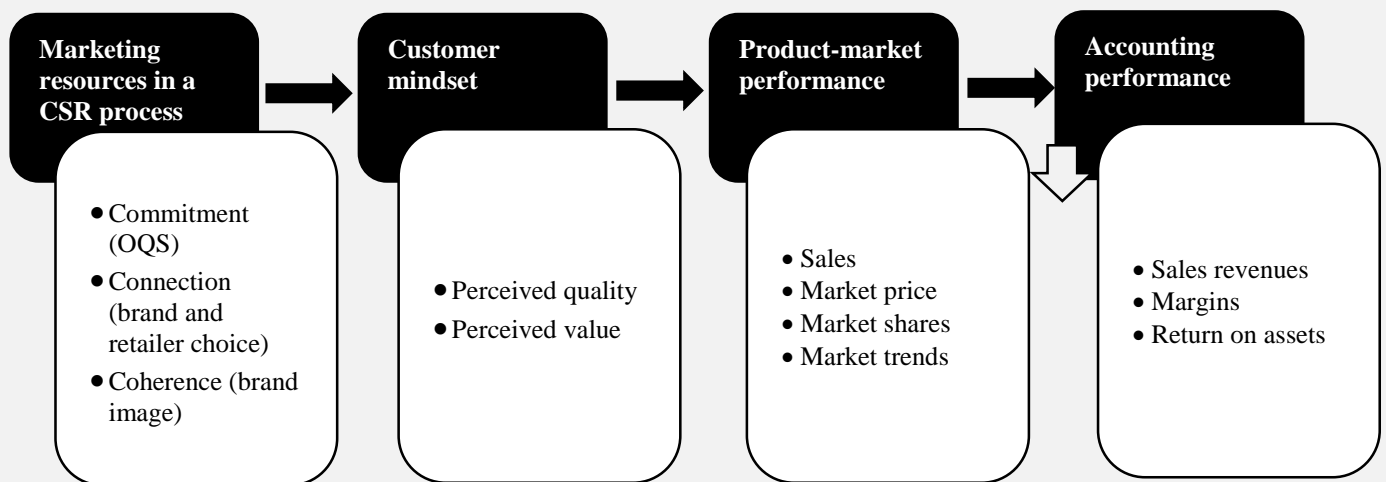
Marketing resources in a CSR process	Customer mindset	Product-market performance	Accounting performance
• Commitment (OQS) • Connection (brand and retailer choice) • Coherence (brand image)	• Perceived quality • Perceived value	• Sales • Market price • Market shares • Market trends	• Sales revenues • Margins • Return on assets

PART 2. QUALITY AND VALUE: THE ROLE OF PRICE AND QUANTITY – AN EMPIRICAL APPROACH
Chapter 1. The influence of quality signals: A consumer demand approach
Chapter 2. Price and Value: A value-chain approach
Chapter 3. Willingness-to-pay and purchased quantity: An experimental approach
GENERAL CONCLUSION CONTRIBUTIONS, LIMITS, AND RESEARCH OPPOTUNITIES

PART 2. QUALITY AND VALUE: THE ROLE OF PRICE AND QUANTITY – AN EMPIRICAL APPROACH

The first part of this doctoral thesis was dedicated to the understanding of the market and financial results of marketing actions, with a focus on value creation and price. The objective of the second part is to understand the theories and the mechanisms of value creation. The main purpose is to understand to what extent official quality signs create market value. In a positivist approach, we consider value from a market perspective and analyze market price and market sales volumes. We conduct three empirical studies.

The first chapter focus on price and quantity at the store level. We analyze the market performance of table eggs with the use of market price, purchased quantity in the percentage of the total sales, and analyze market trends for several quality ranges of the products and market shares. We have a quick look at the brand type effects in the preliminary analysis. With the use of the hedonic price method, we identify the most important characteristics in price formation and to know if the type of store is significantly modifying the value of products.

The second chapter examines in detail the value distribution along the value-chain of oven-ready chicken with standard and Label Rouge quality, and table eggs with organic and non-organic quality. Based on the market price at several levels, we identify how stakeholders generate a better market performance. The analysis is made with the use of price increase along the chain, the theoretical price of official quality signs, and the analysis of marketing margin formation for official quality signs and retailers.

The third chapter aims to understand the value creation of organic label and brand type for fluid milk from a customer perception. We elaborated an experiment made of an experimental auction combined with the assessment of purchased quantity, and a survey to assess the perceived value, the role of spirituality in credence quality, and the influence of demographics characteristics, usually purchased products criteria and reference price.

We verify the mechanisms of marketing productivity chain with the 3C-SR approach of corporate social responsibility performance. The current part investigates the consumer demand and product valorization from a market perspective, and investigate to what extent customers create value for quality criteria.

PART 2. QUALITY AND VALUE CREATION: THE ROLE OF PRICE AND QUANTITY – AN EMPIRICAL APPROACH
Chapter 1. The influence of quality signals: A consumer demand approach

Section 1. Methodology
  1. Justification of a market-based approach on table eggs
  2. Databases
  3. Methodologies of econometric methods
Section 2. Results
  1. Preliminary analysis
  2. Econometric results

Chapter 2. Price and value: A value-chain approach

Section 1. Methodology
  1. The interest of marketing margins in chicken and egg markets
  2. Databases
  3. Methodologies
Section 2. Results
  1. Preliminary analysis
  2. Margin analysis and econometric results

Chapter 3. Willingness-to-pay and purchased quantity: An experimental approach

Section 1. From the theory to the experiment
  1. Elaboration of the experiment
  2. Methodologies
  3. Experimental economics study
Section 2. Experiment results
  1. Data collection and preparation
  2. Test of hypotheses

Conclusion of Part 2
GENERAL DISCUSION AND CONCLUSION Contributions, limits, and research opportunities

CHAPTER 1. THE INFLUENCE OF QUALITY SIGNALS: A CONSUMER DEMAND APPROACH

This first chapter aims to unravel the influences of official quality signs on the market price and sales volumes, highlighting the market performance of the labels among other information. We answer three main questions:

- To what extent high-quality products generate market performance?

- How consumer demand estimate the financial value of official quality signals?

- How consumer demand reacts toward official quality signs?

The first section justifies the market approach and the field of research, before presenting in detail the databases and the methodologies that are used to answer the sub-questions.

The second section of the chapter is dedicated to the data treatment and results. First, we conduct preliminary analyses to identify market trends and measure market shares for quality range, official quality signs, brand types, and store types. Second, we use the hedonic price methods to assess the importance of criteria in price formation. We complete the analysis with the calculation of elasticity among the quality range.

The conclusion of the chapter contains the discussion and limits of the results.

Figure 21 Theoretical marketing chain productivity: a study of the relationship between marketing resources and product-market performance
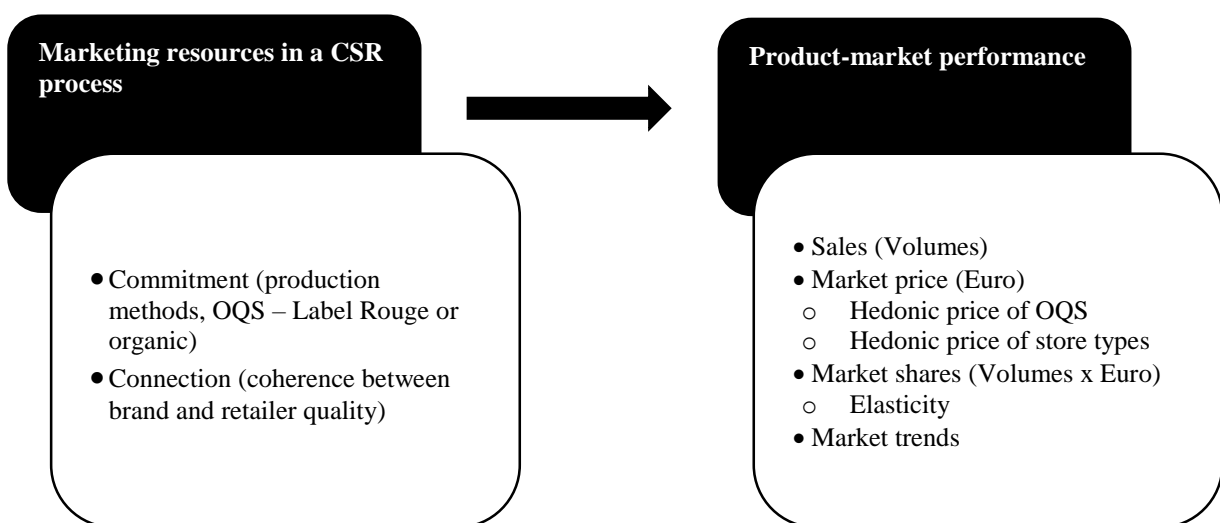
Section 1. Methodology

The choice of the methodology is central because it can lead to contradictory findings if not adapted (Aschemann-Witzel & Niebuhr Aagaard, 2014; Giraud, 2001). The market approach is complementary to current literature and the table egg market is well adapted to the research question (1). We use a set of databases that deliver an interesting market overview (2) to conduct two types of complementary analysis (3).

1. Justification of a market-based approach on table eggs

The availability of official quality signs products expanded the past decades among natural, ecological, healthy, and fair certifications. Supermarkets included new quality ranges in the retail competition to meet the consumers' demand. To understand the complexity of the market, we use economics methods with store scanner data and consumers' panel data to explore the market dynamics and the mechanism between official quality signs (1). The table egg market presents several criteria that make the product an interesting case study (2).

1.1 The use of economics methods in market analysis

Standard microeconomic theory considered the consumers' choice as a consequence of maximize utility consideration. The method presents the pros and cons to analyze the markets (1). The value of the similar products available in the market depends on the consumer perception of the mix of quality attributes of each substitutable product. Credence quality is part of this quality mix. The demand analysis can be assessed with economic methods that avoid the biases of hypothetical data (3).

1.1.1. Contributions and limitation of economics

In the eighties, the marketing was dominated by the neoclassical paradigm with a focus on the marginal analysis, utility maximization, and market equilibrium (Arndt, 1981, p. 45). The neoclassical perception is based on unrealistic assumptions, such as perfect information and rational behavior. The neoclassical price theory does not consider the social context (sociological bias) and consumers' behavior (psychological bias). The lack of consideration of individuals and social factors in economic studies lead economists to incomplete and erroneous results. Economists consider a perfect competition model that assumes easy and free to enter and leave the market and complete information about the market conditions. If assumptions are not applied, the market is considered as a failure. Neoclassical techniques are inappropriate because the results are relevant in very specific cases, and implies that agents are repeatedly

exposed to a similar situation, without variation over time. *"People don't go through expected utility calculations before every action; they just act as if they do."* (Berger, 1989, p. 223). The imperfect information failure has been widely studied in the literature, and the importance of information about the product quality is running the market. *"The difficulty of distinguishing good quality from bad is inherent in the business world; this may indeed explain many economic institutions and may in fact be one of the more important aspects of uncertainty."* (Akerlof, 1970, p. 500). The economists investigated the failures and started to consider external variables to understand the market price formation.

Micro-economics methods are relevant to analyze established markets with several products' quality and similar options. *"Its [Econometrics] main object shall be to promote studies that aim at a unification of the theoretical-quantitative and the empirical-quantitative approach to economic problems that are penetrated by constructive and rigorous thinking similar to that which has come to dominate in the natural sciences"* (Frisch, 1933). Economists assume that consumers are conscious of the physical and nutritional health criteria of agri-food products. Economic methods are used to observe and measure the market response to firms' actions. The store scanner data are available at the aggregate level. They reflect the market structure and the price-response functions and competition dynamics but have limitations in terms of details (brand, quality range) (Breidert et al., 2006). The consumers' panel, depending on its data collection protocol, can deliver information about the consumers' choice (brand, quality).

1.1.2. The interest of non-hypothetical data

Non-hypothetical data are relevant for exploring the market but must be interpreted with the assumption that all information is not known by consumers, social and psychological biases influence the consumers' decisions and that competition is not necessarily based on price and cost (availability of similar products at several prices shapes the market situation). Market data should reflect the market results that have been identified in hypothetical surveys.

The observation and analysis of the price premium with market metrics instead of consumer metrics avoid the biases associated with hypothetical responses and unrealistic scenarios (Breidert et al., 2006). A non-hypothetical study situation is supposed to be less influenced by a desirability bias. Real data also estimate competition and price adjustment (Gabor et al., 1970). Nevertheless, we note that non-hypothetical data are influenced by the market price itself, budget, or real necessity of purchase (Ginon et al., 2014). The interest of the study is not

the customers' segmentation and understanding of personal variables that must influence their choice.

Market metrics reflect the market dynamics and the combined results of price, quality signals, and sales volumes. Regardless of the customers' diversity, we assess the significance and the strength of these relations.

1.2 The table egg market

Table eggs are animal products with both labels easily available in the market and are well known from the French consumers. The product is perceived as virtue food without industrial processing (Shepherd et al., 2005; Van Doorn & Verhoef, 2011) which are supposed to be favorable criteria for market performance (He & Bernard, 2011). Moreover, table eggs are commonly purchased products with a specific public policy that shapes the information in the market (1). The market became highly differentiated and dynamic in response to new consumers' concerns, in particular social interests and environmental awareness (2).

1.2.1 Specificities: A context of quality awareness through a strong public policy

In response to the intensification of animal product production, the European institutions developed new policies regarding animal production diseases, sustainable intensification, and animal welfare. The objective of any labeling system developed and delivered by the public authority, is twofold: ensuring and protect the consumers, and establishing consistent standards for the market. They elaborated a official marking system to meet new consumer concerns about technical assessments of farm animal welfare.

Figure 22 Farming method and official quality signals (based on Regulation (EEC) No 1274/91 and the Regulation (EEC) No 2092/91)

Code	Farming methods	Type of farm	Density (hens per square meter)	Hen food specificity	Control by the certification agency
0	Organic	Free-range	6– ground floor	Organic	Yes
1	Label Rouge	Free-range	9– ground floor	Cereals	Yes
1	Free-range	Free-range	9– superimposed floor	None	No
2	Barn	Indoor	9– superimposed floor	None	No
3	Battery	Indoor	13– superimposed floor	None	No

Each code dovetails with a list of minimum standards per production method. The code is directly printed on each egg and gives information about the country, the producer, and the method of production to allow consumers and stakeholders to get information. The French market split the free-range category into two sub-categories: the free-range without the Label Rouge, and the free-range with the Label Rouge. The obtention of this official quality signs in

addition to the egg code requires specificities in terms of production methods (hens' food, available space indoor and outdoor,...).

Following the liberal and optional perception of social responsibility, the public authorities did not enforce measures but made mandatory information in the market. The market benefits from a homogenous information situation concerning the production process and product quality.

1.2.2 Generalities

Following the new consumers' concerns and new legislation, the offer for alternative production methods increased and developed general market trends (1) with new consumer behavior (2). The table egg market has already been studied in marketing research (3).

General market trends

France is the first European egg producer in Europe but the market equilibrium is precarious because of the sanitary security that requires animal turnover (*Les poules pondeuses / ITAVI*, s. d.). Since 2000, there is a shift from the battery to alternative production methods (barn, free-range, Label Rouge, and organic) due to the new European directives. It caused a decrease in the French production between 2000 and 2012, and the market faced a unique difficulty in 2012-2013. The egg market has been interrupted but rose from 18% in 2006 to 33% in 2016. Since 2002, the alternative methods of production register a positive evolution (ITAVI, 2015). In France, the laying hens are the second sector with the highest part of organic production (10,1% in 2017), right after honey production (15,3% in 2017) (« Chiffres de la bio en France - Agence Française pour le Développement et la Promotion de l'Agriculture Biologique - Agence BIO », s. d.). The sales volumes of eggs increased by 1,9% in conventional stores between 2017 and 2018, and the sales value increased by 3.5% in the same period (*Les chiffres clés*, s. d.). This difference between volumes and value is explained by the increase of alternative egg sales despite a price premium. Between 2006 and 2015, the barn method increased by 152%, the free-range increased of 52%, the Label Rouge of "only" 35%, and the organic shows the best increase with 132% (ITAVI, 2015). These new trends contribute to a better profitability and value creation. *"interesting finding emerging from our analysis is that the retail price premiums observed for cage-free and free-range eggs appear much larger than the estimated cost differences at the farm level."* (Chang et al., 2010, p. 421). The marketing input is aimed to create financial value along the value chain. Responding to the new concerns of society and some non-governmental organizations, some stores and brands decided to stop

the distribution of battery hens since 2014[25]. Moreover, the French government claimed several times the wish of prohibiting the sales of battery hens' table eggs[26].

<u>Consumers and table eggs</u>

Eggs are largely consumed with a mean of 248 eggs per year per French consumers (including egg products - processed food) (Guibert & Victoria, 2010). An interesting fact is that the consumers are not able to differentiate the production method by tasting, as it does not affect the product (Guibert & Victoria, 2010). Eggs are credence goods that use labeling to signal quality (Roe & Sheldon, 2007; Nelson, 1970). Several studies in marketing and economics investigated the consumers' preferences according to environmental, technical, and social quality. The ethics of each production method is assessed by consumers, according to their interests, lifestyle, opinions, and attitudes (Funk & Phillips, 1990). According to Funk and Phillips (1990), the egg market presents four segments.

Table 25. Consumer segments in the table egg market (Funk and Philips,1990)

Consumers type	Profil	Concerns	Marketing levers
Disinterested consumer	Dislike eggs.	Health; medical factor.	None (promotion so not stimulate purchase
Casual egg user	No reason for not using more eggs	X	High response potential to market promotion
Health-conscious	Anxiety about health, perceive benefits for egg consumption, strong family orientation	Health	Information about health and nutritious criteria
Enthusiastic user	Family-oriented; predisposed to buy eggs; cannot increase their demand	X	Information about new egg use.

The consumer demand for eggs has changed, and the segmentation might be refreshed with new criteria, such as environmental and social consciousness criteria. An important survey has been conducted in 2013 by the agency Consumer Science and Analytics (*CSA - « Perception et consommation des œufs en France »*, 2013) and delivered valuable information about egg consumption. French consumers support alternative breeding[27]. The production method is the second concern of consumers, after the laying date. The type of production method is more important for consumers below 49 years old than people over this age. Only 15% of consumers declare to do not pay attention to the production methods, and 49% claim buying mostly free-range hens' eggs. Product origin is an important criterion for 89% of consumers, and table eggs

---

[25] https://www.l214.com/distributeurs-bannissant-oeufs-batterie

[26] https://www.ovocom.fr/interdiction-des-oeufs-de-batterie-la-promesse-en-trompe-loeil-du-gouvernement/

[27] https://oeuf-info.fr/infos-filiere/les-chiffres-cles

come almost entirely from French producers. Even though it has been proved to be inaccurate, 79% of the consumers think that the production method influences the taste of the eggs especially seniors (over 65 years old). Consumers have two main sources of information to make their purchase decision. They mainly focus on in-store information (price ranges, marks, store types, and brand types) and their personal beliefs towards animal welfare, healthcare, environmental and social concerns (Shepherd, Magnusson, & Sjödén, 2005). Price is the third most important criteria for consumers after the laying date and the production method. More than 80% of consumers buy eggs in supermarkets or hypermarkets, and 6% in specialized stores. Direct sales (either local farms, neighbors, or personal hens' production) represent 33% of the respondents, whereas the convenience stores (market, butcher, dairy-delicatessen business…) record 25% of consumers.

Table eggs are non-expensive animal products compared to meat and fish but show large price differences in the market. The consumers shift from battery eggs to higher quality, involving acceptance of a price premium, and manly purchase the products in supermarkets and hypermarkets (51%) (See appendix 3 and 4).

Previous studies on egg prices

Table eggs are adapted to hedonic price and elasticity methods of measurement. The market data must show several quality ranges with easily distinctive criteria. The quality range must be discretely identified by the customers and appears in the market database. The case of eggs interested the academics because of its heterogeneity, its trends, and its credence quality. Previous studies investigated the hedonic price and the willingness-to-pay for table eggs according to various criteria.

Batlzer (2004) conducted a study in Denmark using detailed scanner data from a major retailer to assess the elasticity of egg varieties. The consumers were found conscious about food quality and safety. The market might be too narrow to support a large number of varieties, and may confuse the perception and lead to a biased purchase choice. The varieties were found substitutable (barn, free-range, organic) except for pasteurized eggs, maybe because there is no safe substitute. The health motive shows a lack of elasticity with social and animal welfare motives.

Karipidis and al (2005) conducted a hedonic price study for eggs, based on data obtained from labels of eggs packages found on the shelves of representative retail shops in Greece. The most important motives are egg size, omega3 enrichment, package appearance, and the poultry

feeding system, either organic or free-range. The retail chains reduce egg retail prices and weaken bargaining power for producers. The marketing mix is supposed to have an effect on willingness-to-pay, and improve competitiveness. The quality-control system is found positively impacting the expected influence on price. The study was conducted the year of the European directive implementation, in 2004. The authors suggested that *"additional policy measures must be implemented in order to improve the quantity and quality of information provided to consumers and product promotion through mandatory implementation of quality-assurance systems such as HACCP[28]"* (Karipidis et al., 2005, p. 72). The authors consider that uncertainty reduction implies risk reduction stemming from consumption, and influence positively the consumers' behavior.

Chang and al (2010) analyzed prices of several varieties of eggs using retail scanner data in the U.S. They calculate the hedonic price with the semi-log Rosen model. The results revealed a high price premium for cage-free (including barn and free-range eggs) and organic quality, but a small market shares for such products. The calculation of the implicit price of egg characteristics is valuable because it indicates whether the investment in a certain type of production system is profitable, and can help to foresee the potential impact on market prices.

Another study on Danish willingness-to-pay has been conducted by Andersen (2011) to estimate animal welfare influence. Primary and secondary data have been used in a household level panel combining real purchase data and survey data on different types of eggs. He used a mixed logit model to evaluate the marginal willingness-to-pay. They used the least-square method. Two models are used to assess the results with and without the perception of animal welfare. In both models, organic eggs have the lowest mean willingness-to-pay but the highest standard deviation, because the population willing to pay a price premium higher is bigger for organic eggs than other egg types. The results show that barn and free-range eggs are closer substitutes than the barn and organic types. Free-range and organic are close substitutes as well. Animal welfare has a significant effect on willingness-to-pay. The purchase of organic eggs is not solely driven by private motives (safety) but also altruistic motives. Nevertheless, the effect of animal welfare on predicted purchase shares is relatively small.

---

[28] HACCP is a preventive system assuring the safe production of food products. The application of HACCP is based on technical and scientific principles that assure food safety. Source: https://food.unl.edu/introduction-haccp-training

Nevertheless, conventional cages for hens (battery) are not attracting consumers anymore. A study conducted in the U.S (Ochs et al., 2019) assessed the consumers' willingness-to-pay for several quality attributes with a choice experiment (hypothetical survey). The survey did not concern the high-quality production process (organic, free-range…) but only lower quality hen housing systems. In the experiment, they used videos to inform about the hens' housing conditions for the conventional system (battery), enriched colony (special cage system), and cage-free (barn). The results show that the housing system (battery, cage-free…) has an influence, especially when the housing information is clear to consumers. The information about housing lowers the willingness-to-pay for the enriched colony and cage-free housing. The certification agencies' verification of quality increased the willingness-to-pay, especially with the video information.

In these studies, one of the limits is that consumers may confuse barn and free-range hens' products. The lack of understanding regarding the production system includes the hens' living conditions and the environmental impact. "*With the lack of knowledge regarding the specification of the free-range label coupled with the high price relative to the closest substitutes, quality-conscious consumers tend to choose either barn eggs or organic eggs instead.*" (Baltzer, 2004, p. 86)

Information is crucial, especially because the market offer bundle attributes and redundantly label attributes. For example, an organic product is both cage-free and free-range, and the color of eggs in the U.S gives information about the type of feeding (Chang et al., 2010). Nevertheless, the *"increase in information quantity does not always bring more transparency about the production methods. On the contrary, information overload can turn out to be as detrimental as the lack of reliability of data"* (Bismuth et al., 2018, p. 371). The third-party verification is also bringing value with a higher willingness-to-pay. The certifying entity is considered important to consumers in the United States.

2. Databases

The demand analysis aims to investigate the influence of official quality signs in a multi-signals market. We describe meticulously the three databases (1) and present descriptive statistics (2) to offer a market overview.

2.1 Presentation

The study is based on three databases to trace the outlines of the table egg market. Two databases come from Kantar Consumer Panels with a verified data collection process that

ensures the market data. Databases are independent and show the same market from a different perception. They present the price (in euro) and the sales volumes (expressed in percentage of the market) either according to the quality range (battery, barn, free-range, Label Rouge, organic, no sign) or according to the brand types (national brand, private label, discount brand, no brand). The third database from "*Les Réseaux des Nouvelles des Marchés*" (RNM) is store scanner data with the price of organic and non-organic table eggs in three store types (HSMKT, discounts and specialized stores). The three databases are presented meticulously in this section.

2.1.1 The Kantar WorldPanel Database

The first database is an economic indicator ordered by FranceAgrimer, a national institution for the agriculture and maritime sector, operating for the French ministry of agriculture. The study is conducted by the World Panel Kantar, an international private institute dealing with consumer knowledge and behavior, and insight based on continuous consumer panels. Kantar WorldPanel if part of the Kantar Group, of the Data Investment management Division of WPP Group. Kantar Worldpanel conducts market monitoring, advanced analytics, and tailored market research solutions that enable them to analyze what people buy, what they consume, and the attitudes behind behaviors. They elaborate market analyses to generate databases and precise market watch. Their data collection and studies are used by several private and public institutes to gauge the economic environment. Their clients include brand owners, private label manufacturers, agri-food producers, suppliers and retailers, market analysts, and government organizations. Kantar Worldpanel data that we use in this thesis are household food consumption data in metropolitan France. They conduct several studies on the agri-food market, especially the fresh egg market. They published 13 reports per year, one per month plus one at the end of December to complete the yearly overview. We extracted data of products that contain descriptions of the fresh egg market. They are composed in two separate files.

In the first database, we find information about six quality ranges, including the four quality ranges of the European nomenclature. The free-range category is split into two categories: with the Label Rouge and without the official quality sign. Finally, the last category is gathering the eggs without a sign, due to a direct sales market, inability to know the origin, other alternative purchase places, or personal hens' production. The database gathers information from January 2012 and December 2019, in 103 observations.

The data present the price in euros for a hundred eggs and the volume of sales in percentage.

Table 26 Quality range segmentation of the fresh eggs market: prices and volumes from Kantar WorldPanel (unit: 100eggs)

	EU Number	3	2	1	1	0	N/A
	Type	Battery	Barn	Label Rouge	Free Range	Organic	No Sign
Price	Mean	14.36€	17.02€	31.06€	23.55€	32.95€	24.16€
	December 2019	13.70€	17.50€	30.90€	23.60€	33.10€	26.50€
Volumes	Mean	50.08%	3.04%	6.51%	20.86%	9.51%	9.89%
	December 2019	33.70%	8.80%	6.70%	28.80%	14.40%	1.17%
	Number of observations	103	103	103	103	103	103

The second Kantar database presents the egg market according to its brand types: national brand, private brands, discount brands (including hard discount), and the product with no brand. The database contains 75 observations from January 2012 to October 2017.

Table 27 Brand type segmentation of the fresh eggs market: prices and volumes from Kantar WorldPanel (unit: 100eggs)

		National	Private	Discount	No Brand
Price	Mean	23.10€	21.69€	11.33€	16.14€
	October 2017	25.1€	21.7€	11.3€	14.8€
Volumes	Mean	36.41%	36.31%	19.62%	6.45%
	October 2017	36.6%	39.1%	14.8%	7.3%
	Number of observations	75	75	75	75

In October 2017, Kantar changed entirely their data recording process that enables us to use further numbers. The Kantar data are the result of the collection of statements of purchase by the panelist. They record their purchases and inform the institute. The method of collection is made in two stages:

➢ First stage: The panelists make their purchase in-store

➢ Second stage: They scan their products to record the information

In the Kantar dataset, each line corresponds to a month, plus the last record at the end of December. The information about the type of brands, the size, and the quality range is available, but these data are independent. All the prices are all taxes included, and the volumes are only shown in percentage.

2.1.2 The Store-Scanner Database of France Agrimer

The second source of data is from Les Réseaux des Nouvelles des Marches, a French public service depending on the Ministry of Agriculture and Food. Surveyors are in charge of scanning the price of agri-food products and flowers on the French territory. They offer objective and neutral datasets that are used as a reference by interprofessional organizations, The European

Union, the government, media, and economic actors. The prices are available at several stages, depending on the product: production, shipping, wholesalers, and stores. They watch the price in thirteen different locations all around the mainland France.

We extracted a dataset that contains the price of fresh eggs at the store stages from the first week of July 2007 to the first week of February 2020. The weekly observations were made every Thursday for organic and non-organic six egg batch units. Store prices were recorded in conventional and discount for organic and non-organic, and in specialized stores that only sell organic products. The organic products wear the European organic label. All the prices are all taxes included.

Table 28 Store type segmentation of fresh eggs market: prices from RNM (Unit: 6eggs)

Actor	Conventional Stores		Discount stores		Specialized Stores
Egg type	**Non-org.**	**Org.**	**Non-org.**	**Org.**	**Org.**
Mean	1.14 €	2.01 €	1.08 €	1.70 €	2.18 €
Evol	-12.15%	-3.74%	-4.63%	2.37 %	-7.32%
St. Dev	0.06	0.14	0.05	0.14	0.06
February 2020	1.20 €	2.01 €	1.13 €	1.65 €	2.28 €
Number of observations	684	684	684	684	684

2.1.3 Data Treatment

Datasets are independent of each other and required some adjustment to compare and use effectually the data. The data of RNM has been adjusted to suit the data of Kantar for some analyses below, by switching the units from price for 6 eggs to price for 100 eggs.

Figure 23 Simplify graph of market data
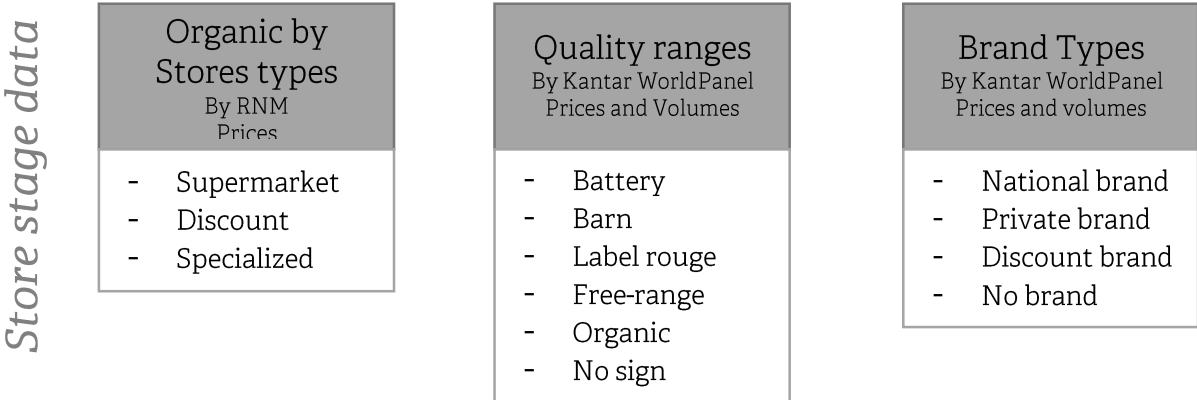
The dataset offers the prices for three egg sizes: medium, large, and extra-large. We choose to retain the prices of large eggs as it is the egg size of the store type dataset.

2.2 Descriptive data

The databases are presented below. They deal with quality range, brand type, and store types, all in-store information. We have seen above that the available information in the store has particular importance in consumers' choice for table eggs. The change in production methods has been mostly led by policies. Meanwhile, the observations of consumption changes are also blatant and seem to conform to the policy's orientation.

2.2.1 The quality ranges

The consumption of eggs in France is slightly and continuously decreasing since 2005. Battery eggs are leaders and the barn quality range has a very low market penetration. The battery and barn eggs are considered the lower quality products in the market. Free-range eggs are middle-quality range, and Label Rouge and organic are the high-quality range.

Table 29 Volume of sales of table eggs according to the quality range between January 2012 and December 2019

	Mean	Evol	St. Dev	December 2019	Min	Max	Trend line (y)	R^2
Battery	50.08%	-75.37%	6.40	33.70%	33.70%	60.20%	- 0.2051x+60747	0.92
Barn	3.04%	54.55%	1.02	8.80%	1.60%	8.80%	0.0002x+3.0352	2e-05
Label Rouge	6.51%	32.84%	0.81	6.70%	4.50%	8.40%	0.02x+5.4732	0.54
Free-Range	20.86%	46.88%	4.41	28.80%	13.40%	31.00%	0.1431x+13.417	0.94
Organic	9.51%	51.39%	2.20	14.40%	6.40%	14.50%	0.0701x+5.8599	0.90
No Sign	9.89%	-31.58%	1.17	7.60%	7.50%	13.30%	- 0.0244x+11.163	0.39

Source: Kantar WorldPanel

The battery eggs have the highest negative evolution rate (-75.37%) but was still leader in December 2019 with 33.70%. The decrease in sales is consistent throughout the period (R^2=0.92). Barn eggs represent a relatively small amount of the market with a mean of 3.04% and its tendency to grow slightly is inconsistent through the timeline and reveal instability (R^2=2e-05). Free-range and organic are both showing positive and homogeneous trends (respectively R^2=0.94 and R^2=0.90) in terms of sales volumes increase. The Label Rouge shows positive but weaker results (R^2=0.54). We notice a reduction of the gap between the battery variety and other varieties.

Organic eggs are the most expensive on the market (33.10€/100 eggs in December 2019), followed by the Label Rouge eggs (30.90€/100 eggs in December 2019). The small coefficient of determination reveals that the price variations are frequent and inconsistent with time. Free-range shows a competitive price (23.60€ in December 2019) compared to organic and Label Rouge (29.70€ in December 2019). Battery eggs price is decreasing constantly over time (R^2=0.61). Both low-quality ranges are the cheapest options in the market.

The Kantar WorldPanel delivers information about the brand types that are mostly purchased by consumers.

Table 30 Price of table eggs in €/100 eggs according to the brand type between January 2012 and October 2017

	Mean	Evol	St. Dev	October 2017	Min	Max	Trend line	R²
National	23.10€	17.95%	0.99	25.1€	20.81€	25.30€	0.0409x+21.547	0.81
Private	21.69€	-3.30%	0.76	21.7€	20.10€	22.78€	- 0.0202x+22.46	0.33
Discount	11.33€	4.63%	0.59	11.3€	10.70€	12.84€	- 0.0633x+18.552	0.68
No Brand	16.14€	-13.09%	1.68	14.8€	13.70€	19.86€	- 0.013x+11824	0.23

National brands are the most expensive with a mean of 23.10€ for 100 eggs and 25.10€ in October 2017. The price increased by 17.95% during the studied period (R^2=0.81). The second most expensive brand is the private label with 21.70€ in October 2017, but the evolution rate is negative with a decrease of 3.30% over the same period (R^2=0.33). Pricing decisions of the two brand types seem opposed, with private labels showing competitive pricing and national brands using price as a quality signal. The discount brand is far cheaper with 11.30€ in October 2017, and a tendency to decrease along the period, even with an evolution rate of 4.63%. The no-brand category price is also declining.

The market is largely lead by national brands and private labels despite a high price. The sales volumes of national brands slightly tend to decrease (R^2=0.29) whereas the private brand category has a positive trend line that is more constant along time (R^2=0.77). The discount brand category is strongly declining over the period.

The lack of details in this Kantar Panel only informs us about the global market positions of the brand types. The discount brand and the no-brand categories were a small part of sales volumes in October 2017.

2.2.3 The stores

All the stores do not offer the same quality ranges. Medium and large-sized stores and discount stores sell all types of quality ranges, including organic. Non-organic quality is clearly below the organic price. In terms of price for organic quality range in February 2020, specialized stores (36.50€) were followed by the conventional (32.33€) and the discount stores (27.50€). All trend lines show a higher consistency than non-organic price trend lines. We observe a gradual increase in the specialized stores' price difference, while other store types are decreasing, confirmed by the trend lines. Specialized stores show the only positive trend line in the market and the highest consistency along the period (R^2=0.43).

		Mean	Evol	St. Dev	Feb. 2020	Min	Max	Trend line	R²
HSMKT	Non-org.	18.93 €	12.15 %	0.93	20.00 €	17.00 €	20.67 €	- 0.0014x+19.417	0.09
	Organic	33.45 €	3.74 %	2.32	32.33 €	30.00 €	38.67 €	- 0.0056x+35.372	0.23
Discount	Non-org.	18.08 €	4.63 %	0.84	18.83 €	15.67 €	20.83 €	- 0.0017x+18.657	0.16
	Organic	28.26 €	-2.37 %	2.40	27.50 €	23.67 €	33.33 €	- 0.0078x+30.928	0.41
Specialized	Organic	36.30 €	7.32 %	1.06	36.67 €	32.50 €	38.50 €	0.0035x+35.095	0.43

The discount (R^2=0.41) and the HSMKT (R^2=0.23) price trend lines are both decreasing. Non-organic products also have a negative trend line along the period and show a lower standard deviation (HSMKT R^2=0.09; Discount R^2=0.16). The price varies less for non-organic quality, as observed in the graph.

3. Methodologies of econometric methods

This study is elaborated with two complementary methods. We use hedonic price to estimate a descriptive model of table egg price and determine its structure (1), and price elasticities to include the analysis of sales volumes, and the influences exercised between the different available quality ranges (2).

Figure 24. Theoretical model: price premium and elasticity

3.1 The hedonic price method

The hedonic price method assesses the financial value conceded by consumers for each attribute, and provide a comparison of similar products according to their specificities. We chose the semi-log model over the linear model to reduce the heteroskedasticity. In a semi-log model, the estimated coefficient corresponding to dummy variables are not equal to percentage changes, and the predicted price is not a sum of the variable multiplied by a coefficient (Chang et al., 2010). The full regression specification estimates the hedonist price of eggs as a function of several egg production characteristics.

We elaborated a shorten model as:

$$lnP_i = \propto + \sum_{j=1}^{3} \beta_j V_{ij} \qquad (5)$$

Where P is the final price, $\propto$ is the base price, β is the coefficient and V gathers organic eggs at store types of dummy variables. We took heed of autocorrelation and heteroscedasticity problems due to data specialty, and endogeneity due to simultaneous choice of implicit price and attributes (Bonnieux et al., s. d.). Residual homoscedasticity consists of an evaluation of whether regression residuals or forecasting errors have a constant variance. The Breusch-Pagan heteroscedasticity test assesses if independent variables are jointly statistically significant (Breusch & Pagan, 1979).

Table 35 presents the characteristics we selected for the analysis. Dummy variables correspond to the production characteristic described in the nomenclature established by the European directives and official quality signs. The promoted criteria are the cage-free breading, the free-range breading, and the presence of an official quality sign (either Label Rouge or Organic), the Label Rouge characteristic, and the organic production.

Table 32 Egg marking and characteristics

Quality	Cage-Free	Free-Range	OQS	Label Rouge	Organic
Battery	-	-	-	-	-
Barn	X	-	-	-	-
Free-Range	X	X	-	-	-
Label Rouge	X	X	X	X	-
Organic	X	X	X	-	X

This classification delivers information about the value creation of official quality signs. In the literature review, we mentioned that official quality signs gather several characteristics, sometimes overlapping with other characteristics. Table 35 shows that organic and Label Rouge products combine characteristics from other quality ranges. The purpose is to identify if the organic characteristic and the Label Rouge characteristics create value inherently or if other included characteristics (cage-free, free-range…) are more valuable.

We elaborated two distinct hedonic price calculations to avoid the perfect negative correlation between the two quality signs that unable the calculation. We include time index, as we study a time series, and we make the standard assumption that any unobservable are uncorrelated with the characteristics of the observed product. Our extended semi-log models are expressed as:

Equation 1 Hedonic model for organic

$$lnPo_i = \propto + \beta_1 CF_i + \beta_2 FR_i + \beta_3 OQS_i + \beta_4 OR_i + \varepsilon_i$$

Equation 2 Hedonic model for Label Rouge

$$lnPlr_i = \propto + \beta_1 CF_i + \beta_2 FR_i + \beta_3 OQS_i + \beta_4 LR_i + \varepsilon_i$$

Where CF is the cage-free characteristic, FR is the free-range characteristic, OQS is the fact that the egg wears an official quality sign whether it is a Label Rouge or an Organic label, OR is the organic characteristic and LR is the Label Rouge characteristic. We remove the No-sign category as it gathers several quality ranges. The category is not significantly representing any quality range and would bias the results.

Table 33 Descriptive statistics for the hedonic price calculation for quality ranges

Variables	Abbreviations	Modalities	Descriptive statistics
Price	Price	Continuous	Mean = 23,74
			Sd Dev = 7.47
Egg Type	Type	Battery=1; Barn=2; Free-range=3; Label Rouge=5; Organic=6	103;103;103;103;103
Characteristics			
Cage-free breading	CF	Yes=1; No=0	412;103
Free-Range breading	FR	Yes=1; No=0	309;206
Official quality sign	OQS	Yes=1; No=0	206;309
Label Rouge	LR	Yes=1; No=0	103;412
Organic	OR	Yes=1; No=0	103;412

Table 36 contains the complete list of the available variables in the sample, the abbreviations, and some descriptive statistics. The characteristics are dummy variables. The assumption that consumers are well aware of each mark's characteristics is the basis of the hedonic price function. This first estimate does not assess store or brand effects.

We conduct a second range of equations using the database of Le Réseau des Nouvelles des Marchés. We investigate the influence of store type in price formation and we wonder if the store type has a better influence on price formation than the organic quality. Dummy variables correspond to the store type, namely conventional, discount and specialized stores, and organic quality.

Table 34 Store type and organic

		HSMKT	Specialized store	Organic	HSMKT Org	Discount Org
Discount	Non-organic	-	-	-	-	-
	Organic	-	-	X	-	X
HSMKT	Non-organic	X	-	-	-	-
	Organic	X	-	X	X	-
Specialized store	Organic	-	X	X	-	-

This classification gives us information about the value creation of the organic feature. Indeed, the organic label combines all the characteristics of other marks. The purpose is to identify if the store type creates significant value. We conducted two different regression to understand price formation. We elaborated the first model as follow:

Equation 3 Hedonic price model for store types and organic criteria

$$lnP_i = \propto + \beta_1 STORE_i + \beta_1 BIO_i + \varepsilon_i$$

where STORE is a dummy variable for store type criteria (Supermarket – Specialized store) and BIO is a dummy variable for the organic criteria. Non-organic HSMKT products are the basis. We want to observe to what extend the store types influence price formation for all types of products and measure the influence of the organic feature. A second extended model is expressed as:

Equation 4 Hedonic price model for organic criteria in different store types

$$lnP_i = \propto + \beta_1 HSMKTBIO_i + \beta_2 DISBIO_i + \beta_3 SPE_i + \varepsilon_i$$

Where HSMKTBIO is a dummy variable for organic products in supermarkets, DISBIO is a dummy variable organic products in discount stores, and SPE is a dummy variable for organic products in specialized stores. We measure the organic product value creation in all store types. Non-organic products are the basis. This model delivers information about the weight of store type criteria for organic products' price formation. We suggest that the store type can modify the organic quality value creation. We conducted a hedonic regression to measure how organic characteristic price varies in stores. The regression indicates the weight of the store only for organic products. Table 40 shows the dummy variables we used to assess the store type influence on organic egg price formation.

Table 40 Descriptive statistics for hedonic price calculation (equation 4) for organic criteria in store types

Variables	Abbreviations	Modalities	Descriptive statistics
Price	Price	Continuous	Mean = 27.01 Sd Dev = 7.59
Organic eggs at			
Conventional store	HSMKTBIO	Yes=1; No=0	684;2736
Discount store	DISBIO	Yes=1; No=0	684;2736
Specialized store	SPE	Yes=1; No=0	684;2736

3.2 Price elasticity method

The investigation toward the price-elasticity completes the hedonic price analysis of market data because it

To complete the evaluation of the marginal WTP and the assessment of quality signals influence in sales volumes, we evaluate price elasticity according to the quality range.

The Kantar panel database for quality range delivers information about the sales volumes in addition to market prices. The price elasticity method measures the change in quantity demanded of each egg variety following a change in the price variety of either the product itself or another egg variety.

The product demand is a log-log model. We observed the impacts of other egg types' price variation.

$$lnY_i = b_0 + b_1 ln(X_1) + b_2 ln(X_2) + b_3 ln(X_3) + b_4 ln(X_4) + b_5 ln(X_5) + b_6 ln(X_{(6)})$$

Where lnY_i is the predicted sales volume, b0 is the model intercept, and all the following factors are price variation for each production methods: b1 for battery production methods, b2 for barn production methods, b3 for Label Rouge production methods, b4 for other free-range production methods, b5 for organic production methods and b6 for no signaled production methods. The no sign category is not integrated into the study, because of the mix of variety it gathers. The category may blur the data and the results.

The values of the intercept and coefficients are obtained through multiple regression analysis employing Rstudio software (DevelopmentCoreTeam, 2005) with the time-series data of the dependent and independent variables as inputs. The demand function is equal to the sales volumes in percentage. The variety model assumes that the various types of eggs can be interpreted as the variation of the same product. Thus, when a consumer buys one unit of the product, the unit is perceived as a set of attributes related to the variety. Consumers may consider switching attribute to get a better interest, either financial by turning to a cheaper option, or quality by accepting a price premium to obtain a better quality.

Conclusion of section 1

Economic methods present several advantages to complete the current literature concerning the market performance of quality signals. We selected the table egg market because it presents several criteria that make it a case study. The product itself is adequate because all quality versions are similar in taste, despite the production process. It is a commonly purchased good in which credence is central in customer decisions. The concern of consumers for the production method, their awareness of the signals in the egg market and the size of the market are together drawing an interesting case to investigate the demand for official quality signs products. Also, the market is dominated by public policy in addition to official quality signs that deliver clear in-store information about production process quality. Table egg market is a finger exercise to illustrate the influence of public authorities' market intervention for social responsibility programs' implementation.

We elaborate two main studies based on store scanner data and consumer panel data. The hedonic price method evaluates the importance of each criterion in the product price formation. The price elasticity identifies market dynamics and the importance of price in purchase decisions (sales volumes). It takes into consideration the competitive environment and the substitutability of products. The data show a wide market price range, especially for quality range segmentation.

The demand for both official quality signs is growing, despite their high market price. These results suggest that consumers consent to pay a price premium for higher quality. Moreover, the market shares for national brand and private labels confirm the interest for higher quality products. Battery range is the leader on the market in terms of volumes. The barn range represents a very small part of the sales, and its trend does not suggest a bright future. Both low-quality ranges are in critical situations. The amount of the price premium for organic quality varies according to several other in-store information such as the store type. The price premium is higher in specialized stores and supermarkets, but only specialized stores show a positive trend for a price increase. Discount stores and discount brands both show lower prices and sales volumes in the market.

Section 2. Results

The databases have been investigated with preliminary analyses (1). Brand type and quality segmentation have been compared to understand their importance in-market results. The combination of price and sales indicate theoretical market shares. The results of economics methods are displayed with first the hedonic price and second the price elasticity (2).

1. Preliminary analyses

The observation of the databases indicates valuable information about the market. We first focus on the price premium for official quality signs (1) and look closer at the market trends and market shares for quality ranges and brand types (2).

1.1 Price premium for official quality signs

To observe the price premium for official quality signs, we compare the product with the organic label and Label Rouge to a non-labeled product but high-quality product: free-range eggs. Figure 25 presents the price difference between the free-range for both official quality signs all along the studied period.

Figure 25 Price premium of organic and Label Rouge quality compared to free-range eggs (€/100 eggs)
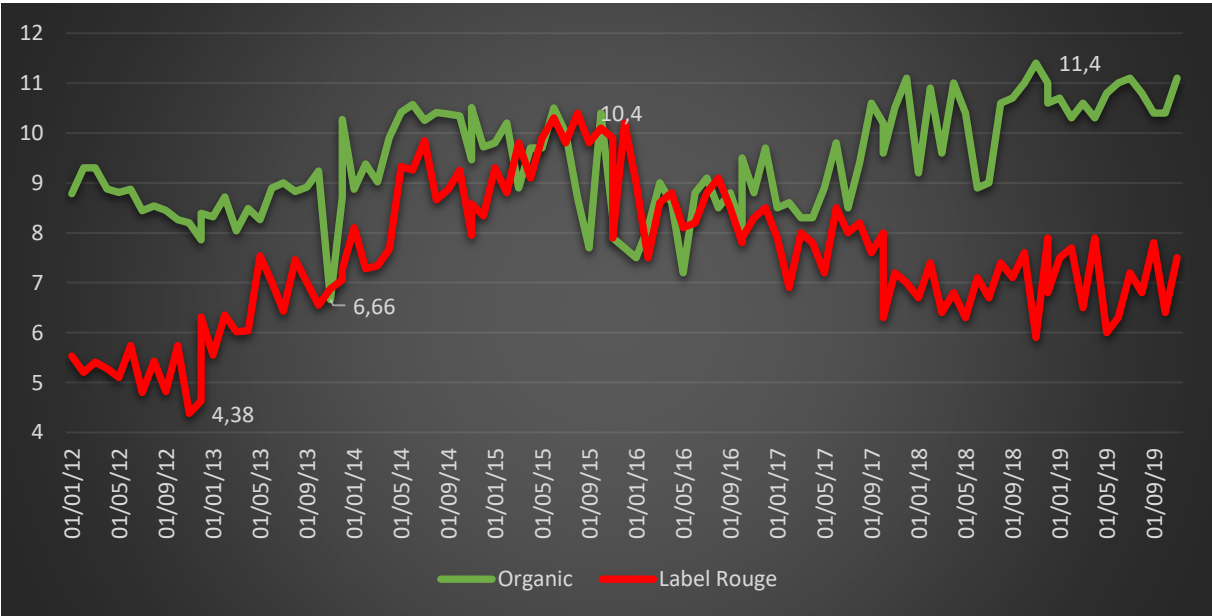
Both official quality signs show a price premium compared to the free-range during the entire period. The organic quality has a higher price premium in an increasing but unstable trend. It reached a low point in 2014 (6.66€). The price premium peaked in November 2018 to 11.40€ and stayed over 10€ until the end of December. The Label Rouge trend is inconstant and shows a two-phase evolution. From January 2012 to December 2015, the price premium shows a steep

rise. The price premium was at its lower point in July 2012 (4.38€) and reached its peak of 10.4 in August 2015, showing a slightly higher result than organic. Then, the trend slightly decreases until November 2019, while the organic price premium increases, creating a gap between the two official quality signs.

1.2 Market shares and market trends

The WorldPanel Kantar databases enable the calculation of the market shares according to quality ranges and to brand types. The market shares deliver additional information about the consumers' behavior and the market dynamic. We look at the correlation between price and volumes. Then, we deduced the market shares with the two databases available on price and volumes.

$$MarketShares = Market\ price \times Sales\ Volume$$

An important market share for a quality sign is an indicator of its strength on the market, and its contribution to marketing assets, stakeholders' bargaining equilibrium, and political change.

1.2.1. Quality range

Table 35 displays the correlation coefficient between price and sales volumes for each quality range. Label Rouge shows an almost inexistent ratio (0.03) and the free-range have a very low negative coefficient (-0.17).

Table 35. The correlation coefficient between price and volumes for each quality range

Standard	Barn	Label Rouge	Free-range	Organic
0.69	- 0.32	0.03	- 0.17	0.32

The organic coefficient is positive and medium (0.32) whereas the barn shows the opposite orientation (-0.32). Standard has a strong and positive correlation coefficient (0.69) due to the large and constant decrease in sales and price over the studied period. The results show a large disparity, highlighting the market dynamics.

Market shares confirm the market dynamic and disparity. The decrease of battery eggs reflects its colossal loss of value on the market. In June 2018, free-range market shares surpassed the battery eggs' (respectively 614.23 and 586.36). In November 2019, organic range surpassed the battery eggs' (respectively 499.07 and 486.50). These three quality ranges show a distinct trend, whereas the two others are more constant. Figures 26 present drastic changes in the market in favor of medium- and high-quality ranges.

Figure 26 Evolution of egg market shares in France according to the quality range between February 2010 and December 2019
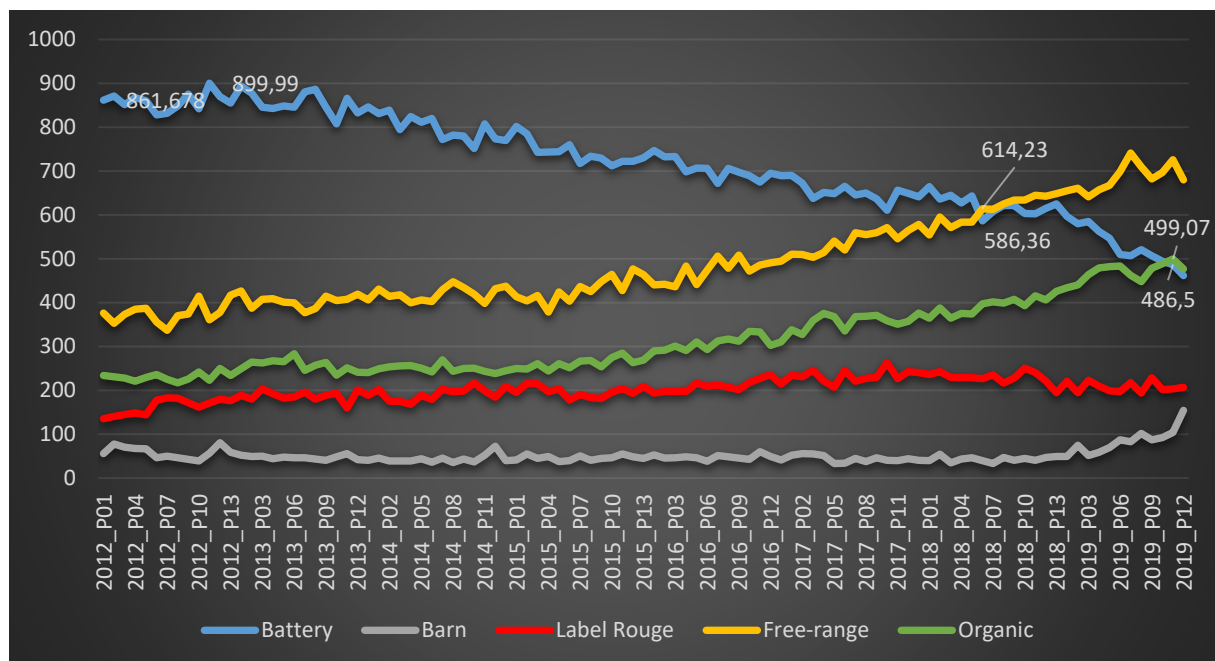
Table 29 displays information about the trends and market shares. The decrease of battery eggs is the only negative trend (e= - 84.64%) and constant over the period (R²=0.94). The battery range is projected to decline steadily with a great negative slope coefficient (e= - 3.6125; R²=0.94).

Table 36 Market shares of table eggs according to the quality range between January 2012 and December 2019

	Mean	Evol	St. Dev	December 2019	Min	Max	Trend line	R²
Battery	721.58	- 86.64 %	111.06	461.69	461.69	899.99	- 3.6125x+909.43	0.94
Barn	51.30	63.66 %	17.52	154.00	32.76	154.00	0.1455x+43.733	0.06
Label Rouge	202.27	34.55 %	25.41	207.03	135.50	262.92	0.6244x+169.8	0.54
Free-Range	490.35	44.67 %	104.70	679.68	336.88	740.90	3.2984x+318.83	0.89
Organic	314.12	51.01 %	79.35	476.64	217.02	499.07	2.4697x+185.69	0.86

The category is nevertheless greater than barn and Label Rouge (respectively 51.30 and 202.27) in terms of mean market shares (237.79). In December 2019, barn eggs were still lower (154.00) than no sign (201.40). Barn and Label Rouge have the lowest positive trend line coefficient. The barn coefficient is not stable over time (R²=0.06), consistently with the graph that shows an increase largely due to activities in 2019. The positive trend of Label Rouge will probably continue increasing in 2020 (R²=0.54). Free-range and organic have stronger and more reliable coefficients. To understand the influence of pricing on market shares, we look at the correlation between price and market shares.

169

Table 37 Correlation of price and market shares per quality range

	Battery	Barn	Free-range	Label Rouge	Organic
Correlation	0.81	0.04	0.02	0.19	0.46

The organic category shows a medium correlation, while all others are quite low. The results show a lack of influence of price on market shares for most of the quality ranges. Price elasticity analysis will be displayed further.

1.2.2. Brand Type

The correlation is more homogeneous for brand types than the quality range in terms of strength. National brand and private labels have a negative coefficient (respectively -0.55 and -0.65). No brand has a stronger negative coefficient (-0.88) and discount brand is the only positive relation (0.50).

Table 38. The correlation coefficient between price and volumes for each brand type

National brand	Private label	Discount brand	No brand
- 0.55	- 0.65	0.50	- 0.88

Market shares present two distinct clusters. In contrast with quality ranges, the trends are more constant, and the gap between on one side national brands and private labels, and on the other side discount brands and no-brand products. The decrease in discount brands is the most conspicuous (- 69.84%), while both national brand (16.84%) and private labels (13.78%) increased. They both overlapped often during the period.

Table 39 Market shares of table eggs according to the brand type between January 2012 and October 2017

	Mean	Evol	St. Dev	October 2017	Min	Max	Trend line	R²
National	728.21	16.84 %	34.09	918.66	763.95	930.00	y = 0.6x + 817.43	0.15
Private	817.27	13.78 %	44.58	848.47	702.14	888.80	y = 1.5553x + 727.17	0.58
Discount	207.41	- 69.84 %	49.52	167.24	152.07	306.96	y = - 2.1356x + 304.6	0.88
No Brand	211.76	19.61 %	18.10	108.04	74.76	135.24	y = 0.6777x + 75849	0.67

Private brands have a higher mean market share but were still behind the national brand in December 2019 (respectively 848.47 and 918.66). Moreover, the private label category has a stronger positive trend coefficient than the national brand, and its trendlines are more constant over time (respectively $R^2 = 0.1472$ and 0.5782). The negative coefficient of the discount brand is high (-2.1356) and constant ($R^2=0.88$). The products without brands and positively increasing over time. Correlation of price and market shares for brand types are different from the correlation for quality range.

Table 40 Correlation of price and market shares per the quality range

	National brand	Private label	Discount brand	No brand
Correlation	0.47	- 0.19	0.69	- 0.78

Correlations are positive for national and discount brands, with medium strength (respectively 0.47 and 0.69). The price increase would have a positive influence on market shares, whereas the private label category's market shares are slightly negatively responding to a price increase. The No-brand category shows a strong negative correlation. Price would affect its market shares.

1.3 The matter of quality signs and brand types

The objective is to understand the role of quality signs on price performance, among other signals that may use the consumers to make a choice in-store. As specified above, the Kantar panel gives little information about the brand type influence, and on a shorter period than the Kantar Panel about quality. We cannot investigate the Kantar panel to extract relevant information on brand influences, but we can compare the importance of each market segmentation (Brand type – Quality range) in the price-volume relationship. We use the two Kantar panel database presented above to identify the relationship between the independent variable of the price and the dependent variable of sales volumes. We conduct two linear regression models with the price as the only exogenous variable and compare the two linear models, and more precisely the coefficient of determination, to evaluate which segmentation is the most relevant in sales volumes determination. The coefficient of determination of a linear regression examines how differences in one variable can be explained by the difference in a second variable. It establishes the strength of the two variables in the relationship and can be used to determine future trends. The Kantar databases give price and sales volumes according to either the quality range segmentation of price or the brand types. We compare the two determination coefficient to indicate which segmentation forecast the most the sales volumes.

The preliminary model gathering all the prices and volumes for the quality range is expressed as follow :

$$Sales_i = b_0 + b_1 PriceX_1 + \varepsilon_i$$

The regression is applied to both databases. Table 33 presents the results of the two linear regressions.

Table 41 Influence of market price on sales volumes according to the quality range and te brand type

	Estimate	Std. Error	T value	Prob
Quality Range - Constant	47.56791	1.98923	23.91	< 2e-16 ***
Price	-1.29644	0.08017	-16.17	< 2e-16 ***
Brand types - Constant	-7.9757	2.1233	-3.756	0.0002***
Price	1.8083	0.1136	15.922	< 2e-16 ***
	Quality Range		**Brand type**	
Residual standard error	13.65		9.446	
Degree of Freedom	616		298	
Multiple R-squared	0.298		0.4597	
Adjusted R-square	0.2969		0.4578	
F-statistic	261.5 on 1		253 on 1	
p-value	<2.2e-16		<2.2e-16	
Number of observations	618		300	

Concerning quality ranges, the constant is positive with a negative coefficient of 1.30. An increase in price leads to a decrease in sales volumes. The standard error is high considering the large price range available on the market. The result suggests that price influences demand. However, the adjusted R-square reveals that the exogenous variable explains 29.69% of the sales volume. We conclude that the price is a significant factor, but we suggest that other variables drive the demand. The results of brand types are different. The constant is negative and the coefficient is positive. The table is quite revealing in several ways. First, unlike the quality range segmentation, the influence of a price increase has a positive influence on sales volumes. Second, the standard error is more important for brand types than quality. The adjusted R-square is high (R²=0.4578), which expresses a higher predictive power of the model of brand type than the quality range model (R²=0.2969). Both models show a significant relationship between the exogenous and endogenous variables.

1.4 Concluding remarks

Quality signs segmentation explains less efficiently the price in table eggs than the brand types. Standard eggs are decreasing drastically in terms of price and volumes, conducting to a large loss of market shares. The category lost its position of leader in 2018, overtaken by free-range and later in 2019 by organic categories. Both quality register an increase in market shares and a slight decrease in market price. Label Rouge has a less important increase in market shares and increased slightly its price. Finally, barn eggs represent a small market share with an increase in 2019 that must be due to the cessation of battery egg distribution.

2. Econometric results

The method of hedonic pricing (1) is used to identify the retail price structure of eggs by estimating the shadow prices of their attributes in two models: quality range and retailers. Then, we complete the market-product performance with price elasticity (2).

2.1 Market price and product's attributes: hedonic price analyses

Following the 3C-SR model, we consider that if the commitment (quality) is associated with consistent relationships and form a complex constellation, the partners' together co-produce value. Store type and quality range together influence consumer perception and lead to a change in willingness-to-pay and willingness-to-buy. The market data should reflect this effect.

2.1.1 The implicit price of the official quality signs

The bptest rejected the null hypothesis of homoskedasticity.

Table 42 bptest for equation 1 and 2

Regression	BP	DF	P-value
Organic (quality)	165.82	11	<2.2e-16
Label Rouge (quality)	165.82	11	<2.2e-16

Heteroskedasticity is due to the aggregation of price and quality sign variables. We corrected the regression using heteroskedasticity-consistent standard errors (See appendix 6: semi-log hedonic models estimates before heteroscedasticity correction). We estimate the weight of each quality sign in the price formation and compare their influences. The equation includes the year index from 2013 to 2019, with the base of 2012.

Table 43 Semi-log hedonic models estimates for the organic label (heteroscedasticity corrected)

	Estimate	Std. Error	T value	Prob
Intercept	2.665	0.008	337.977	<2e-16 ***
Cage free breading	0.164	0.011	15.517	<2e-16 ***
Free-Range breading	0.330	0.010	33.079	<2e-16 ***
Official quality sign	0.278	0.005	54.611	<2e-16 ***
Organic	0.058	0.005	12.660	<2e-16 ***
Label Rouge	- 0.058	0.005	78.162	<2e-16 ***
2013	0.011	0.009	1.304	0.19293
2014	-0.019	0.009	-2.158	0.03140 *
2015	-0.053	0.010	-5.275	1.97e-07 ***
2016	-0.024	0.008	-3.091	0.00211 **
2017	0.022	0.012	1.838	0.06661 .
2018	0.032	0.010	2.979	0.00303 **
2019	0.024	0.009	2.582	0.01011 *

Residual standard error	0.05387
Degree of Freedom	503
Multiple R-squared	0.9743
Adjusted R-square	0.9738
F-statistic	3206 on 11
p-value	<2.2e-16

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

Table 38 presents the results of the hedonic regression based on the 515 observations of the time series. We first notice all quality characteristics add value to the product, and are significant (p=<2e-16 ***). The coefficient corresponding to official quality sign is the most important with 0.336, followed by the free-range (0.330) and cage-free breading (0.164). The presence of a quality sign significantly adds value (0.278). The table shows a slight significant variation due to the organic attribute. The significant negative influence of Label Rouge (-0.058) proves its lack of efficiency compared to organic but also shows a positive effect of official quality signs. The lack of significance of the time indexes in 2013 must be due to the change in farms because of the European nomenclature.

2.1.2 The implicit price of the store type

In the previous hedonic regression, we reported the positive and significant influence of the organic label on price formation. As we already suggested, other factors influence the shadow price of organic. The bptest rejected the null hypothesis of homoscedasticity for both regressions.

Table 44 bptest for equation 3 and 4

Regression	BP	DF	P-value
Store Type (stores)	437.34	16	<2.2e-16
Organic (stores)	662.21	16	<2.2e-16

The test suggests the presence of heteroskedasticity. We consequently report White's heteroskedasticity-consistent standard errors. Table 38 shows the descriptive statistics for equation 3.

Table 45 Descriptive statistics for hedonic price calculation (equation 3) for store type and organic criteria

Variables	Abbreviations	Modalities	Descriptive statistics
Price	Price	Continuous	Mean = 27.01 Sd Dev = 7.59
Store Type			
Supermarket	HSMKT	Yes=1; No=0	1368;2052
Specialized store	SPE	Yes=1; No=0	684;2736
Quality			
Organic	BIO	Yes=1; No=0	2052;1368

The hedonic regression has been processed. It estimates the store type and organic weight in price formation as follow:

Table 46 Semi-log hedonic models estimates for store types and organic criteria (heteroscedasticity corrected)

	Estimate	Std. Error	T value	Prob
Constant	2.952	0.004	771.958	< 2e-16 ***
Discount	- 0.108	0.002	- 56.427	< 2e-16 ***
Specialized	0.114	0.003	47.682	< 2e-16 ***
Organic	0.506	0.002	264.533	< 2e-16 ***
2008	0.085	0.005	17.772	< 2e-16 ***
2009	0.089	0.005	17.177	< 2e-16 ***
2010	0.066	0.005	13.939	< 2e-16 ***
2011	0.027	0.004	6.157	8.30e-10 ***
2012	0.026	0.005	5.513	3.79e-08 ***
2013	0.008	0.004	1.862	0.062735 .
2014	-0.018	0.004	-4.076	4.69e-05 ***
2015	-0.047	0.005	-10.035	< 2e-16 ***
2016	-0.038	0.005	-7.612	3.47e-14 ***
2017	-0.015	0.005	-3.131	0.001755 **
2018	0.022	0.004	4.837	1.37e-06 ***
2019	0.042	0.004	9.643	< 2e-16 ***
2020	0.031	0.008	3.708	0.00212 **
Residual standard error	0.04941			
Degree of Freedom	3403			
Multiple R-squared	0.9718			
Adjusted R-square	0.9717			
F-statistic	9135 on 16			
p-value	<2.2e-16			

The results highlight the positive and significant influence of the organic quality in price formation for eggs (0.506). The unique characteristic of organic is significant and implies a price premium. The results confirm the findings of the previous hedonic regressions. The year indexes' significance is consistent with the crisis of 2013. We took the non-organic HSMKT product as a basis. Looking at the store types results, table 39 shows that both store types, either discount or specialized, have a significant and opposite influence on price formation (< 2e-16 ***). Discount decrease the value while specialized stores increase the price. The semi-log model estimates the effect of store types as follows.

175

Table 47 Semi-log hedonic models estimates for organic label according to store type (heteroscedasticity corrected)

	Estimate	Std. Error	T value	Prob
Constant	2.898	0.004	807.897	< 2e-16 ***
Conventional store	0.591	0.002	348.553	< 2e-16 ***
Discount store	0.421	0.002	181.632	< 2e-16 ***
Specialized store	0.675	0.002	319.983	< 2e-16 ***
2008	0.085	0.005	17.979	< 2e-16 ***
2009	0.089	0.005	16.969	< 2e-16 ***
2010	0.066	0.005	13.682	< 2e-16 ***
2011	0.027	0.004	6.131	9.74e-10 ***
2012	0.026	0.004	6.322	2.92e-10 ***
2013	0.008	0.004	2.062	0.0393 *
2014	-0.018	0.004	-4.235	2.34e-05 ***
2015	-0.047	0.004	-11.058	< 2e-16 ***
2016	-0.038	0.005	-8.553	< 2e-16 ***
2017	-0.015	0.005	-3.241	0.0012 ***
2018	0.022	0.004	4.871	1.16e-06 ***
2019	0.042	0.004	9.445	< 2e-16 ***
2020	0.031	0.008	4.040	5.47e-05 ***
Residual standard error	0.04346			
Degree of Freedom	3403			
Multiple R-squared	0.9782			
Adjusted R-square	0.9781			
F-statistic	1.323e+04 on 16			
p-value	<2.2e-16			

Table 7 shows that the three characteristics are significant at a < 0.01 level. The results confirmed that in any store type, organic quality creates value. Nevertheless, this value is unequal. The weight of specialized stores in organic price formation is the highest (0.675), followed closely by the conventional store (0.591). The discount store stays positive but is way weaker than others (0.421). The price premium for organic eggs changes according to the store type.

2.2 Price elasticity

In-store, consumers chose a product among many substitutable products. Products are characterized by significant singularities for consumers: production method (free-range, barn…) and quality (marking system and official quality signs). The date of the study lead us to a distrust of the numbers, but the presupposition tinged with an idealism that consumers became more familiar and got more information about the European directive marking system.

According to the economic standard model, consumers decide through a multiple-stage purchase process that implies utility maximization and budget. The Breusch-Pagan heteroscedasticity test revealed heteroskedasticity.

Table 48 bptest for elasticity regressions

Regression	BP	DF	P-value
Battery	18.388	5	0.002497
Barn	11.247	5	0.0467
Free-Range	12.982	5	0.02355
Label Rouge	13.332	5	0.02046
Organic	22.4	5	0.0004394

Table 51 presents the elasticity with heteroskedasticity-consistent standard error. According to the small number of observations (n=103), we focus on the results which present a probability of error up to 0,05%, to reduce the chance of a false positive (Type I error). The results reveal asymmetrical elasticity in the market.

Table 49.Price-elasticity with heteroskedasticity-consistent standard error

	Battery	Barn	Free-Range	Label Rouge	Organic
Battery	1.7169 ***	- 2.0729	- 2.4198 ***	- 0.4395	- 2.9213 ***
Barn	-0.3253 *	- 1.8374 ***	0.7297 ***	0.8435 ***	0.9065 ***
Free-Range	0.8856 ***	0.6340	- 1.8956 ***	- 0.7323 **	-0.4692
Label Rouge	-0.3715	- 1.9367 .	1.1438 *	0.1699	1.3565 *
Organic	-1.3588 ***	2.1017 .	1.8666 ***	- 0.3403	0.6509
Residual st. error	0.8367	0.2548	0.1039	0.07967	0.1251
Adjusted R-squared	0.6198	0.2177	0.7543	0.6083	0.6929
P-value	< 2.2e-16	2.199e-05	< 2.2e-16	< 2.2e-16	< 2.2e-16

Own-price elasticity is only significant for eggs without official quality signs. In the case of the barn and free-range quality, the elasticity is negative (respectively -1.8374 and -1.8956). Battery eggs register a positive effect of price increase on its own sales volumes (1.7169) and a negative effect on free-range sales volumes (- 2.4198) and organic (- 2.9213). Sales volumes of barn eggs do not significantly respond to any other products' price change, whereas free-range respond to all price changes, positively for the barn, Label Rouge, and organic (respectively 0.7297, 1.1438 and 1.8666) and negatively for the battery (-2.4198). Concerning the official quality signs, the Label Rouge sales volumes are positively affected by barn eggs price increase (0.8435) and surprisingly negatively for the free-range price increase (-0.7323). We note that the price increase of Label Rouge influences positively the free-range volumes (1.1438). The organic sales volumes increase in case of a price increase of barn (0.9065) and Label Rouge (1.3565).

2.3 Concluding remarks

All characteristics that are advertised by the European directive have a positive impact on value. Free-range egg sales volumes benefit from all other categories price increase but show a negative own-price elasticity. The analysis of battery eggs elasticity is not relevant because of the large decrease during the period. The own-price elasticity must be due to the drastic decline in sales and price. Concerning barn category, its price increase is in favor of all other higher-quality categories sales volumes, and do not benefit from any other category price increase, consistently with its very low market shares.

Free-range seems to be the standard quality. It brings the most important value in price formation with its characteristic of outside breeding method and it is the market leader in terms of market shares. Moreover, its own-elasticity reveals that customers are price sensitive for this variety, and in terms of cross-elasticity, the price of increase of higher-quality products is in favor of free-range. It is the substitute of organic and Label Rouge varieties.

Concerning the official quality signs, organic label adds more value than Label Rouge. The two official quality signs are not reciprocally substituted. A price increase in Label Rouge will increase the sales volumes for free-range, bearing the same production code, and organic. But organic price increase is not significantly increasing Label Rouge sales volumes, but only free-range. The organic value creation is confirmed in the analysis of the implicit price of store type. Specialized stores increase the value of the organic product, whereas the discount stores register a negative coefficient compared to supermarkets. The store types influence significantly the value creation for organic products, certainly with a channel effect.

Discussion and conclusion of section 2

In the present study, we have analyzed the hedonic price for egg quality following the European regulation and official quality signs, and the weight of the store type in organic label valorization.

From a theoretical perspective, the results are consistent with the value creation power of credence quality for agri-food products (Auger et al., 2008; Baltzer, 2004; Bismuth et al., 2018; Ochs et al., 2019). The hedonic price method of table eggs indicates a positive and significant price premium for both official quality signs, and the most important value creation is from the free-range criteria. Nevertheless, the statement that *"Free-range eggs are close to organic both in attributes and price and therefore prefer organic eggs, which yield both a familiar label and perhaps also an expected positive health effect."* (Andersen, 2011, p. 581) is not confirmed because of the significantly smaller price for free-range eggs without official quality signs. The higher quality of free-range production compared to battery or barn combined with an intermediate price for customers helped the quality range gaining market shares and becoming the market leader. Free-range category presents a lot of elasticity compared to other quality range. We confirm the findings of Andersen that evoke the substitutability of both barn and free-range eggs but in a unique sense relation. We found that free-range is the substitute for higher-quality range (Label Rouge and organic). The results do not confirm the work of Bernard and Bernard (2010, p. 473) which found that a price increase for non-organic products shifts consumers toward the organic version, more than the opposite. We suggest that this is due to the lack of consideration that there are other quality signals in the market that interfere in this elasticity.

Market shares are in favor of free-range breeding methods and divide the market into two categories: intensive farming and extensive farming method. The asymmetrical results for elasticity may be explained by other factors – for example, other quality signals (merchandising and promotion), but also the product availability and the perceived price difference between available product qualities. Moreover, consumers do not have the same price sensibility according to their motivations and product type choice (Funk & Phillips, 1990). We also confirmed that the brand influences price formation (Larceneux et al., 2012; Larceneux & Renaudin, 2016) and must be an additional factor of elasticity asymmetry. The lack of own elasticity of both official quality signs may be also due to the consumers' inability to notice a

179

decreased premium when observing price tags alone because of the lack of price knowledge (Aschemann-Witzel & Zielke, 2017).

Two major managerial implications emerge from the study. First, the lack of price sensitivity of official quality signs products' consumers indicates that the price of the labelled product can be high without hurting the sales volumes, increasing the opportunities for margins creation. Second, we advise stores to play with price differences between the products to influence the sales in favor of expensive products, and use asymmetrical elasticity.

From a public policy perspective, the results show the effectiveness of the European directive to create value. The coding system and the ranking of the production process according to the social responsibility actions of farms deliver additional information that creates credence quality. A similar system could be elaborated for non- or less-processed farm products such as milk, chicken, or beef.

Our study does not reveal the combined effects of brand types, store types, and quality range due to the aggregate databases. The investigation of combined effects is necessary to understand the real power of official quality signs in the market. As a limitation, it has been noted that the results do not explore the customers' reasons for food choice and the results must be interpreted with caution to avoid over-interpretation.

Future research should investigate more the other quality signals to understand to what extent they influence the power of official quality signs. We suggest that a coherence in terms of social responsibility signals are generating value because it increase the price acceptance (organic and specialized stores). Consequently, inconsistent quality image (organic and discount store) decreases the price acceptance of organic quality. The marketing actions that are in adequacy with 3C-SR increase the legitimacy of high price (Blombäck & Scandelius, 2013).

CONCLUSION OF CHAPTER 1

This chapter is an exploration of market data to analyze the influence of quality from a market perspective, completing the literature based mostly on hypothetical data. The first section justifies the choice of the methodologies and the field of research. The case of table eggs is a pilot case for the characteristics of the product, the legal framework for production process information, and the common use of both official quality signs. We analyze the databases with economic methods to understand how official quality signs influence the market performance of an agri-food product. We used three databases: two independent databases from Kantar Consumer Panels with price and quantity according to quality ranges and brand types, and a store scanner data from le Réseau des Nouveaux Marchés presenting the price of organic and non-organic table eggs in three store types.

Preliminary analysis revealed market trends in favor of high-quality products and a drastic decline in low-quality products. The analysis of a consumer panel database revealed that national brands are market leaders, closely followed by private labels. Discount and no-brand products are way below in terms of market shares. Brand types and store types are important variables for consumers.

Data analyses have been conducted with the hedonic price method and price elasticity. Main results highlight that the marking system established by public authorities increased quality information in the market. The outdoor farming methods create value in the market, and free-range quality became the standard, replacing battery eggs that are dedicated to disappear. We point out a weakness in terms of the Label Rouge effect and evolution compared with organic products. The elasticity and market shares confirm that price is not necessarily a competitive advantage, and consumers may be more sensitive to credence quality. Asymmetrical and heterogeneous results show that consumers of products without official quality signs are more price sensitive.

Following the model of 3C-SR, we wonder how connections enhance the value created from the corporate social responsibility commitment, and how this added-value is distributed between stakeholders of the value chain.

Key elements

- Major findings
  - Brand type is an important element in market price formation
  - Battery eggs are dedicated to disappear from the stores
  - Battery and barn egg quality are decreasing
  - High quality products are in a positive trend
  - Free-range is the new market standard quality and the new market leader
  - Organic register a better performance than Label Rouge
  - Price-elasticity are heterogeneous and asymmetric
  - Consumers are price sensitive only for low quality product
  - Organic is a substitute for Label Rouge but not the opposite
  - The outdoor production system for breeding is the most important criteria in price formation
  - Both official quality signs add value with a higher influence of organic label than Label Rouge
  - Store types have a significant influence on the price formation
- Theoretical implications
  - Credence value generate price premium and sales revenues
  - Commitment for corporate social responsibility generate a higher performance with coherent signals and connections (retailers)
- Managerial implications
  - High-pricing the high quality products do not hurt sales volumes
  - Retailers must show consistency in quality signals to create market value
  - Retailers must carefully manage the in-store prices to favor certain substitutable product ranges
- Political implications
  - Effectiveness of European directive (production process code) to create value.
  - Similar clear information must be tried on other farm animal products
- Limits – Further research
  - Aggregate databases with a lack of further details – brand and store type combined effects
  - No indication about the reasons of customers' behavior
  - Performance reduced to price and purchased quantity - Investigation of other indicator of market performance for official quality signs

CHAPTER 2. PRICE AND VALUE: A VALUE-CHAIN APPROACH

The use of marketing margins has particular importance to evaluate market results for the actors along the value chain. This second chapter aims to analyze the influences of official quality signs on marketing margins and margin distribution along the value chain. We will answer three main questions:

- To what extent high-quality products generate higher marketing margins?

- How the value is distributed along the value-chain for official quality signs products?

- To what extent coherence, connection and commitment generate more value for official quality signs products?

The first section presents the advantages of marketing margins analysis. We briefly present the market of oven-ready chicken, its specificities, and some general data about the market. Then, we will present the databases in detail and the selected methodologies used to conduct the study.

The second section is dedicated to the data treatment and results. We present the results of the preliminary analysis with the price formation along the chain. Then, we use the theoretical price method to compare the actual value of official quality signs to the market price. Finally, use present the statistical results on marketing with the use of dummy variables for identifying the role of official quality signs and retailer type in margin formation.

The conclusion of the chapter contains the discussion and limits of the results.

Figure 27. Theoretical marketing chain productivity: a study of the relationship between marketing resources and market performance
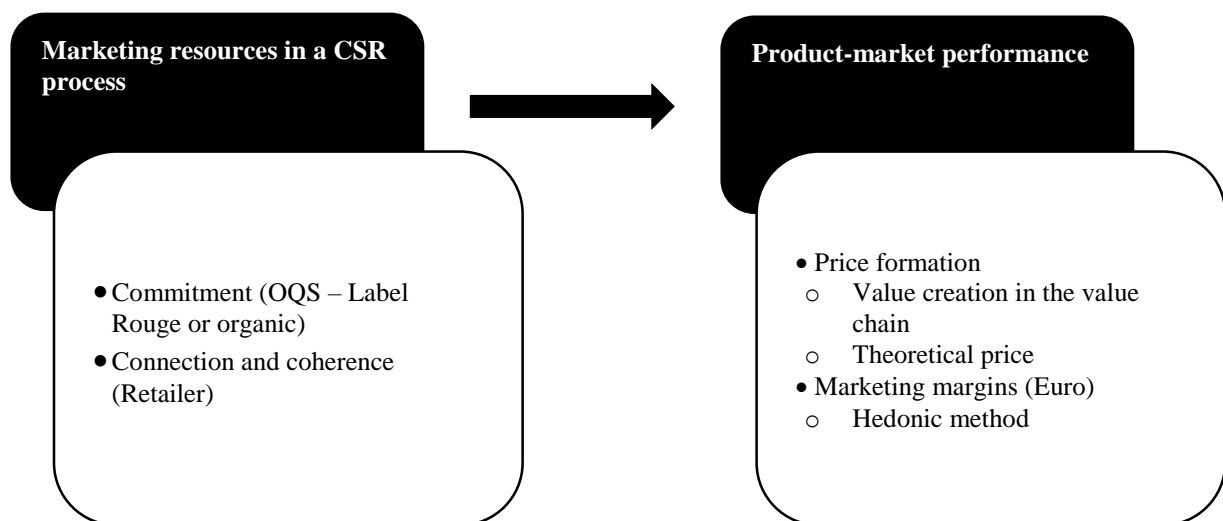
Section 1. Methodology

This second market approach is elaborated on a methodology to investigate the marketing margins, a key indicator of value creation. We selected two markets: the table egg market (presented in the previous chapter) and the oven-ready chicken market (1). The analysis had been made with three store scanner databases from Les Réseaux des Nouvelles des Marchés (2). We combined three methods of data treatments to analyze the marketing margins distribution along the chain, the theoretical price of official quality signs products at retailers, and the weight of official quality signs in value creation (3).

1. The interest of marketing margins in chicken and egg markets

Marketing margins indicate the value created along the chain, but also about the bargaining power of actors (1). We investigate the marketing margins of the table egg market and oven-ready chicken because of their specificities and current market trends. We only present the oven-ready chicken market as the table egg has been presented in the previous chapter (2).

1.1 The marketing margins: an indicator of value distribution along the chain

All middle-men in the value chain increase the price of the product, either for a service (e.g. transportation) or for a product transformation or improvement (e.g. processing food, packaging). The actors increase profit margins and guarantee of a good system, especially for perishable goods (Pokhrel & Thapa, 2007). The previous studies confirmed that the final value per unit of official quality signed product is higher than other quality range. The analysis of the market trends in terms of prices, margins, and price premium between different quality ranges of the same product deliver important information about the value creation process and the maturity of a market (Oberholtzer et al., 2006). The margins depend on manufacturer and retailers' interactions. According to the 3C-SR model, if retailers have the same commitment toward corporate social responsibility and build business relations, they should make more profit. Among the actors of the chain, retailers have a higher power in margin creation (Ailawadi & Harlam, 2004). Corporate social responsibility aims to rebalance the bargaining power of economic actors and distribute the marketing margin more homogeneously along the value chain, compared to standard products. We assume that the official quality signs should generate this effect if the actors have the same commitment. The intermediaries take a substantial proportion of the income accruing from the marketing of agricultural products, and the analysis

of the net marketing margins of incomes is the most reliable to identify and assess the value distribution (Pokhrel & Thapa, 2007).

1.2 Conceptual clarification about value

The use value creation derives from the resources used by the firms, either tangible resources such as machines and type of materials, and less tangible resources, such as brands and the actions of people within the organization. This use value must realize exchange value, made from an additional value to the cost of the resources input. Agri-food products acquire the official quality signs to create use value, with the hope that it will generate monetary value in the market. Both Label Rouge and organic Label signal a higher quality with a specific production method that is either perceived by consumers as better for the society, the environment, the breeding, or the health. Firms expect a higher exchange value and profitability. *"Resources may be capable of producing profits, but if the resource owner, not the firm, is able to capture this exchange value, firm profitability will suffer."* (Bowman & Ambrosini, 2000, p. 8).

This study analyze the value with the marketing margins. The lack of information concerning the external cost do not allow us to measure the added-value (Charreaux, 2014). Nevertheless, we consider from a market perception that a price increase is an increase of value in the market, but do not consider that a value increase indicates an increase of profitability. The analysis of price formation along the value-chain is performed to investigate the (in)efficiency of official quality signs at several stage. We identify where the value is created (monetary value) but also which actors capture the value along the chain.

1.3 The chicken market

The egg market has already been presented in the previous chapter. We present below the chicken market, a case study for Label Rouge (1). Moreover, the chicken market shows a peculiar trend for organic quality, and the market is very competitive and segmented (2).

1.3.1 Specificities: The origin of Label Rouge

The poultry industry was the pioneer of the Label Rouge development with the first official quality sign approved by the government in 1965. The label includes three main conditions: the type of animal feed, the free-range breeding, and the time of livestock growing. The poultry products are the first sector of Label Rouge and the fresh oven-ready chicken is the first branded item. *"The scheme guarantees that customers are buying into the genuine article. [...] It has*

made a vital contribution to sustaining rural development and bird diversity. They are many small family farms still operating throughout France who would have been f0orced off the land and doing something else if it were not for the label" (Parker, 2010, p. 24).

In 2017, 62% of the fresh oven-ready chicken were Label Rouge, 10% was organic and 14% were standard quality. The last 14% were wearing other certifications (free-range, region-of-origin…). The Label Rouge is qualified as the savior of traditional way rearing chicken, facing the industrial industry (Parker, 2010). The main objective is to create value for commodity market items. The French market of chicken is highly competitive and includes a large part of importation. The official quality signs are used to recapture the national market and increase the value of quality products, especially for a fresh oven-ready chicken. The inter-professional association Anvol expresses the necessity of conquering market shares and valuing animal welfare and the environmental-friendly methods of production.[29]

1.3.2 Generalities: the market of chicken

It is difficult to identify the value creation vectors for quality because of unclear information and the confusion between production systems and related product attributes. Consumer education partly relies on clear signals and transparency. Official quality signs are used for enhancing consumers' value perception and financial valorization of quality.

General market data and trends

Chicken production was in a positive trend but decreased by 1.2% in 2019 (FranceAgriMer, 2020). The sector represented a slaughterhouse turnover of 6.7 billion euros in 2018 (Volaille française, 2018). Two-third of the Label Rouge chicken volumes from the slaughterhouses go to conventional stores. The last third is distributed among wholesalers, which are intermediaries with butchers, catering trade, exporters, and all types of stores, direct export, industry, and others (freezer-centers…). [30]

The chicken market is threatened on one hand by the decrease of exportations, and on the other hand by the importation that increases national competition. Official quality signs are used to conquer the national market, but they impact more the whole chicken sales than chicken products.

---

[29]   http://www.web-agri.fr/actualite-agricole/economie-social/article/les-importations-de-poulet-continuent-a-augmenter-en-2019-en-france-1142-152015.html

[30] www.volaillelabelrouge.com/fr/chiffres-cles-volailles/

Figure 28 Label Rouge chicken sales allocated per distribution channel
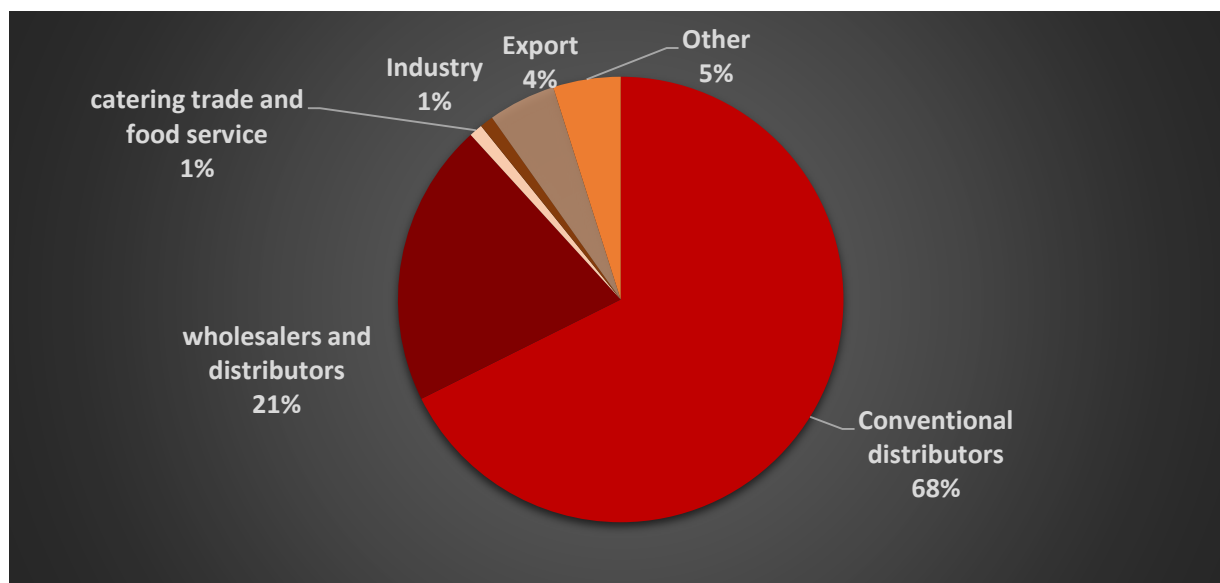
The consumption of chicken products increased in France from 12.1kg per year per capita in 2000 to 19kg in 2017 (ITAVI, 2018). Oven-ready chicken consumption is decreasing compared to processed chicken food. The sector registered a decrease in terms of volumes but the price increased between 2017 and 2018 (Volaille française, 2018).

<u>Consumers and chicken</u>

A consumer study revealed in 2020 that 33% of the organic consumers consume organic poultry, a stable consumption trend since 2015. It is a higher percentage than other meat types, but less than eggs, vegetables, and vegetables (Agence Bio, 2020). Between 2017 and 2018, the sales of fresh chicken products are increasing in hard discount stores, while hyper- and supermarkets were quite stable. They are leaders in the market (45% of the sales in France are in hypermarkets and 20% in supermarkets). All other places (online, specialized stores, and convenience stores) registered a decrease in sales. The price is nevertheless slightly increasing in all stores, except convenience stores.

Consumers give higher importance to official quality signs for oven-ready chicken than processed or sliced products. The Label Rouge represents higher sales volumes than organic oven-ready chicken with 62.5% in 2018 (evolution of 0.8 compared to 2017) compared to 10.3% for organic sales (decrease of 0.2 points of percentage between 2017 and 2018). Standard whole-chickens represent 12.7% in 2018, whereas it is the leader quality for sliced or processed chicken products. Whole chickens are mostly bought in hyper- and supermarkets, representing

187

respectively 53.97% and 23.33% of the sales (Volaille française, 2018). Offical quality signs products are mostly bought in hyper- and supermarkets (82% for Label Rouge whole chicken and 42% for organic poultry) (Agence Bio, 2020; Volaille française, 2018).

2. Databases

Data are extracted from Le Réseau des Nouveaux Marchés. They provide weekly prices for table eggs and oven-ready chicken at different stages of the value chain for different quality ranges, but with different periods.

Table 50. Simplified market data presentation

PRODUCT	FARM PRICE	WHOLESALE PRICE	RETAIL PRICE
Data	Slaughterhouse By RNM Monthly prices	Rungis By RNM Weekly prices	HSMKT By RNM Weekly prices
Oven-ready Chicken	Label Rouge Standard	Label Rouge Standard	Standard Label Rouge Organic
			Discount store By RNM Weekly prices
			Standard Label Rouge Organic
			Specialized store By RNM Weekly prices
			Standard Label Rouge Organic
Table egg		Rungis By RNM Weekly prices	HSMKT By RNM Weekly prices
			Organic Standard
			Discount store By RNM Weekly prices
		Organic Standard	Organic Standard
			Specialized store By RNM Weekly prices
			Organic Standard

2.1 Oven-ready chicken

We use two databases to analyze the marketing margin of oven-ready chicken. The first database is from Le Réseaux des Nouveaux Marchés and delivers information about the farm price (excluding taxes) of standard and Label rouge chicken. The dataset is monthly observations from January 2011 to October 2016 are prices excluded taxes per kilo.

Table 51 Farm price for standard and Label Rouge chicken quality from July 2011 to October 2016 (€/kg)

Quality	Standard	Label Rouge
Mean	1.35	2.68
Evol	-1.54%	-0.39 %
St. Dev	0.07	0.11
October 2016	1.28	2.54
Number of observations	70	70

The mean price of Label Rouge quality is twice higher than the standard quality. Both qualities show a decrease in price along the period and show a similar trend, maintaining a constant gap throughout the period and had similar variations.

The second database presents the prices of oven-ready chicken at the wholesalers (Rungis Market, France) and the retailers' stages (conventional, discount and specialized stores) from the 6th of September 2018 to the 28th of February 2020. They present 78 weekly observations for Standard and Label Rouge wholesaler price – Rungis, and standard, organic, and Label Rouge price at retailers – HSMKT, discount, and specialized stores.

Table 52 RNM database of the price of standard, organic and Label Rouge oven-ready chicken from January 2018 to February 2020 (€/kg)

Actor	Wholesalers		Conventional Stores			Discount stores			Specialized Stores
Quality	Stand.	L.R.	Stand.	LR.	Org.	Stand.	L.R.	Org.	Org.
Mean	2.29€	4.08€	3.36€	5.46€	9.65€	2.90€	4.48€	7.62€	11.84€
Evol	0.00%	-5.21%	4.09%	0.18%	- 0.59%	-0.34%	5.91%	-0.62%	0.00%
St. Dev	0.03	0.07	0.07	0.18	0.18	0.06	0.08	0.10	0.24
Feb. 28 2020	2.29€	3.89€	3.37€	9.59€	5.40€	2.81€	4.59€	7.57€	11.70€
Number of obs.	78	78	78	78	78	78	78	78	78

The organic quality is the most expensive version at all retailers. The evolution rates of prices are really low, as well as the standard deviation. The specialized store shows a higher standard deviation and is the highest price for the organic product (11.70€ in February 2020) compared to HSMKT and discount (respectively 9.59€ and 7.57€ in February 2020).

We also extracted from the same database on Réseaux des Nouveaux Marchés a longer time series that only include standard and Label Rouge qualities (organic quality is only available for a shorter period). We selected the complete database from the 10th of January 2008 to the 28th of February 2020. This database will be used for further data treatments. The evolution rate is positive for all qualities and at all stages. For Wholesaler and hyper- and supermarkets, the rate of Label Rouge (respectively 14.30% and 12.04%) than for standard (respectively 2.22%

189

and 1.37%). The hyper- and supermarkets store shows the opposite results with a rate of 15.96% of increase for standard quality, whereas the Label Rouge only increase of 4.40%.

Table 53 RNM database of the price of standard Label Rouge oven-ready chicken from January 2008 to February 2020 (€/kg)

Actor	Wholesalers		HSMKT		Discount	
Quality	Standard	Label R.	Standard	Label R.	Standard	Label R.
Mean	2.22€	3.62€	3.19€	5.29€	2.96€	4.53€
Evol	2.22%	14.30%	15.96%	4.40%	1.37%	12.04%
St. Dev	0.11	0.32	0.16	0.22	0.09	0.15
Number of observations	634	634	634	634	634	634

The oven-ready chicken is rather stable along both periods. The price for standard quality in hyper- and supermarkets and discounts are lower at retailer stage than the wholesale price for label quality. The organic quality stands out in the graph. Not only their price are higher, but the difference in price is more important than Label Rouge and standard quality. The organic products show a disparity in price that is unique in the market.

2.2 Table eggs

We extracted a dataset that contains the price of fresh eggs at the wholesalers and the store stages from the first week of February 2010 to the first week of February 2020. The weekly observations were made every Thursday for organic and non-organic six eggs unit. The non-organic wholesaler was Rungis and the organic in France Bio. The store prices were watched in hyper- and supermarkets and discount for organic and non-organic, and in specialized stores that only sell organic products. The organic products wear the European organic label.

Table 54 Store type segmentation of the fresh eggs market: prices for organic and non-organic products from RNM

Actor	wholesalers		Conventional Stores		Discount stores		Specialized Stores
Egg type	Standard	Org.	Standard	Org.	Standard	Org.	Org.
Mean	7.61	29.13	17.84	31.11	16.99	25.83	34.64
Evol	31.05%	7.95%	- 4.24%	- 14.54%	3.64%	- 15.03%	2.78%
St. Dev	1.79	0.90	0.86	1.55	0.81	1.55	0.76
February 2020	8.99	31.67	17.85	30.65	18.01	25.91	35.07
Number of observations	528	528	528	528	528	528	528

The organic products' prices are above non-organic eggs. The difference at the wholesaler stage is stunning. Both prices register a positive evolution rate. The standard deviation of non-organic is higher than organic at the wholesaler stage, but the opposite effect is observed at the retailers' stage. The wholesalers' price shows two peaks in 2012 and 2018 that may have been slightly reported on retailer prices, but not compensated. The price for non-organic eggs at retailers' are similar, with a slight but inconstant price premium for hyper- and supermarkets. The market

price for organic quality in the discount store is less expensive than the wholesalers' price. We observe a higher price range for organic than non-organic products at retails. The pricing is different at each retailer.

3. Methodologies

The analysis of these databases is made in three steps. First, we conduct a preliminary analysis by calculating marketing margins for each dyad. Then, we use two methods to calculate marketing margins: the theoretical price of official quality signed products compared to standard, and an econometric model expressing the power of official quality signs and retailers in margin creation.

3.1 The marketing margins

The marketing margin per unit is the price spread, which is the difference between the prices of two actors in the value chain. We assume the marketing margins at several levels. The literature mentions mostly the farm-to-retail marketing margins. The marketing margin include charges for all marketing functions between the two actors, without considering charges of the value creation. We consider several dyads to understand the value formation by functions.

Figure 29. Marketing margins dyads for oven-ready chicken evaluation

Dyad 1

Dyad 2

191
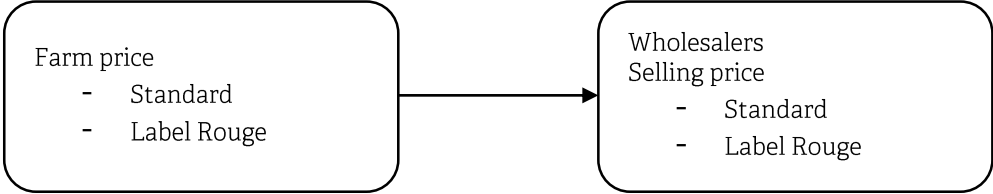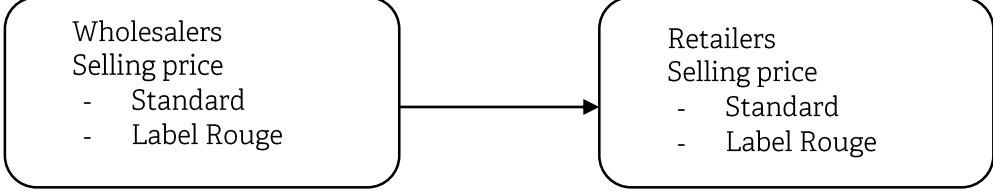
Dyad 3
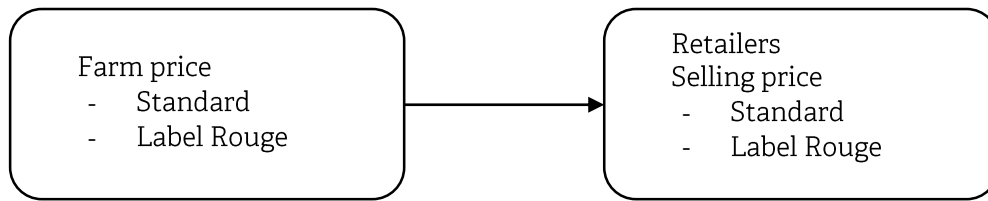
Figure 30. Marketing margins dyads for table eggs evaluation

Dyad 4
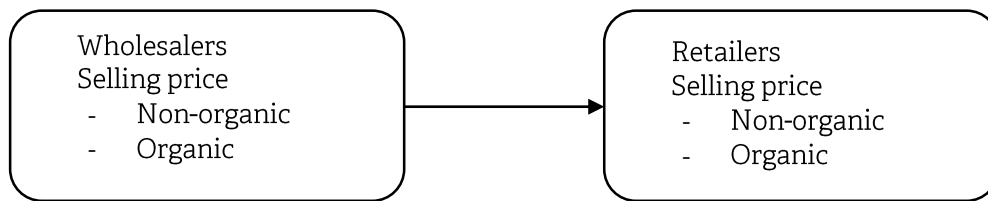
The calculation of the price differences is devoted to comparing the break downs of official quality signs marketing margins.

Equation 5. Marketing margins calculation

$$MM_D = P_{A2} - P_{A1}$$

where MM_D is the marketing margin of the dyad, P_{A2} the price of the second actor in the chain and P_{A1} the price of the first actor in the chain.

3.2 The theoretical price

We use the theoretical price method to assess the performance of official quality signed products for different retailer types. The theoretical price is the expected price of a specific product according to the financial values of the other varieties of the same product. It is calculated with the coefficient of value created by official quality signs at the wholesalers' stage ($\propto$) and the coefficient of margins between the wholesaler and each store (β). The calculation is expressed as follows:

Equation 6. Theoretical price A

$$P_{TP} = WS_{no} \times \left(1 + \propto_{oqs}\right)(1 + \beta_{cha})$$

where P_{TP} is the theoretical price for the distributor, WS_{no} the wholesalers' price for non-organic eggs, $\propto_{oqs}$ is the coefficient for official quality sign at the wholesaler stage, and β_{cha} is the coefficient for standard products from wholesaler to each retailer type.

Equation 7. Theoretical price B

$$P_{TP} = WS_{no} \times (1 + Y_{TP})$$

where Y_{TP} is the total coefficient compiling $(\propto)$ and (β).

Equation 8. Market price coefficient

$$Y_{MP} = \frac{MP_{oqs}}{WS_{no}}$$

Where MP_{oqs} is the market price for products with official quality sign at retailers stage, and Y_{MP} is the coefficient of market price for official quality sign based on standard wholesaler price. We then compare Y_{TP} and Y_{MP}.

3.3 Statistical models: modeling specification

The marketing margin function M of product, i in period t is produced from the retailer b_j (discount and specialized stores) and the official quality sign c_k (Label Rouge or organic). The general empirical specification estimated using ordinary least-squares (OLS) for our case reads as follows.

Equation 9. Marketing margins Model 1

$$M_i = \propto + \sum_{j=2}^{j} b_{ij} s_{ij} + \sum_{k=2}^{k} c_{ik} s_{ik} + \varepsilon_i$$

where $s_j \ldots s_n$ is a vector of attributes that determine the price of the product. We employ dummy variable coding on the parameters b_j and c_k. In all models, the base product is a base product sold at discount and has no official quality sign. For table eggs, it is the most common package of 6 big egg boxes. The margins are expressed for a hundred eggs. For chicken, it is a whole raw oven-ready chicken sold at discount and has no official quality signs. The base product attributes are excluded categories in the regressions. The specialized store variable intrinsically includes the organic attribute. Beyond the basic model, we introduce interaction dummies between the official quality signs and the retailers. The model becomes:

Equation 10. Marketing margins Model 2

$$M_i = \propto + \sum_{j=2}^{j} b_j s_j + \sum_{j=2}^{j} \sum_{k=2}^{k} f_{jk} s_{jk} + \varepsilon_i$$

where f_{jk} provides the interaction effect, showing how official quality signs is enhanced (positive value) or discounted (negative value) relative to the base case for any retailer. The econometric analysis was conducted using R-studio with robust standard errors. Tables 57, 58, and 59 present the descriptive statistics during the observation period of each dyad. The second dyad is made of 2537 observations from the 10th of January 2008 to the 28th of February 2020.

Table 55 Descriptive statistics dyad 2

Variables	Description	Mean	St. Dev
Margin	Margin per kg (€)	1.07	0.43
HSMKT	1 if HSMKT, 0 if otherwise	0.5	
Discount	1 if Discount, 0 if otherwise	0.5	
Label Rouge	1 if Label Rouge, 0 if otherwise	0.29	

The third dyad is made of 280 observations from the 6th of January 2011 to the 27th of October 2016.

Table 56 Descriptive statistics dyad 3

Variables	Description	Mean	St. Dev
Margin	Margin per kg (€)	1.57	0.86
HSMKT	1 if HSMKT, 0 if otherwise	0.5	
Discount	1 if Discount, 0 if otherwise	0.5	
Label Rouge	1 if Label Rouge, 0 if otherwise	0.5	

The last dyad assesses the marketing margins of table eggs between the 4th of February 2010 and the 12th of March 2020, with 2640 observations.

Table 57 Descriptive statistics for table eggs

Variables	Description	Mean	St. Dev
Margin	Margin per 100 eggs (€)	4.75	5.22
HSMKT	1 if HSMKT, 0 if otherwise	0.40	
Discount	1 if Discount, 0 if otherwise	0.40	
Specialized	1 if specialized, 0 if otherwise	0.20	
Organic	1 if organic, 0 if otherwise	0.60	

Conclusion of section 1

Marketing margins are used to assess the mechanism of value increase along the value chain. We wonder to what extent the marketing margins of official quality signed products diverge from standard products, and to what extent the level of commitment and the coherence of the connections between stakeholders create more value and/or rebalance the distribution of the value among the actors of the chain.

We selected the table egg market and the oven-ready chicken market because of their specificity. They are small-processed food, present specific official quality sign history, and are commonly purchased in France. Their characteristics are interesting to analyze the value created with credence quality along the chain. Label Rouge quality represents the highest proportion of oven-ready chicken sales and is available at a high price. The prices are stable along the time. Organic quality is more expensive but the consumer demand is very small compared to other quality ranges including standard demand. The chicken industry is the pioneer of the Label Rouge development. Nowadays, it is distributed in all types of retailers, with the majority of the sales in hyper- and supermarkets. The table egg market presents a high price for organic quality at the stage of wholesalers and retailers.

Based on store scanner databases, we elaborated on three main studies. We analyze the market chain by dyad. First, preliminary analyses are conducted to understand the weight of price formation at each stage of the chain and perceive the approximate distribution of the product's price by the marketing function. Then, we aim to compare the market price for official quality signs with its theoretical price. The last study is a series of equations based on a hedonic model. We consider the marketing margin as a function of attributes that characterize the product. The dummy variables are analyzed independently and with interactions.

Section 2. Results

This section presents the results of the preliminary analysis, theoretical price, and econometric treatment.

1. Preliminary analysis

We investigate the databases and focus on marketing margins creation for each product (chicken – eggs) at each stage of the value chain by comparing price for each dyad (1). We deliver a graph presenting the approximate distribution of the product's price by the marketing function.

1.1 The chicken market

Concerning the oven-ready chicken, we detain information to analyze the marketing margins of Label Rouge quality compared to standard quality.

Dyad 1

The mean marketing margin for the period of January 2011 to October 2016 presents better results for standard (0.90€) than label Rouge (0.85€). Nevertheless, even if they both present a positive evolution, the Label Rouge has a higher rate of growth (22.11%) than standard quality (11.65%), and according to the standard deviation, the standard quality is more stable.

Figure 31 Evolution of Farm-wholesale marketing margins between January 2011 to October 2016 (€/kg)
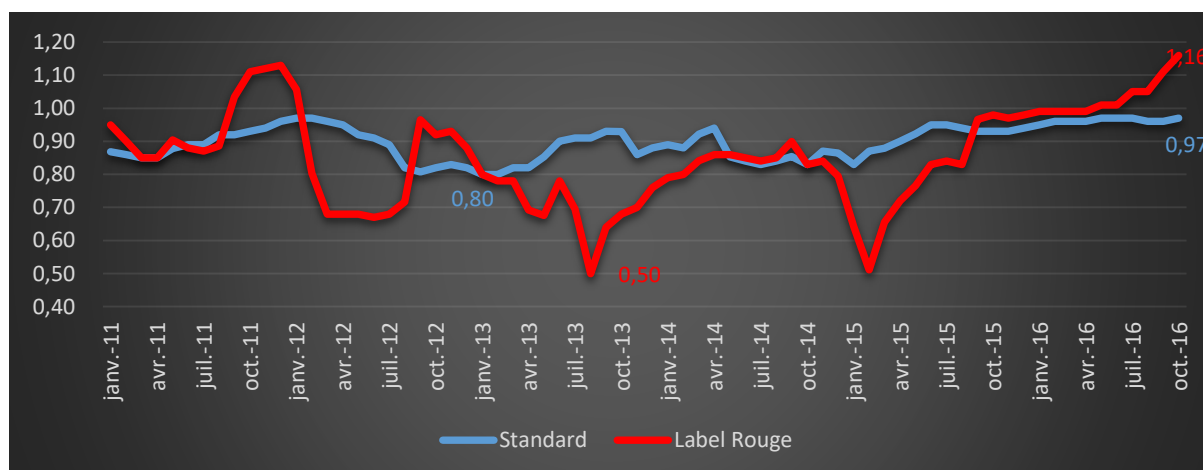
The graph 38 reveals a higher marketing margin volatility for Label Rouge, with various variations and low peaks, while the standard quality shows a relatively stable result along the period.

Dyad 2

The second value chain stage is the wholesale-retail dyad. The wholesaler data only deliver information for standard and Label Rouge. We decided to exclude the organic retailers' information to focus on the Label Rouge value chain compared to a standard chicken. For each store type, the standard chicken registers lower mean marketing margins (0.97€ in HSMKT and 0.74€ in discount) than Label Rouge quality (respectively 1.67€ and 0.91€). Nevertheless, the discount marketing margin for Label Rouge is smaller than the marketing margin for standard chicken in hyper- and supermarkets. Standard quality shows a high price increase in hyper- and supermarkets (62.80%) whereas the discount store shows a small and negative evolution rate (-2.33%). The effect is drastically different for Label Rouge, with a negative rate in hyper- and supermarkets (-14.58%) and a small and positive rate in discount (0.95%).

Figure 32. Wholesale-retail marketing margins from January 2008 to February 2020 (€/kg oven-ready whole chicken)
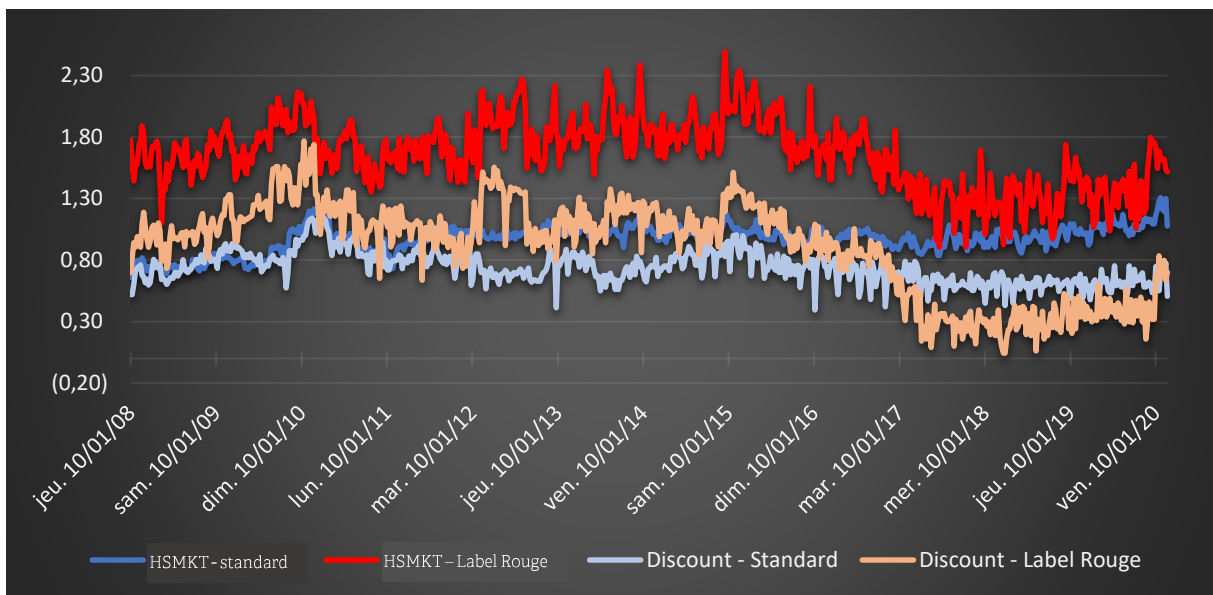
The evolution of the marketing margins at this stage reveals high volatility. The Label Rouge in hyper- and supermarkets stay leader during the entire period with a distinct gap with other products. The Label Rouge in discount store presents an evolution in two phases. From 2008 to 2015, the marketing margin is mostly higher than the standard products, with high volatility and important low and high peaks. The marketing margin fluctuates constantly. After 2015, we notice an important decrease, to become lower than standard quality in 2017. The standard marketing margins show less volatility than Label Rouge quality. They have a similar result in 2008 (0.66€ for HSMKT and 0.52€ for the discount the 10th of January 2008), and slowly created a gap in favor of hyper- and supermarkets (1.07€ for HSMKT and 0.51€ for the discount

197

the 28th of February 2020). To have a better understanding of marketing margins for retailers, we computed both quality range marketing margins for HSMKT and discount. Discount stores registered their highest peak of computed marketing margin on the 4th of February 2010. Since this date, their results decreased and created a more important gap with the hyper- and supermarkets' computed marketing margins. Despite the gap, both computed margins follow similar variations along the period.

Dyad 3

The Farm-Retail monthly marketing margins data from January 2011 to October 2016 has been adjusted to monthly prices. The marketing margins are stable from 2011 to 2016. Label Rouge products show higher mean prices in both hyper- and supermarkets and discount stores. An interesting observation is the price of Label Rouge in the discount stores (1.36€) which is less expensive than the standard chicken in HSMKT (1.95€). Moreover, the price of standard in HSMKT has a positive trend evolution (14.98%) whereas the Label Rouge in discount decreased its price (- 17.16%). Graph 43 shows that the trends are stable over time. The standard quality at hyper- and supermarkets is the most stable marketing margin, while the Label Rouge presents constant variation 2.46€ and 2.91€ for hyper- and supermarket, and discount store register a margin close to 0€ in 2013.

1.2 The table egg market (Dyad 4)

We analyze the egg market marketing margin for the wholesale-retail stage. The graph 44 shows the evolution of marketing margins per quality range and store types

Figure 33 Wholesale-retail marketing margins for organic and non-organic eggs between 2010 and 2019 (€/100eggs).
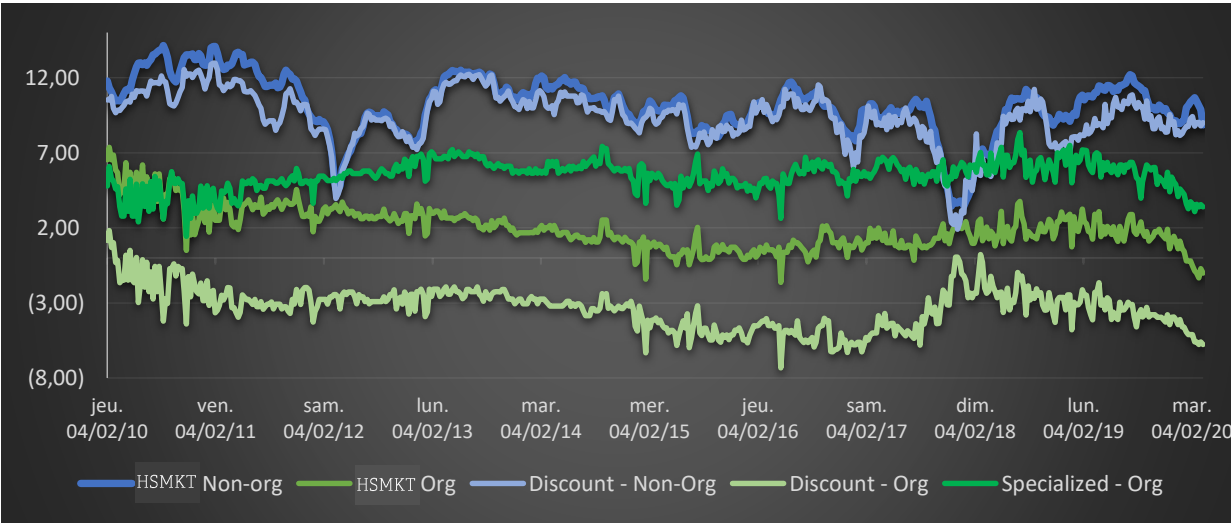
The graph shows blatant disparities of results. Surprisingly, the three smallest margins concern organic products. What is striking is the negative margin for organic eggs in discount stores almost the entire studied period. The organic products in hyper- and supermarkets show three short periods of negative margins in 2015, 2016, and 2020. The specialized store registers the highest margins. Non-organic eggs show the highest margins, with a slight positive difference in favor of HSMKT. The hyper- and supermarkets show the highest standard deviation for non-organic eggs (1.96), and a constant positive price difference (MIN=3.45€; MAX=14.15€). The discount stores have a lower standard deviation (1.80) and price differences (MIN=1.91€; MAX=12.97€), but always positive. The HSMKT and discount stores have a decrease in their results because of the two high price peaks at the wholesaler stage in 2012 and 2018. The two retailers did not adapt their prices, or at least did not proportionally. Also, the price evolution is negative for both retailers.

All organic products show lower marketing margins and smaller standard deviations, especially for specialized stores (0.99), showing a smaller dispersion and a more stable market than HSMKT (1.36) and discount (1.39). What is striking is the negative price difference for the conventional (MIN= -1.63€) and discount stores (MIN= - 7.32€). Moreover, the most important differences registered is less interesting for organic than non-organic eggs for conventional (MAX=7.36€) and discount (MAX=1.83€). The specialized stores marketing margins are closer to non-organic products, and show the highest results (Mean=5.51€) followed by hyper- and supermarkets (1.97€) and discount stores (3.30€). To go further in the analysis, we compute margins for hyper- and supermarkets, and discount stores. The computed margins are all positive. Hyper- and supermarkets' mean margin is the highest (6.10€) followed by the specialized stores (5.51€) and finally the discount store (3.04€). The specialized stores show relatively small standard deviation (0.99) compared to hyper- and supermarkets (1.34) and discount stores (1.17).

Graph 65 shows a decreased along the period of computed margins for hyper- and supermarkets and discount stores, whereas the specialized stores are more stable over time. The specialized stores show the smallest decrease over time (-28.92%) whereas for hyper- and supermarkets (-57.17%) and discount (-72.06%) are largely lowering their marketing margin. The price difference evolution during the period is highly positive for the specialized stores (64.91%), the only positive results in the table, whereas the two other store types register a dramatic decline of -44.34% for conventional and -209.29% for discount. Despite a higher price for organic eggs,

the marketing margin is not in favor of the official quality signs at the retailer stage. We assume that the value is created elsewhere in the value chain.

Table 58 Computed margins for stores' types (€ for 100 eggs)
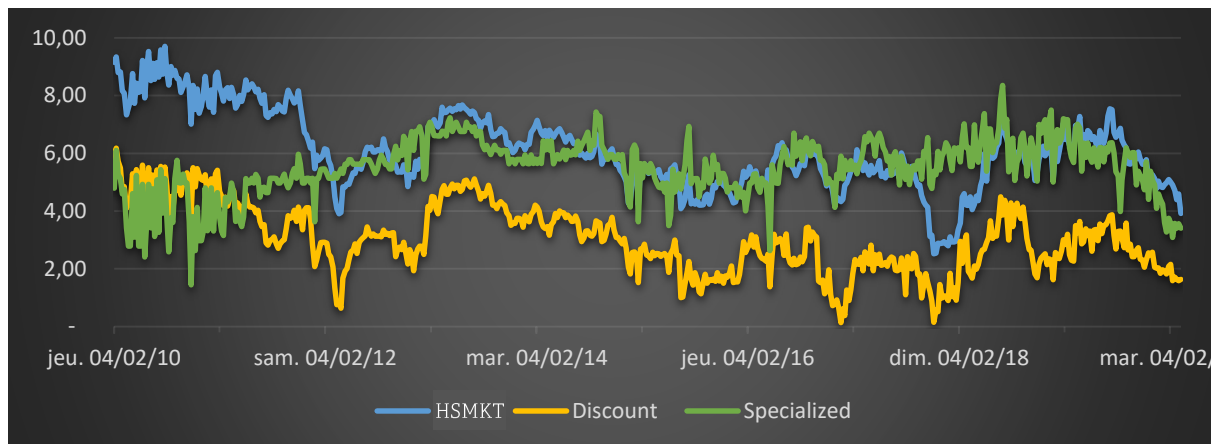
1.3 Concluding remarks

Concerning the oven-ready chicken, Label Rouge products have a higher price at each stage but do not necessarily generate a higher marketing margin. The Label Rouge marketing margin shows more volatility at all stages, including a higher uncertainty, but is not systematically performing. The analysis of the first dyad highlights a similar margin for both products' quality with a higher instability for Label Rouge quality. The analysis of the second dyad shows different results. In hyper- and supermarket, the volatility of Label Rouge is not refraining its marketing margin and is the leader. At discount stores, the Label Rouge marketing margin shows a different evolution and generates a smaller margin than standard products. The role of store type appears as important as the official quality sign to create marketing margins.

In October 2016, the approximate distribution by marketing functions shows that the wholesalers represent a large part of price formation, except for the Label rouge product in the discount stores, where it represents the smallest part of retailers' price.

Figure 34 the approximate distribution of oven-ready chicken price by marketing functions in October 2016 (€/kg)

The approximate distribution of table eggs price by marketing functions in December 2019 show the higher price premium applied to organic eggs by retailers, compared to standard eggs.

Figure 35 Approximate distribution of table egg price by marketing functions in December 2019 (€/100 eggs)
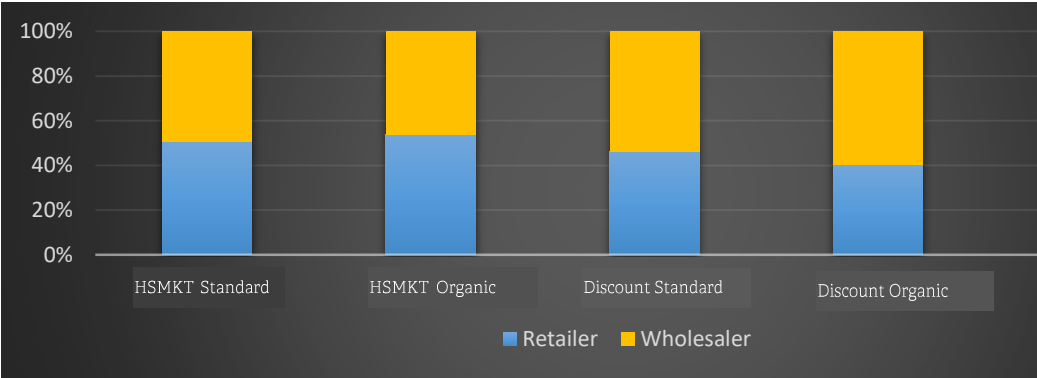
Our results on the marketing margins of official quality signs show a complex picture. For researchers attempting to quantify the marketing margin along the chain, our findings suggest that official quality signs have a higher marketing margin volatility than standard products, especially for whole oven-ready chicken products. Moreover, official quality signs are not necessarily generating higher margins. Concerning the oven-ready chicken value chain, the marketing margin is more important for Label Rouge at the farm-wholesale stage, whereas standard generates more marketing margin at the wholesale-retail stage. The standard marketing margins for hyper- and supermarkets are in a promising evolution trend, and the stability of standard products makes the prediction more reliable. The wholesalers capture a high part of marketing margins, and according to the dyad 3 analysis, they create variation in the market. Consequently, the retailers adapt their prices to the consumer demand, generating more fluctuation on marketing margins. Wholesale-retail marketing margin for table eggs show more

stable results, and generate more premium for standard than official quality signed products for both retailers. We observe two periods of strong variation for standard eggs, certainly due to the adaption to European regulations. The marketing margins for organic products are very distinct in the graphs, highlighting the pricing strategies of each retailer.

To conclude, the marketing margins change according to the type of product, the official quality sign, and the retailers. The pricing strategy of the retailer can sometimes generate zero or even negative marketing margins, which are compensated by the standard product margins. Results are heterogeneous and the influence of official quality signs is hardly identified because it is related to other factors. The theoretical price method and the statistical method complete the overview of marketing margins.

2. Margin analysis and econometric results

The framework we have proposed assesses the importance of the interaction between the buyers in the value chain and the official quality signs. We first clarify the relation between prices and marketing margins using the theoretical price method. Then, we developed an econometric model that aims to calculate the weight of each attribute in margin creation. We analyzed the marketing margin as an indicator of the financial performance of organic products.

2.1 The margin as a financial result: The theoretical price

Following the methodology explained in the previous section, we calculate the theoretical price for each dyad and compare them with the actual market price. Concluding remarks are gathering the main findings.

2.1.1 The oven-ready chicken market

Below are displayed the results of the ratios for each dyad, and the comparison with the market prices.

<u>Dyad 1</u>

This dyad observes the value created between the farms and the wholesalers. Table 66 shows that $\propto_S$ is higher (1.99) than the wholesaler ratio β_W (1.67).

Table 59 Dyad 1 – the ratio of equation 1

	$\propto_S$	β_W
Mean	1.99	1.67
Evolution rate	1.16%	5.37%
Standard deviation	0.05	0.06
October 2016	1.98	1.76
Min	1.83	1.53
Max	2.08	1.76

We notice that β_W increased more than $\propto_S$ along the period. With the two ratios, we calculated the theoretical prices of organic products at the wholesaler stage and compared it to the actual price along the period. The theoretical price is constantly above the market price with a respective mean of 4.47€ along the period and 3.54€ for wholesaler actual price. We compare in Table 60 the difference between the ratio of the theoretical price and the actual wholesaler price.

Table 60 Dyad 1 - Ratio of equation 2

	γ_{TP}	γ_{WP}
Mean	3.32	2.62
Evolution rate	6.59%	7.37%
Standard deviation	0.18	0.14
October 2016	2.83	2.89
Min	3.64	2.35
Max	3.32	2.95

The ratio for the theoretical price is unsurprisingly higher, but we notice a higher evolution rate for the actual price ratio.

Dyad 2

Table 61 Dyad 2 – the ratio of equation 1

	$\propto_W$	β_{HSMKT}	β_{DIS}
Mean	1.63	1.44	1.34
Evolution rate	11.82%	13.44%	-0.83%
Standard deviation	0.11	0.06	0.08
October 2016	1.69	1.47	1.22
Min	1.40	1.29	1.18
Max	1.83	1.70	1.66

The mean ratio for Label Rouge at the wholesaler stage (1.63) is more important than the ratio for hyper- and supermarkets (1.44) and discount (1.34). We notice that $\propto_W$ and β_{GMS} present positive evolution rate (respectively 11.82% and 13.44%), whereas the discount ratio is slightly negative (-0.83%). Figure 36 presents theoretical and market price for Label Rouge products in both retailers.
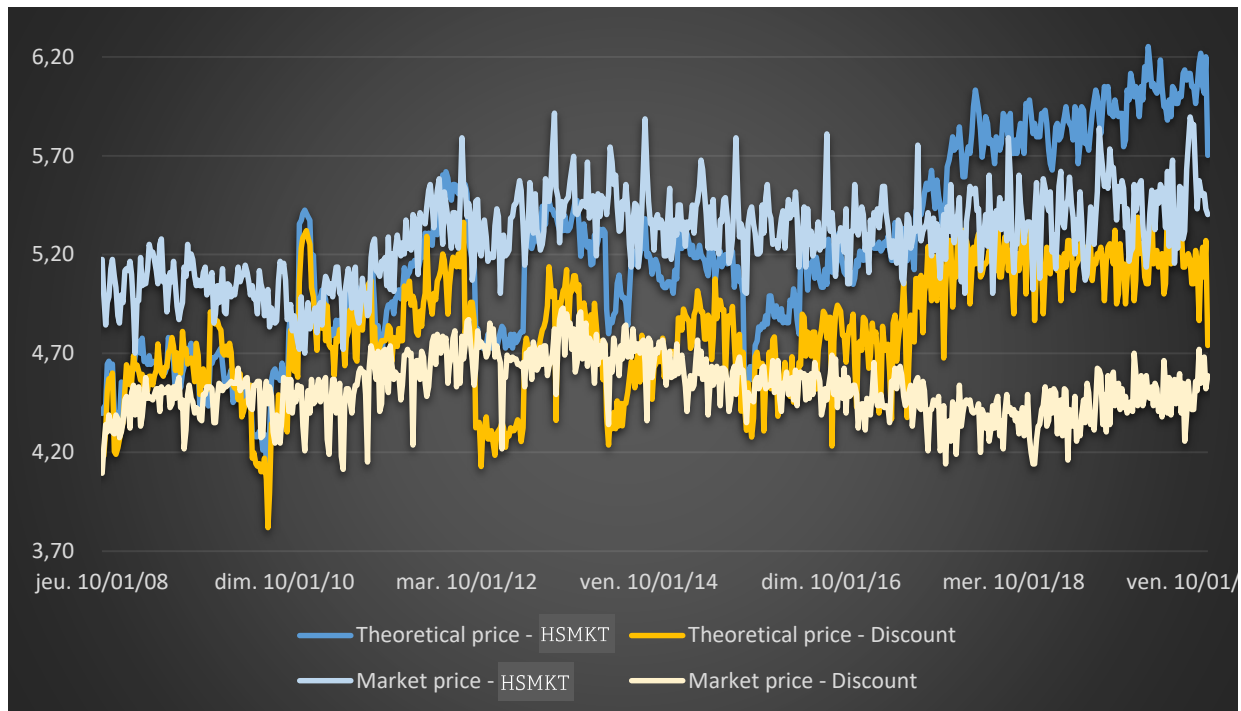
Concerning the market prices, hyper- and supermarkets' price is always distinctly above the discount all along the period, and follow similar variations. Theoretical prices show more variations and instability than market prices. The two theoretical price trends evolved differently from 2013, and slowly created a gap in favor of hyper- and supermarkets. For both retailers, market and theoretical prices show overlapping in the first period that lasts from 2008 to2017. Then, they distinguished themselves and create gaps in favor of theoretical prices in both cases. Concerning discount stores, the theoretical price is close to the market price, sometimes overlapping until 2017. During the same period, the hyper- and supermarkets price is above the theoretical price. Then, the theoretical prices increased, while the market prices are more stable despite the slight variations. By the end of the period, the price ranges are clearly in favor of hyper- and supermarkets.

Table 62 Dyad 2 - ratio equation 2

	$\gamma_{TP-HSMKT}$	γ_{TP-DIS}	$\gamma_{MP-HSMKT}$	γ_{MP-DIS}
Mean	2.35	2.18	2.39	2.05
Evolution rate	26.85%	10.88%	2.13%	9.60%
Standard deviation	0.20	0.17	0.10	0.13
February 2020	2.48	2.06	2.35	1.99
Min	1.95	1.80	2.09	1.80
Max	3.10	3.04	2.85	2.59

Hyper- and supermarkets present the most stable prices over the period, with a low standard deviation (0.10) and a small evolution rate (2.13%). The discount standard deviation slightly higher (0.13) and an evolution rate of 9.60%. Both theoretical prices show a higher evolution rate than market prices (respectively 16.85% and 10.88%). Their ranges of variations are higher, but the difference between theoretical and real prices are more stunning for HSMKT than the discount store.

<u>Dyad 3</u>

The analysis of the farm-to-retailer dyad required the adaptation of retailers' data into monthly data.

Table 631 Dyad 3 – the ratio of equation 1

	$\propto_S$	β_{HSMKT}	β_{DIS}
Mean	1.99	2.42	2.23
Evolution rate	1.16%	9.49%	2.15%
Standard deviation	0.05	0.10	0.10
October 2016	1.98	2.52	2.30
Min	1.83	2.21	5.85
Max	2.08	2.56	6.83

The ratio of hyper- and supermarkets is higher than the ratio of discount (respectively 2.42 and 2.23) and presents a higher evolution rate (9.49% and 2.15%). Figure 37 presents the theoretical and actual market prices.

Figure 37 Theoretical and actual price of Label Rouge products at Farm-retail stage between January 2011 and October 2016 (€/kg)
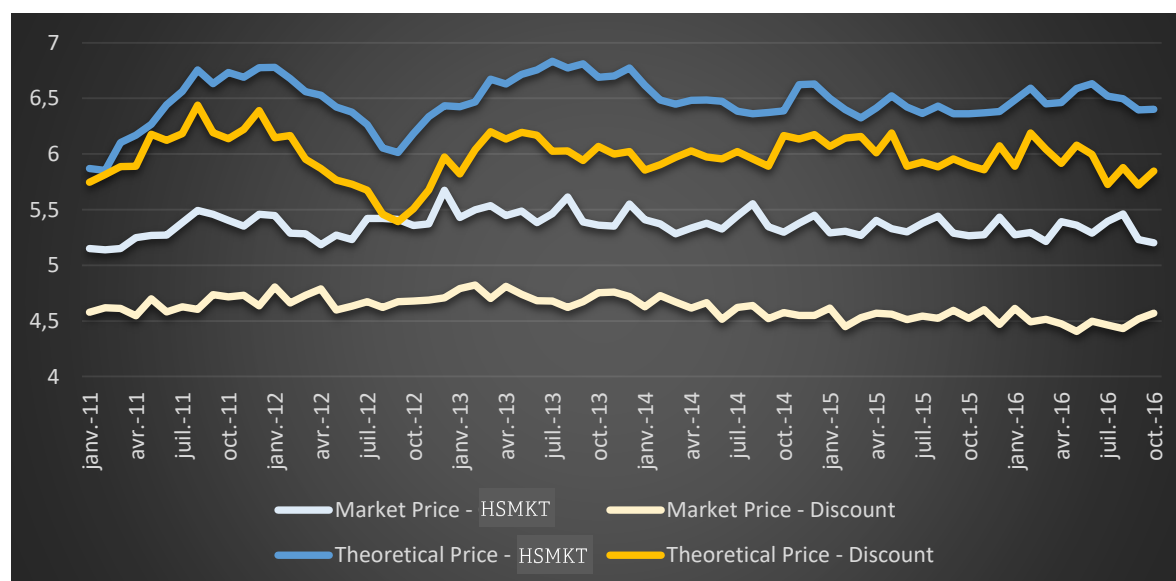
The trends are stable over time and we do not observe overlapping or important trends. Market price trends do not present important price peaks, in contrary to theoretical price. Both market prices are below the two theoretical prices trend all along the period.

Figure 38 Dyad 3 - ratio equation 2

	$ɣ_{TP-HSMKT}$	$ɣ_{TP-DIS}$	$ɣ_{MP-HSMKT}$	$ɣ_{MP-DIS}$
Mean	4.81	4.44	3.98	3.43
Evolution rate	10.77%	4.57%	2.60%	1.35%
Standard deviation	0.28	0.28	0.17	0.28
February 2020	5.00	4.57	4.06	3.57
Min	4.06	3.64	3.62	3.16
Max	5.30	4.95	4.33	3.75

The theoretical prices show better evolution rates (HSMKT =10.77% and DIS=4.57%) and higher mean prices (respectively 4.81€ and 4.44€). The differences in terms of price premiums are relatively constant throughout the period.

2.1.2 The table egg market (Dyad 4)

The table egg market shows specificities. Indeed, table 74 shows a highly important ratio for organic at wholesaler stage (4.01) compared to the two retailers (HSMKT=2.46 and DIS=2.34).

Table 64 Dyad 4 – the ratio of equation 1

	$∝_W$	$β_{HSMKT}$	$β_{DIS}$
Mean	4.01	2.46	2.34
Evolution rate	-17.62%	-26.93%	20.92%
Standard deviation	0.85	0.53	0.49
October 2016	3.52	1.99	2.00
Min	2.08	1.26	1.14
Max	6.69	3.98	3.75

Nevertheless, with the two highest mean ratios, $∝_W$ and $β_{HSMKT}$ present both negative evolution rates (respectively -17.62% and -26.93%) whereas the discount rate is important and positive (20.92%). Figure 39 shows the comparison between the theoretical and market prices.
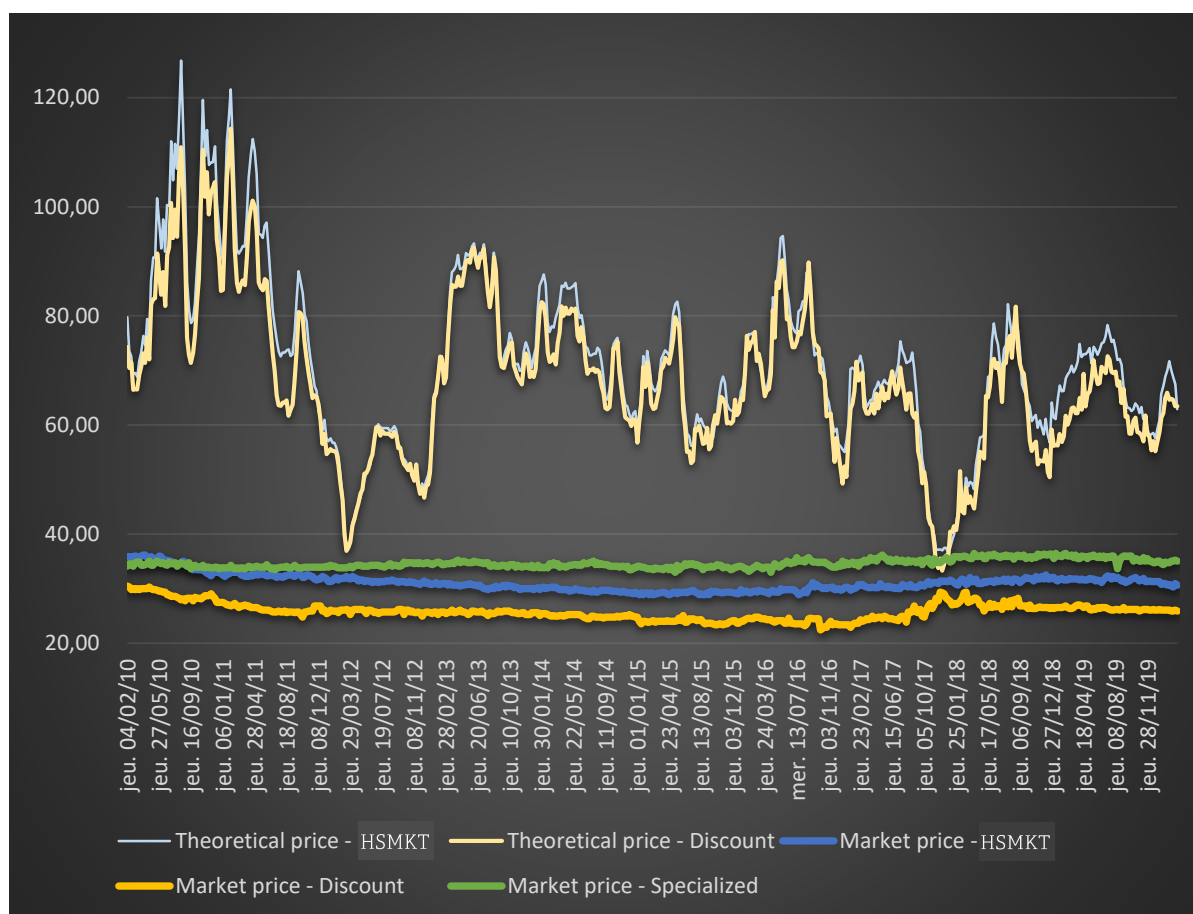
Theoretical prices are higher than market prices and show string variation along the period. Market prices are more stable and tend to distinguish themselves in terms of pricing, creating bigger gaps between prices along time.

Table 65 Dyad 4 - ratio equation 2

	$\Upsilon_{TP-HSMKT}$	Υ_{TP-DIS}	$\Upsilon_{MP-HSMKT}$	Υ_{MP-DIS}	Υ_{MP-SPE}
Mean	10.30	9.78	4.29	3.56	4.77
Evolution rate	-39.80%	-34.85%	-34.79%	-35.16%	-21.57%
Standard deviation	4.34	4.02	0.95	0.78	0.97
February 2020	6.99	7.06	3.41	2.88	3.90
Min	2.69	2.45	2.28	1.87	2.46
Max	26.36	24.22	7.23	5.81	7.26

All products show a negative evolution rate. Specialized stores present the lowest negative evolution rate (-21.57%) and the highest mean ratio (4.77) among real data. HSMKT and discount both decreased (respectively -34.79% and -35.16%). The difference between the theoretical and market data ratio is high.

The farm–wholesale dyad shows a higher theoretical price with a quite constant difference along the period. The evolution rate of real marketing margins evolved positively because of a price increase at the wholesaler stage for Label Rouge product and an unchanged farmer's price. Simultaneously, the farm price of the standard products decreased and the wholesalers price was constant.

At the wholesale-retail stage in both markets, official quality signs create significant value. The theoretical price and market price show variations and evolved differently throughout the period. The market price did not increase as much as the theoretical price. The same phenomenon is observed for table eggs, with a more stable market price along with time and absorption of ratio fluctuation. Theoretical prices are higher and show more variation than the market price at the wholesale-retail stage in both markets.

2.2 Statistical analysis

Statistical models have been applied to both oven-ready chicken and table egg markets. These hedonic models specify the marketing margin of a product as a function of attributes that characterize the product. The first model contains baseline labeling estimates with no interaction dummies. We applied both models to each dyad to analyze margin creations, except the dyad 1, as there is no retailer type. All models are significant and have high explanatory power.

2.2.1 The oven-ready chicken

We analyze the dyad 2 and dyad 3 of the oven-ready chicken value chain.

Dyad 2

Table 73 present the results of both models. The second model shows better results than the first one. It presents a higher explanatory power (respectively R^2=0.58 and R^2=0.67) and a smaller residual standard error (respectively 0.28 and 0.25).

Table 66 Models presentation - Dyad 2

	Model 1	Model 2
Residual standard error	0.2826	0.2503
Degree of freedom	2533	2532
Adjusted R-squared	0.5762	0.6674
F-Statistic	1724	1697
p-value	< 2.2e-16	< 2.2e-16

Table 74 presents the results of model 1. The hyper- and supermarkets, and the Label Rouge both are statistically significant premium in the specification with robust standard errors. The premium for retailer type is 49,77% and 43,19% for the official quality signs. The constant power is more important than the coefficient. The results are consistent with our prior expectations.

Table 67 Parameter estimates - Model 1 - Dyad 2

Variable	Parameter	Standard error
Retailer HSMKT	0.49769	0.000***
OQS Label Rouge	0.43194	0.000***
Constant	0.60568	0.000***

The second model includes interaction dummies for Label Rouge and hyper- and supermarkets. The interaction terms indicate that Label Rouge has a significant premium for hyper- and supermarkets.

Table 68 Parameter estimates - Model 2 - Dyad 2

Variable	Parameter	Standard error
Retailer HSMKT	0.23546	0.000***
OQS Label Rouge	0.16971	0.000***
*Retailer*OQS* HSMKT*Label Rouge	0.52448	0.000***
Constant	0.73681	0.000***

The interaction is significantly adding margin premium to 52.45%.

Dyad 3

The second dyad presents very high explanatory power (respectively $R^2=0.98$ and $R^2=0.99$) and also smaller residual standard error (respectively 0.12 and 0.09).

Table 69 Models' presentation - Dyad 3

	Model 1	Model 2
Residual standard error	0.1181	0.09332
Degree of freedom	237	236
Adjusted R-squared	0.9813	0.9883
F-Statistic	6270	6738
p-value	< 2.2e-16	< 2.2e-16

The robust standard error result shows a high parameter significance.

Table 70Paramater estimates - Model 1 - Dyad 3

Variable	Parameter	Standard error
Retailer HSMKT	1.43973	0.000***
OQS Label Rouge	0.91669	0.000***
Constant	0.38648	0.000***

The second model has no standard error variations with clusters. The table 80 indicates that Label Rouge has a significant premium for HSMKT. The HSMKT has a higher premium (1.58) than Label Rouge (1.06).

Table 71 Parameter estimates - Model 2 - Dyad 3

Variable	Parameter	Standard error
Retailer HSMKT	1.58397	0.000***
OQS Label Rouge	1.06093	0.000***
Retailer*OQS HSMKT*Label Rouge	-0.28847	0.000***
Constant	0.31436	0.000***

The estimated premium is negative for interaction variables, meaning that the combined effect of predictors is less than the sum of both predictors. Clustering does not affect standard errors significance.

2.2.2 The table eggs (Dyad 4)

The table egg dyad presents very high explanatory power (respectively $R^2=0.88$ and $R^2=0.91$) but higher smaller residual standard error than previous dyads (respectively 1.83 and 1.54).

Table 72 Models' presentation - Dyad 4

	Model 1	Model 2
Residual standard error	1.829	1.538
Degree of freedom	2636	2635
Adjusted R-squared	0.8774	0.9133
F-Statistic	6297	6954
p-value	< 2.2e-16	< 2.2e-16

Both models are significant. Table 82 present the parameters and the standard errors with robust standard error, and clusters. The clustered residual standard error show less significant results, except for the organic label standard errors with official quality signs clustering and specialized stores with retailer clustering, highlighting pricing strategies. In terms of parameters, the specialized has a higher influence (7.70) than hyper- and supermarkets (3.06) on margin premium. The organic parameter is negative (-10.47).

Table 73 Parameter estimates - Model 1 - Dyad 4

Variable	Parameter	Standard error
Retailer		
HSMKT	3.061420	0.000***
SPE	7.702469	0.000***
OQS		
Organic	-10.46733	0.000***
Constant	8.270021	0.000***

In the second model, when the standard errors are clustered, most attributes remain statistically significant (x<0.10). The interaction terms in table 83 indicate that organic label has a significant premium with hyper- and supermarkets (4.42).

Table 74 Parameter estimates - Model 2 - Dyad 4

Variable	Parameter	Standard error
Retailer		
HSMKT	0.8488319	0.000***
SPE	8.8087630	0.000***
OQS		
Organic	-12.6799208	0.000***
*Retailer*OQS*		
HSMKT*Organic	4.4251759	0.000***
Constant	9.3763146	0.000***

We note that specialized stores only distribute the organic product, and the margin is only generated with these product types, whereas the hyper- and supermarkets generate margin with non-organic and organic products.

2.2.3 Concluding remarks

The statistical results highlight the differences between the official quality signs influences in two value chains. Dyads 2 and 4 show the wholesale-retail marketing margins of Label Rouge oven-ready chicken and organic table egg. Dyad 3 shows the oven-ready chicken marketing value for the farm-price – retailer chain.

The first statistical model reveals significant results for standard robust errors for all models, but the cluster standard errors results were not significant. The retailer coefficient adds more value than official quality signs in both cases. The Label Rouge increases the marketing margins (0.43), whereas the organic quality decreases it (-10.47). We also observe that, in the table egg marketing margin, the specialized stores capture an important value (7.70) contrary to hyper- and supermarkets (0.85).

The second model is all significant without and with clustering. The combined effect of the retailer and official quality signs is stronger than the sum of the two signal effects. It increases the wholesale-retail margin creation for oven-ready chicken (0.52) and table eggs (4.43), enhancing both signal independent effects. The dyad 3 results show an opposite effect, with higher independent effect for hyper- and supermarkets (1.58) and official quality signs (1.06) than the combined effect (-0.29).

Discussion and conclusion of section 2

In this study, we analyze the marketing margins with hedonic methods for oven-ready chicken and table egg value chains. We identified how the margin is distributed in the chain, the role of each actor in the market value increase, and if official quality signs are efficient to create market value.

From a theoretical implication, we investigated the differences along the chain with the use of official quality signs. The results confirm a higher value for Label Rouge but not systematically with the organic label. The organic label creates value with the interaction with supermarkets or specialized stores. We cannot confirm if it is the consequence of a perceived consistency in quality signals, of if it is only due to the retailer price policy. For example, specialized stores ensure high quality products and responsible actions that justify a high price to consumers (Meehan et al., 2006, p.).

In business management, the findings suggest that discounts and supermarkets must rely on other quality products to balance the eventual loss for high-quality and compensate for the lack of performance of official quality signs by margining the other products. The performance of socially responsible actions could be enhanced by the increase of commitment and coherence within the shop with other quality signals such as coherent brand types, but also quality offered in the outlets. As an example, Carrefour launched in some cities in France several outlets specialized in organic food, competing with specialized stores.

From a political perception, official quality signs seem to reestablish the bargaining power balance along the value chain. As the European Commission claimed the necessity of saving agribusiness and empowering specific know-how, responsible practices, and agricultural heritage, the use of official quality signs and clear information may be a tool to save activity sectors. Nevertheless, the lack of information about the cost of production do not able us to know if it create benefits for farmers.

Some limitations should be noted. First, our price analysis does not consider the expenses for each product type. Second, the interaction of other in-store information must be taken into consideration, such as brand and merchandising. We note that most retailers display nowadays organic products in a specific area. This strategy might create a coherent perception, and also a lack of possibility to compare prices between quality ranges. Finally, volumes of purchase would have been interesting to compare performance with global sales revenues instead of price per unit.

CONCLUSION CHAPTER 2

In this chapter, we conducted several data treatments to analyze the marketing margins and value increase along the value chain. We conducted a descriptive analysis of the data, calculated the theoretical price of products with official quality signs, and compared them with the market price, and finally, we elaborated a set of equations based on the hedonic method to understand the influential power of two quality signals: store type and official quality signs.

We observed a higher variability of marketing margins for official quality signs than standard quality, more especially for Label Rouge oven-ready chicken. The Farm–Wholesale margin is quite similar for both quality, but the risk due to the variability of Label Rouge makes the official quality signs less reliable. The wholesale-retail margin shows higher profitability for Label Rouge during the first part of the studied period, but the financial advantage decreased over time. The table egg marketing margin at this stage is less important for organic products than standard, sometimes even negative. Obviously, as sales at loss is forbidden in France, the arithmetic negative result only reflects a lack of profitability.

Both official quality signs increase the market value because of the price premium they generate, especially for egg products, but they do not reach a theoretical value. Retailers absorb market price variations and stick to their pricing strategies. Organic and Label Rouge are respectively profitable in specialized stores and supermarkets. Discount stores do not generate consequent margins, certainly to stick to a low-price strategy. But discount stores and hyper- and supermarkets have the opportunity to compensate for the marketing margins between product types. Specialized stores cannot compensate with non-organic eggs but with other products.

We cannot measure to what extent the commitment, connection, and coherence have a positive influence on market-product performance for credence value. We notice some limitations to this study. Marketing margins are a good primary indicator but other criteria may complete the understanding of store type functioning. Additional elements in the databases, such as expenses, brand types, store types, etc. would complete our findings with the importance of consistency among market signals.

Key elements

- Major findings
  - Official quality signs products show more price volatility
  - Uncertainty generate a risk
  - Wholesalers generate volatility
  - Official quality signs should theoretically generate more value all along the chain
  - Farmers capture a higher marketing margin for Label Rouge than standard
  - Official quality signs do not systematically generate marketing margins – positive outcomes for Label Rouge and negative outcomes for organic label
  - The interaction of store type and official quality sign enhance the value creation of official quality signs
  - Retailers must keep stable in-store price, and manage the marketing margins loss
  - Low-pricing strategy require a compensation with other products margins
  - Specialized stores generate the most important marketing margins to bear the risk related to price volatility
- Theoretical implications
  - Official quality signs distribute the value differently along the chain than standard products and empower the bargaining power of actors
  - Official quality sign alone does not generate higher performance but must be related to other quality signals and consistent connections
- Managerial implications
  - Retailers must either compensate the price volatility risk with other product range or with a high-pricing strategy
  - Retailers should send consistent quality signals to empower the performance of official quality signs
- Political implications
  - Official quality signs empower farmers and reestablish the bargaining power balance along the value-chain
- Limits – Further research
  - Lack of information concerning the cost of official quality signs – Investigation on financial risks for farmers
  - Marketing margins have been studied with unit price and not sales revenues – Sales volumes are important information to analyze performance

CHAPTER 3. WILLINGNESS-TO-PAY AND PURCHASED QUANTITY: AN EXPERIMENTAL APPROACH

The previous chapter indicated the importance of signal coherence for price formation, more precisely store type and official quality signs. Following the 3C-SR approach and previous findings, we assume that the combination of signals that are homogeneous in terms of social responsibility (either commitment, connection, or consistency) improves the market results of marketing actions. The coherence of signals send clearer information in the market and improve the efficiency of quality signs. To investigate further the mechanisms of quality signal consistency, we conducted an experiment to answer three main questions:

- How official quality signs influence consumers' willingness to pay and purchased quantity?

- How the combined brand type and official quality signs influence consumers' willingness to pay and purchased quantity?

- To what extent the perceived value influence the willingness-to-pay and the purchased quantity?

Experiments are used to control some variables (Adalja et al., 2015) and to understand better the consumers purchasing mechanisms. This chapter is dedicated to the elaboration of an economic experiment that fills in the gap in several ways. *"The most important contribution of experimental methods in the economy is to have deeply revisited and criticized the traditional view of the determinants of individual behavior. [...] Liberal paternalism incites to the consideration of these behavioral biases, and call into questions the principles of public policy development, formulated until then in compliance with either liberal or paternalistic principles"* (Ferey and al., 2013). We elaborated a specific methodology of research to complete this doctoral thesis.

In the first section, we introduce the experimental approach and present the experiment with the research questions, the research model, the methodology, and further details about the experimental design. We justify and explain precisely the choice of the method and the observed marketing chain mechanism.

In the second section, we explain the data collection and treatments, present the descriptive statistics, and display the results with the tests of hypotheses and some concluding remarks. We discuss and conclude the study at the end of section 2.

Section 1. Experimental approach: From the theory to the experiment

This section presents the research questions and justifies the use of an experimental method, the choices that have been made to elaborate the study, and present briefly the studied market before delivering the conceptual model (1). Then, we present the methodologies that have been retained to analyze the data (2). Finally, we present the study itself, the related protocol, and respondent recruitment (3).

1. Elaboration of the experiment

The research process of this doctoral thesis follows the hypothetic-deductive method. The experiment and related hypotheses are designed and based on the literature review and the exploration of the market displayed in the previous chapter (Evrard et al., 2009, p. 50). We designed the conceptual model based on the marketing outcomes model (Katsikeas et al., 2016; Rust et al., 2004), the 3C-SR approach (Meehan et al., 2006), and the resource-based view (Wernerfelt, 1984). According to our research question, we chose a suitable method to reach our research objectives (1) and selected an adapted product and market (2).

1.1 From the research questions to the experimental model

Managers and researchers have a real interest in determining the influence of marketing variables on customer performance for agri-food products. The purpose of this study is to investigate the capacity of the organic official quality sign to create value. As value is a polymorphic concept, we clarify the notion of value and the different forms of the value we focus on (1). The diversity of relations between marketing and finance on one hand, and the difficulty of measuring financial outcomes from marketing actions on the other hand lead the research to study the mechanism between the two disciplines. Based on the literature and the market analysis, we formulate research questions and reveals the model we elaborated (2). This section has been included to justify our choice of an experiment (3), auctions methods (4), and the stimuli that have been selected to fit our research (5).

1.1.1 The focus on value

The marketing-value chain depicts the value creation that emerges from the marketing resources, strategy, and actions of a firm. Value is a polymorphic concept. It is transformed all along the chain. In this doctoral thesis, we focus on two different aspects of value that influence each other.

First, we consider value from a consumers' perception. Following the mean-end chain analysis, attributes generate an added-value for the consumers, also called a mental consumer result. This value is subjective and must be measured for each customer. It contributes to customer-based performance. Second, we analyze the value from a market perspective. Several indicators are used to measure economic value, such as turnover and benefits. The two previous chapters focused on the economic results of marketing actions. The experiment must use primary data to assess together mental consumer results and market results.

Following the model of marketing value, the consumers' value created by an attribute is transformed into economic value. The value must know this creation and transformation.

Figure 40. Value transformation along the marketing-chain
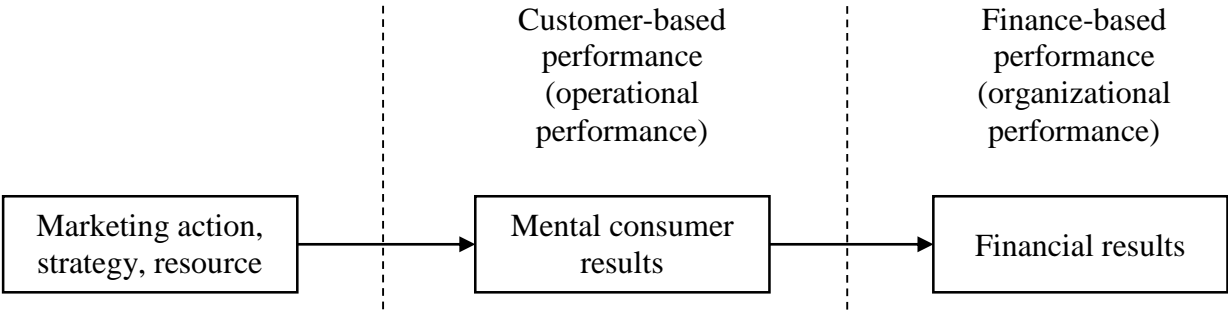
1.1.2 *Research questions*

Our thesis aims to observe the influence of marketing actions on market results in the agribusiness. We wonder to what extend official quality signs influence the revenue premium, and how the brand type interfere in the market mechanism to generate financial results (Ph Aurier, 2006). In the marketing-performance outcome chain, the key indicators of the product-market performance include both the price and the unit sales. The revenue premium is one of the exemplar measures of this product-market performance (Katsikeas et al., 2016, p. 3). In that respect, because the price premium alone is not relevant to assess the performance, we must include the variable of unit sales. This study completes the market approach with information about the direct relationship between price premium and sales volumes. According to the reviewed theories and the previous studies, we define the main research question as follow:

➢ To what extend official quality signs improve the market results of agri-food products?

This central question is declined in several sub-questions that must be presented in this research. We have confirmed in the market analysis that the official quality signs increase the market price without hurting the sales volumes. We analyze customer behavioral responses by focusing on willingness-to-pay, purchased quantity, and price acceptance.

- *How official quality signs influence the willingness-to-pay of the consumers of an agri-food product?*
- *How official quality signs influence the quantity purchased by consumers of an agri-food product?*
- *How official quality signs influence the consumer price acceptance of an agri-food product?*

Previous research established a cobranding effect of brand and quality signs on perceived value and purchase decisions (Philippe Aurier & Fort, 2005). The perceived benefits for the brand and the perceived benefits of the label were not simply added to each other when they were together (Larceneux & Renaudin, 2016; Larceneux et al., 2012). The importance of the brand types has been confirmed in the market analysis we conducted. Based on these pieces of evidence, we include the brand type in our study to

- *How the brand type influences the willingness-to-pay of the consumers of an official quality signed agri-food product?*
- *How the brand type influences the quantity purchased by consumers of an official quality signed agri-food product?*
- *How the brand type influence the consumer price acceptance of an official quality signed agri-food product?*

These questions constitute the main focus of this research, seeking the behavioral responses to official quality signs and brand type.

To complete the research on the process of value creation, we include the consumers' perceived value. According to Zeithalm, it is *"the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given"* (Zeithaml, 1988, p. 14). Perceived value can also be approached as the value of the consumption itself, referring to the experience of tasting or using. We complete the measurement of perceived value with the dimension of spirituality because of the moral responsibility in organic consumption that may tend to spiritual growth (Holt, 1995).

- *How the brand type and official quality signs influence the perceived value of an agri-food product?*
- *How the brand type and official quality signs influence the concept of spirituality of an agri-food product?*

We aim to investigate the conversion of the perceived value and spirituality into a price premium, purchased quantity, and price acceptance. We suggest that customer perceived value and spirituality influence market performance in an intermediate effect between stimuli and customer behavior.

- *To what extent customer perceived value is transformed into market value?*
- *To what extent spirituality is transformed into market value?*

Following our previous results, we suggest that the store type influences consumers' behavior. The literature found that a positive store image influences significantly the purchase intention of consumers (Grewal, Krishnan, et al., 1998), but the studies focusing on the store types are

rarer. We suggest that the store type which is the consumers' place of purchase influences the consumers' perception and behavior.

> *What is the influence of store type on customer perception and behavior toward official quality signs?*

We also call into question the role of the reference price in the purchase decision. The reference price is confronted with the market price during the purchase, and the transaction utility is perceived as the difference between the two prices. The consumers assess the market price and make a decision.

> *What is the influence of the reference price on the willingness-to-pay?*
> *What is the influence of the reference price on the purchased quantity?*

We use the marketing literature to identify important variables that may influence considerably the results of WTP and purchased. We suggest that a previous purchase is a key determinant of several variables.

> *What is the influence of previous organic purchases on the reference price?*
> *What is the influence of previous organic purchases on the willingness-to-pay?*
> *What is the influence of previous organic purchases on purchased quantity?*

Finally, because of the heterogeneity of previous studies' results, we integrate socio-demographic characteristics to analyze their effects.

> *How the socio-demographic variables influence the* effect of *official quality signs* on *WTP and purchased quantity?*

These questions are crucial for the agri-food sector and the product valorization mechanisms.

1.1.3 The choice of an experiment

The experiments consist of answering one specific question in an artificial and thumbnail environment. They must be controlled and replicated to observe reactions to a specific condition. The researchers provoke a situation in favorable conditions (Serra, 2012). In experiments, the key feature is *"to deliberately vary something so as to discover what happens to something else later – to discover the effects of presumed causes"* (Shadish and al., 2002, p. 3). An experiment is a test operated under controlled conditions to determine the cause, effect, and causal relationships between several variables.

Table 75 The vocabulary of experiments from Shadish and al, 2002

Experiment type	Description
Randomized experiment	An experiment in which units are assigned to receive the treatment or an alternative condition by a random process such as the toss of a coin or a table of random numbers.
Quasi-experiment	An experiment in which units are not assigned to conditions randomly.
Natural experiment	Not exactly an experiment because the cause usually cannot be manipulated; a study that contrasts a naturally occurring event such as an earthquake with a comparison condition.
Nonexperimental design	Usually synonymous with the correlational study of observational study; a study that simply observes the size and direction of the relationship among variables.

The randomized experiment is preferred because very few assumptions are transparent and testable in a stable environment. It increases the internal validity of the experiment, compared to the quasi-experiment. The external validity depends on the experiment itself and the sampling method that we discuss further. It also allows researchers to test specific relationships in a stable environment where only a few variables can be controlled and changed, to observe their real effects or non-effects. Several research methods imply different degrees of control.

At this stage, the stake is to elaborate a study that answers the research questions with a judicious choice of methodology, close to reality but with controlled variables. This quantitative phase uses experimental economics to suit the objectives of the research. The use of a questionnaire after the experiment measures consumers' perceptions and characteristics. Experiments are revealed preference methods that complete market data to observe and analyze the customers' preferences. Different research domains developed interests in the measurement of WTP, as it is a support to understand the psychology of respondents and a good tool for economics and managers. It gives information about the preferences of consumers (Ginon et al., 2014).

The experiment avoids the bias of the attitudinal data. Table 4 presents the pros and cons of willingness-to-pay measurement. We did not choose the field experiments because of the related difficulties (Breidert et al., 2006), and they do not offer researchers the control of variables. We take into consideration the gap between lab experiments and field real behaviors (Drichoutis et al., 2008).

Table 76. Pros and Cons of WTP measurement methods

Method type	Method	Reference	Pros	Cons
Qualitative studies and survey data	Surveys	Wertenbroch & Skiera, 2002	Feasible on new concepts and new products and nonmarket public goods. A flexible method to study a specific aspect (entire good, attributes, repeated choices...)	Poor external validity because of the hypothetical answer, response incentive effects interfere with value evaluation, and distortion of consumers answers because of the different reference frames.
		Breidert, Hahsler, & Reutterer, 2006	Useful for the early conceptual phase of a product	Unnatural focus on price, overstate prices, does not take into consideration the WTB, over or undervaluation,
	Conjoint analysis	Gall-Ely, 2009	Highlight the compromise of the consumers between different product characteristics, and allow an analysis of the consumers' profiles and choices.	Hypothetic bias, constraint are not taken into consideration by the respondents, different from real cases.
		Breidert, Hahsler, & Reutterer, 2006	Measure the attribute's value,	Not realistic, price does not have a utility, attributes are not additive-compensatory, responses to the second question depend on the price offered in the first
		Lusk & Hudson, 2004	consistent with Lancaster's theory of utility maximization, CBC closely mimics consumers' typical shopping experiences, allows a researcher to investigate trade-offs between several competing product attributes, such as price, package size, nutrition, etc, increase realism for participants.	Identification of WTP and market demand relatively complex, difficult to incorporate consumer demographics and other explanatory variables, not generally supported by existing software, subjects' responses may be inconsistent and influenced by the complexity of the choice task.
	Contingent evaluation and psychological price	Gall-Ely, 2009	Allows WTP and price elasticity, easy to realize.	A low incentive for revealing real WTP, open questions make up an unrealistic situation of purchasing, consumers modify deliberately their answers.
		Lusk & Hudson, 2004	Statistical efficiency, double-bounded dichotomous questions are better than single-bounded	may not be incentive-compatible in a hypothetical context, responses to the first and second dichotomous choice questions may not be perfectly correlated
Field experiment	Realistic Purchase Setting	Wertenbroch & Skiera, 2002	Realistic, high external validity.	
		Breidert, Hahsler, & Reutterer, 2006	Real shopping experience, longer time intervals	Harder to conduct because of the price change and the long-time interval
		Lusk & Hudson, 2004	Good target, not too costly, decrease bias of the fees, good context	
Laboratory experiments		Breidert, Hahsler, & Reutterer, 2006	Quick to obtain data	Subjects are aware of the experiment, low external validity, bias if the respondent does not use its own money

(real lab or virtual lab)		Lusk & Hudson, 2004	Make parametric assumptions about the shape of the market demand curve, real good, and money with properly aligned incentives, model determinants of WTP, subjects take into consideration the feedback as in real markets	Expensive as subjects are paid, which can lead to bias in bids and a limit sample size, all substitutes or alternatives cannot be in the experiment, the bid might be affiliated, fail if the participants are disinterested and do not bid
	Vickrey auction	Wertenbroch & Skiera, 2002	Consumers true WTP, real transactions	Consumers do not emulate point-of-purchase behaviors, the bid higher than the reality, limit the external validity
		Gall-Ely, 2009	Real WTP is expressed by respondents, real choice context, real transactions.	Far from making decision process at the point-of-purchase, competitive atmosphere, lower WTP than reality, not tested on high prices
		Breidert, Hahsler, & Reutterer, 2006	Good understanding of the mechanism	Overestimation of WTP
	First auction	Gall-Ely, 2009	Easy to conduct, direct measurement	Strategic bias, underestimation, not tested on high prices
	BDM lottery	Wertenbroch & Skiera, 2002	Theoretically incentive-compatible, realistic, transparent to respondents, and operationally efficient	Market practitioners have not relied on this approach
		Gall-Ely, 2009	Direct measurement on WTP	The strategic bias of under or upper estimation, not tested on high price and in a competition situation
		Breidert, Hahsler, & Reutterer, 2006	Good understanding of the mechanism	
Transaction Data		Wertenbroch & Skiera, 2002	Incentive compatible and high external validity	Prevent marketers from extracting maximum consumers surplus
		Gall-Ely, 2009	Easy to conduct, a direct measurement can be conducted at the point-of-purchase	lower WTP than reality, strategic bias, not tested on high price or competitive situation
Sales data	Price elasticity	Gall-Ely, 2009	High external validity, realistic market data.	Results are reliable if the data are comparing substitutable products, with close brands, and if the variation is not too much collinear, precise WTP is unknown and can be used only on existing and past market data.
	Panel Data	Breidert, Hahsler, & Reutterer, 2006	The assumption that past demands can be used to predict future markets. Behavior, real purchases.	data are aggregated over time and different stores, the customer panel does not adequately represent the market
	Store Scanner Data	Breidert, Hahsler, & Reutterer, 2006	Useful for observing the response to short-time price variations, real purchases,	Data are aggregated at the store level, individual-level repeated purchase behavior cannot be extracted

The lab experiment for agri-food products is preferred. The methodology enables the control of variables which provides a better measure of the influence of chosen variables (Akaichi et al., 2012; Bernard et al., 2006; Bernard & Bernard, 2009, 2010; Larceneux & Renaudin, 2016; Noussair et al., 2001; Schott & Bernard, 2015).

1.1.4 The choice of auction

Experimental auctions are chosen to elicit the respondents' willingness-to-pay. They are considered as incentive-compatible methods that provide real preferences with the "true" value of products. The auction is accompanied by surveys thereafter, to obtain information and complete the correlation model. Surveys have been largely used in marketing researches, and particularly for organic products. They identify a higher willingness-to-pay for organic products (Aslihan Nasir & Karakaya, 2014; Paul & Rana, 2012; Teng & Wang, 2015, p. 1073; Tsakiridou et al., 2008). Other surveys have been conducted about willingness-to-pay for ethical products like non-genetically modified social features, fair trade, or animal welfare (Auger et al., 2008; J. L. Lusk et al., 2005; Roosen et al., 2003).

Among the numerous experimental economics methods, experimental auctions are very popular (Table 24 Auction Types). Experimental auctions are *"incentive-compatible and are conducted in a non-hypothetical context involving real goods and money"* (Drichoutis et al., 2008, p. 446). The experimental auctions curb the significant difference between real and hypothetical payments. Table 49 displays the methods and results of several auctions experiments that have been conducted to assess the WTP of the organic version of agri-food products.

Table 77 Summary table of experimental auctions in organic WTP studies

Authors	Date	Journal	Title	Products	Number of subjects	Methodology	Results	Significant socio-demographic variables
Akaichi, Nayga, Gil	2012	Journal of agricultural economics	Assessing consumers' WTP for different units of organic milk evidence from multiunit auctions	Milk	78	Multi-units Vickrey auctions	Consumers are WTP more for organic, but the WTP decreases with the number of units they buy.	Health issue - high price - taste - lack of information
Bernard, Bernard	2010	Journal of agricultural economics	Comparing parts with the whole: WTP for pesticide-free, non-gm and organic potatoes and sweet corn	Potatoes, sweet corn	154	Auction experiment	WTP higher for an organic, market segment with sociodemographics (- small farm can use organic	
Bernard, Zhang, Gifford	2006	Agricultural and Resource Economics Review	An Experimental Investigation of Consumer Willingness to Pay for non-GM foods when an organic option is present	Potato chips, tortilla chips, milk chocolate	79	13 Vickrey's auctions experiments	Consumers pay more for organic products than other products, and when Free GM food isn't available, consumers are willing to pay even more than others for organic	
He, Bernard	2011	Agricultural and Resource Economics Review	Differences in WTP and consumer demand for organic and Non-gm fresh and processed food	Potatoes, sweet corn, potatoes chips, tortilla chips	154	Vickrey's auctions experiments	WTP is higher for fresh products, Organic is more favored over conventional products than non-GM versions, demands for conventional versions are the least price-sensitive except for potatoes were organic is the least price-sensitive, non-GM is very price-sensitive,	
J Bernard, D Bernard	2009	American Journal of Agricultural Economics	What is about organic milk? An experimental analysis	Milk (conventional- rBST free - antibiotics free - organic) - The US	154	7 auctions sessions (usual and Vickrey) (experimental economy)	Consumers paying for premium products (certified) don't go back to conventional, even if price increases. Consumers with the belief that conventional milk hasn't the same properties of the "special" milk will be willing to pay more the special milk.	Age, gender, education, incomes, children in the family, a primary shopper

L Schott, J C Bernard	2015	Journal of food distribution research	Comparing consumer's willingness to pay for conventional, noncertified organic and organic milk from small and large farms	Milk (conventional, organic)),	128	Auctions (usual and Vickrey) (experimental economy)	The bids for the organic milk is the highest, followed by noncertified organic and then conventional. The premium WTP is modified according to the size of the farm. Small farms have a significant premium even if they are not certified.	Education, origins (caucasian), age, primary shopper, diet
McFadden, Huffman	2017	Food Policy	Willingness-to-pay for natural, organic, and conventional foods: the effects of information and meaningful labels	apples, eggs, broccoli	273	Random nth price auctions	Individuals WTP is affected by information treatment, and more people know about the organic, less expensive is the premium they want to pay for it, inversely to "natural" premium. Nonsignificant organic on WTP if not certified. The demographics are important. WTP increases with the wholesomeness of the product.	age - gender - incomes -
Bishop, Barber	2015	Journal of Marketing Theory and Practice	Should I pay more? The relationship between normative beliefs and WTP for organic and local products	Organic and local wine	84	Survey and Vickrey auctions on the field	Normative beliefs and WTP are very weakly connected.	None

In the literature, the most used auctions methods are Vickrey's nth-price auction, the DeGroot, Marschak mechanism (BDM), and the random n*th*-price auction (J. Lusk et al., 2004). The BDM mechanism and the nth-price auction share the property that all participants have a reasonable chance of winning. The BDM mechanism is not strictly an auction, as participants do not bid against each other, but we include the mechanism in the auctions methods, considering that subjects bid against the computer. As we want to offer the possibility to winners to buy more than one unit of the product, we must choose either the BDM mechanism or the random nth-price auction. These two methods are very similar but show two important differences. First, the random nth-price includes that bidders play against each other. Second, in the nth-price auction, each bidder has a chance of $(N-1)/N$, where N is the number of bidders, that another bid is drawn as the price. In our study, there is no need for bidder competition or a statistical chance of winning.

We adopted a variant of BDM auctions proposed by Becker, DeGroot, & Marschak (1964) corresponding to a random price sale. This choice corresponds to several requirements of our study. A sale price is randomly drawn by the computer from the distribution of prices. Participants' auctions are not interconnected, which allows individual experiment and do not require simultaneous group experiment. A given bid determines only whether the bidder has the right to buy the good that is auctioned. Moreover, the BDM separates what people say from what they pay so a person's weakly dominant strategy is to state her true WTP in the BDM mechanism. Concerning technical specifications, the value of the official quality sign is assessed with the consumers' willingness-to-pay, and the number of items consumers want to buy according to the quality. The experiment requires an auction that can assess both variables. The BDM experiment protocol is easily adaptable to know the number of items the respondent want to buy at their price, and at the random price. Based on the BDM process, we developed a protocol that able us to assess the willingness-to-pay and the number of items before and after the random price has been revealed. We assess the random price acceptance for the respondent who lost the bid, and the modification of willingness-to-buy with the new random price.

The auctions would be influenced by certain factors that we must take into consideration. A cross-price effect influence the measurement of willingness-ot-pay in-store. The willingness-ot-pay for a product with an improved quality depends on the price of the regular product. We chose substitutable products. Also, we are aware of the possibility that the measurement of mean willingness-ot-pay hides a possible very profitable niche market by misidentification or by under prediction. Finally, willingness-to-pay is also influenced by the features and price of

alternative products that are not presented during the experiments (Alfnes, 2009; J. L. Lusk & Hudson, 2004).

1.1.5 The choice of the stimuli

The choice of stimuli was made under several criteria. As we work on official quality signs, the product should commonly wear at least one of the two labels. As the stimuli in experiments are less effective than in-store, we chose a product that sends a clear message to the respondent. We chose a virtue food product with a low degree of processing (a natural version of a product) because it enhances the influence of quality signs on consumers' perception and behavior – willingness-to-pay (He & Bernard, 2011; Shepherd et al., 2005; Van Doorn & Verhoef, 2011). We also chose an animal product to echo the first studies about eggs and have similar animal welfare considerations.

We have chosen the fluid milk market because it is one of the main organic food product categories. The cow and the laying hens' are often studied for their products' daily use in households and the interest for welfare from consumers (B. Clark et al., 2017). The official label "Agriculture biologique" (AB) is known by the almost totality of the French population (Agence Bio, 2018). In 2020, 44% of consumers claimed to buy organic milk (Agence Bio, 2020). The market is growing and promising according to the market report. Organic consumers mostly buy fluid milk in supermarkets, but also convenience stores and farm-direct sell.

Table 78 Purchase location for fluid milk (626 organic consumers)

Specialized stores	Open market	HSMKT	Artisan	Farm / local products	Drive	convenience store	Others	Do not buy the product
5%	3%	71%	2%	6%	5%	6%	1%	1%

The diversity of prices in the market is increasing because of the new production processes and product quality (farm animal living conditions, animal welfare, antibiotics, animal feeding quality…). The price differentiation is based on two public authority actions – price regulation and official quality signs – and other quality signals (brand types, store types, other quality signs..).

The organic label is the main factor of the experiment. We analyze its combined effect with two mainstream brand types: the national brand and the private label. According to the literature we reviewed, the national brands are generally more expensive than private labels, but the organic label generates more value when combined with private labels than national brands (Larceneux & Renaudin, 2016). Both variables are controlled during the experiment and generate four

scenarios. All brand and quality versions are substitutable (Bernard et al., 2006). Each scenario is presented with a short sentence that contains the information of the brand type and mentions if it is organic. The non-organic is not mentioned specifically.

Table 79 Product types of the experiment and associated presentation

Product Type	Organic	Non-organic*
National Brand	A	B
Text in French	Depuis plus de 30 ans, **la marque NaturLait** vous apporte tout son savoir-faire et s'invite sur la table de vos petits déjeuners. Nos laitiers s'engagent chaque jour pour une agriculture plus juste. Notre lait vous offre l'expression des saveurs des pâturages français. **Toutes nos gammes sont certifiées «Agriculture Biologique ».**	Depuis plus de 30 ans, **la marque NaturLait** vous apporte tout son savoir-faire et s'invite sur la table de vos petits déjeuners. Nos laitiers s'engagent chaque jour pour une agriculture plus juste. Notre lait vous offre l'expression des saveurs des pâturages français.
Translation to English	*For more than 30 years, the brand NaturLait offers you all its know-how and accompany your breakfasts. Our dairy farmers are committed every day to fairer farming. Our milk is full of French pastures. All our ranges are certified "Organic Agriculture".*	*For more than 30 years, the brand NaturLait offers you all its know-how and accompany your breakfasts. Our dairy farmers are committed every day to fairer farming. Our milk is full of French pastures.*
Private Brand	C	D
Text in French	Depuis plus de 30 ans, **le produit de votre distributeur NaturLait** vous apporte tout son savoir-faire et s'invite sur la table de vos petits déjeuners. Nos laitiers s'engagent chaque jour pour une agriculture plus juste. Notre lait vous offre l'expression des saveurs des pâturages français. **Toutes nos gammes sont certifiées «Agriculture Biologique ».**	Depuis plus de 30 ans, **le produit de votre distributeur NaturLait** vous apporte tout son savoir-faire et s'invite sur la table de vos petits déjeuners. Nos laitiers s'engagent chaque jour pour une agriculture plus juste. Notre lait vous offre l'expression des saveurs des pâturages français.
Translation to English	*For more than 30 years, your store delivers its own brand NaturLait and offers you all its know-how and accompany your breakfasts. Our dairy farmers are committed every day to fairer farming. Our milk is full of French pastures. All our ranges are certified "Organic Agriculture".*	*For more than 30 years, your store delivers its own brand NaturLait and offers you all its know-how and accompany your breakfasts. Our dairy farmers are committed every day to fairer farming. Our milk is full of French pastures.*

*The non-organic products do not explicitly specify that it is not organic.

1.2 The cow milk market

In this study, we focus on the fluid cow milk market. Milk is a highly segmented market with several specificities and a peculiar history related to public authorities (1). We briefly present the market situation and evolution (2).

1.2.1 Specificities: A historical interventionist policy and a high price volatility

In the history, the public authorities develop several policies for milk market regulation The European Union based the regulation policy on price support and volume regulation, to control the supply chain and protect the market from external competition. The high price guarantee re-launch the market investments but refrain from the exportations. To avoid the accumulation of stocks, the public authorities implemented quotas. For fifty years, the milk market was regulated by these two levers to manage international price competitiveness and regulate national offer. Since 2015, quotas are not applied anymore, but several contracts between stakeholders bound the production growth. The numerous reforms in the Common Agricultural Policy generated high volatility and insecurity for producers. It contributed to the establishment of a climate of crisis in the dairy sector. The price determination is based on competitors, negotiations with stakeholders, and inter-professional associations, and depend largely on the market.

The sector of milk and dairy products largely relies on quality signals to improve the market price and increase the negotiation power of stakeholders, especially farmers.

1.2.2 Generalities: the market of cow milk

The milk market is progressively saturated in Europe, and face high price volatility (1). Consumers tend to organic milk but decrease their general consumption of the product (2).

<u>General market trends</u>

France is the second European producer of cow milk after Germany with a turnover of 29.8 billion euros in 2013. A large part of the turnover depends on the consumer market. The number of livestock is decreasing more strongly in France than in other European countries. With the end of the quota policy, the farms' size is slowly increasing. Moreover, the average return per cow is also in a positive trend (CNIEL, 2020).

Table 80. Evolution of the cow milk production in France from 2000 to 2018

	2000	2005	2010	2016	2017	2018
Number of farms	70732	N/A	48717	45229	45226	45227
Number of production animals	69	N/A	92	106	105	106
Milk production (millions of liters)	23169	23133	23332	24407	24325	24324
Average return (liters/year)	5358	5823	6285	6711	6763	6844

The national market is the first market for French production. Fluid milk represents 9% of the production, behind cheese production (21%) and butter (14%). The price valorization of milk

depends on the processed product it is intended (Gouin & Kroll, 2018). The non-price competitiveness of the production method of fluid milk is based on organic quality, mountain area production, and region of origin. Other criteria are enhancing the market differentiation, in particular brands with an important notoriety and marketing campaigns (Perrot et al., 2018).

The price volatility encourages a short-term vision of the market for farmers, and slow down the investments. Nevertheless, organic milk market shares are increasing in terms of value. They represented 12.5% in 2016 and 14.7% in 2018 (Agence Bio, 2019a).

Consumers and milk

Rural economists identified an increase in higher quality products demand, but a low willingness-to-pay for the quality. The organic quality is perceived as a good lever for fluid milk market for non-price competitiveness (Perrot et al., 2018). The annual rate of consumer price inflation increased for fluid milk from 1990 to 2018. But the sales volumes are decreasing in terms of purchase frequency and quantity. Nevertheless, organic milk volumes increased because of new consumers that shift from conventional to organic quality (France Agrimer, 2018). Consumers consider organic milk less harmful to the environment, but also healthier and high quality (Bonnet & Bouamra-Mechemache, 2015).

Among consumers who already purchased organic quality food, 44% declare purchasing organic milk, more than other dairy products (39%), and cheese (43%). Neither gender, professional category of age seems to affect the consumption pattern. A large majority of organic milk purchase is carried in supermarket and hypermarkets (71%) (Agence Bio, 2020).

1.3 The conceptual model

The conceptual model is developed based on the literature review and the previous studies on market data. The experimental method requires the choice of the variables (1) and the choice of the methodology (2). We develop a Tobit model and a series of models to measure the mediation effects.

1.3.1 The choice of the variables

From the research questions previously developed and within the process of elaboration of the conceptual model, we must select the variables that design the frame of the experiment. The variables are described below according to their characteristics: Independent, dependant, mediating, or moderating.

<u>The independent variables – What we control</u>

The objective is to analyze simultaneously the brand type and the official quality signs effect on consumer behavior. Our doctoral thesis focuses mainly on the effects of official quality signs on marketing performance. The influence of brand type for official quality signs has not been studied with revealed preference. We also investigate the mediation effect of perceived quality.

The official quality sign

This thesis focus on the effects of the responsible labels developed by the public authorities on the market performance of the agri-food product. For technical reasons already mentioned above, we chose the organic label that suits better to the product. The notoriety of the organic label for the selected product is important and relevant. The use of the famous organic label avoids potential biases due to the weakness of the stimulus through an internet experiment.

The brand type

Based on the identified effect of brand on customer behavior in the literature review and the results of previous empirical studies, we included brand type in the experiment. We use the national brand and the private label as controlled variables of the study that act as stimuli.

<u>The dependent behavioral variables</u>

We analyze the influence of these two controlled variables on several other variables. We first display the behavioral variables' characteristics. Then we present the mediating variables and the moderating factors.

The willingness-to-pay

Researchers and managers agree on the importance of a proper evaluation of willingness-to-pay. A valid estimation is essential to develop a good price strategy because it measures the actual preference of consumers among several products' varieties (Ginon et al., 2014), and forecast the eventual effects of price changes (Breidert et al., 2006). The willingness-to-pay reveals the potential added-value of a product. In agribusiness, the consumer demand for a higher quality product is a central question. Akaichi and al (2012, p. 473) highlight that *"The price that consumers are willing to pay for an organic product can depend on the type of information that is provided to them."*. This study measures the financial sacrifice consumers consent to obtain organic quality.

The purchased quantity

The purchase quantity is defined as *"ounces of product bought by a household on a purchase occasion."* (Gupta, 1988, p. 344). The consumers' purchase of a product is a matter of two related decisions: which product they buy and how much of it. The quantity depends on the price, the budget constraints, and the consumers' needs, among other variables. The purchased quantity of a product is a key element in consumers' demand analysis, and affect product-market performance (Gupta, 1988; Krishnamurthi & Raj, 1988; Tellis, 1988). Corporate social responsibility communication has a positive influence on consumers' willingness-to-buy. An ethical label in the agri-food sector, such as the organic label, influences positively the purchase decision (Bradu et al., 2014). Instead of measuring the willingness-to-buy that only discloses a dichotomous response (whether the person is willing to buy or not), we investigate the number of items and its relation with the price.

Random price acceptance

In the context of this study, the purchased quantity is evaluated twice: with the bid price, and with the random price. However they lost or won the bid, respondents get the possibility to buy extra items at the random price. The goal is twofold. First, for winners, we assess the additional quantity in case of a price decrease. We complete the previous study about elasticity, and we also assess the revenue premium mechanism. Second, for bid losers, we measure the potential acceptance of a price premium that is over their willingness-to-pay.

<u>The mediating variable</u>

Perceived value

Value is a wide multidimensional variable. Nutritional value, brand value, acquisition value, transaction value… The types of values that are taken into consideration by consumers are numerous (Grewal, Monroe, et al., 1998), and either economical (price, promotion, discount…) or noneconomical (personal values, cultural values…). The importance of perceived value in willingness-to-pay assessment has been highlighted in the previous chapters.

The global perceived value is made of several dimensions. Sheth, Newman, and Gross (1991) identified five value dimensions that related to the consumption, that influence the consumer purchase decision. These dimensions are inter-related and it is necessary to understand the different value dimensions importance in global value. Our study focuses on the importance of the dimensions as an intermediate between the quality and the price and purchase quantity. The objective is to identify the role of brands and labels in perceived value creation and to measure

the importance of each dimension in price acceptance. Perceived value is included in the integrative model.

The spirituality

The spirituality has been defined in many domain of research and argued for decades. We consider the spirituality as defined by Clark *"an individual's endeavors to explore -- and deeply and meaningfully -- connect one's inner self to the known world and beyond."* (W. H. Clark, 1958). The spirituality in consumption is likely to impact the consumption choice process (Kale, 2006). Holbrook defines spirituality as a more reactive counterpart to ethics, which entails an intrinsically motivated acceptance, adoption, admiration, or adoration (Holbrook, 1999). Spirituality is also the will of being in harmony with others and with humanity (Philippe Aurier et al., 2004). It relates to prosocial actions, which is a motivational domain of values that are expressed in such values as altruism or being helpful. The need for affiliation and belongingness of consumers may be transformed into prosocial values (S. H. Schwartz & Huismans, 1995) and change their consumption activities into sacred ones (Husemann & Eckhardt, 2019). The ethical and social dimensions of the official quality signs lead us to consider spirituality as a side of perceived value type of consumers that may influence customers' willingness-to-pay and to-buy.

The moderating variables

The influence of previous purchase

The researches about the influence of previous purchase are heterogeneous. Previous purchases may explain a part of the consumers' behavior (Grankvist & Biel, 2007). Sweeney and Soutar (2001) suggest that the perceived value is influenced by previous experience with the same product type, brand, or store. We included the variable of previous purchase in the experiment to test its influence on variables relations.

Internal reference price

Often mentioned in the integrative model of perceived value. The internal reference price (IRP) is made of the prices that consumers have in their memory, especially for frequently bought items. This internal reference price may be influenced, and *"it has been shown both conceptually and empirically that internal reference price is influenced by price discounts, brand's perceived quality, and brand name."* (Grewal, Krishnan, et al., 1998, p. 349), but also the price discounts such as coupons or rebates. The internal reference price also has the power of influence on perceived value. In-store, the reference price is compared to market prices

(Winer, 1986). Previous studies reported evidence that internal reference price is used in price judgment. If the price paid is less than the internal reference price, the value perception of the consumers is enhanced.

Product shopping location

Previous studies highlighted the influence of shopping locations on organic purchases. According to consumer behavior research, the consumers retain information about the last purchase that will influence the internal reference price, the willingness-to-pay, and the decision for future purchases. We collected the information about the store type where participants were mainly buying the product of the experiment, to assess the potential influence on their answers.

Sociodemographic factors

The typical profile of the European organic purchaser is a female with children that have a certain level of education and income (Krystallis et al., 2006). The children in the household are positively related to an organic purchase (Thompson & Kidwell, 1998). More the household has children, especially under 18, more they are willing to purchase organic quality. In a study of Krystallis and al (2006, p. 93) conducted with 130 subjects, 96.9% of the respondent (strongly) agreed that the organic products are "ideal for children's diet", and the 3.1 other percent answered with a neutral response. The importance of organic food for children leads us to take into consideration the variable of children in the household in our experiment.

1.3.2 Conceptual Framework

The primary objective of the study is to assess consumer behavior and the mechanism of mental consumer value into economic results.

Figure 41. The transformation of value - the experiment indicators
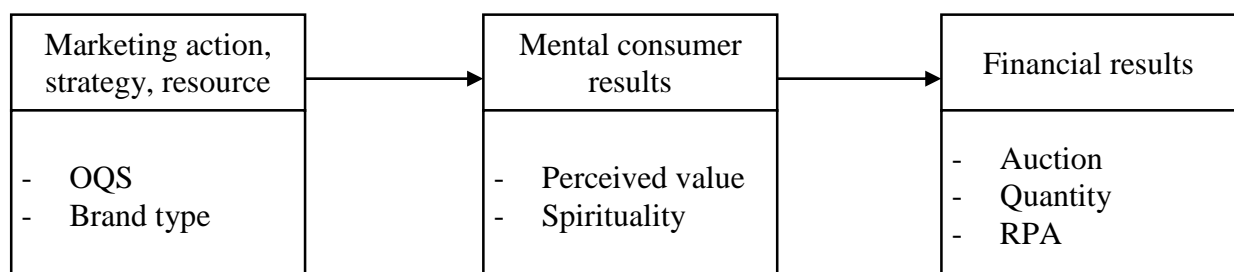
The main research question deals with the official quality sign influence on market value.

> ➤ Does the organic label increase sales revenues?

The sales revenue can be increased either by a price premium or additional units. The willingness-to-pay is defined as the maximum price that a consumer accepts to pay for a certain

quantity of a product (Gall-Ely, 2009, p. 93). Figure 42 illustrates the conceptual framework of our experimental model. We include WTP and purchased quantity.

Figure 42 Behavioral experimental Model
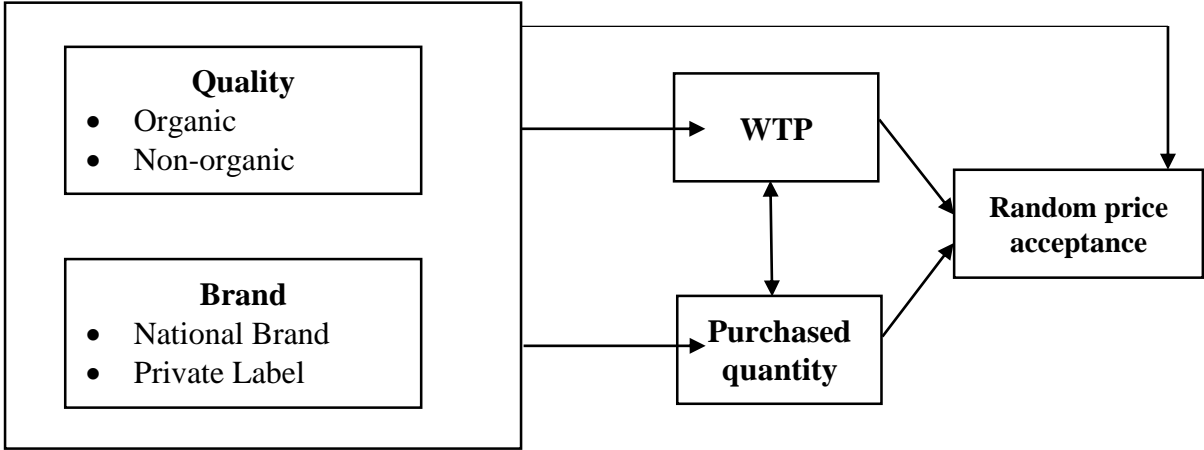
This behavioral experimental model assesses the product-market performance (Katsikeas et al., 2016) created by each product type with unit sales, price, and revenue, three common marketing metrics (Ambler et al., 2004, p. 489). The consumers' decision of the price and the quantity in a purchase decision depends on several factors, either related to the product itself (price, brand, promotion, advertisement) or on consumer-specific factors (loyalty, price sensitiveness, gender, age) (Jedidi et al., 1999).

We designed a behavioral experimental model that include behavioral factors (willingness-to-pay, purchased quantity, and random price acceptance) according to two product factors (brand type and official quality sign). The entire experimental design also includes consumer-specific factors (perceived value, spirituality, previous purchase, reference price, product location, sociodemographic factors). Figure 42 presents the global experimental model. We investigate to what extent the consumer perceived value is transformed into accounting value.

Figure 43 presents a global research model that is divided into 6 sub-models to test the mediation effects.

Figure 43 Global research model
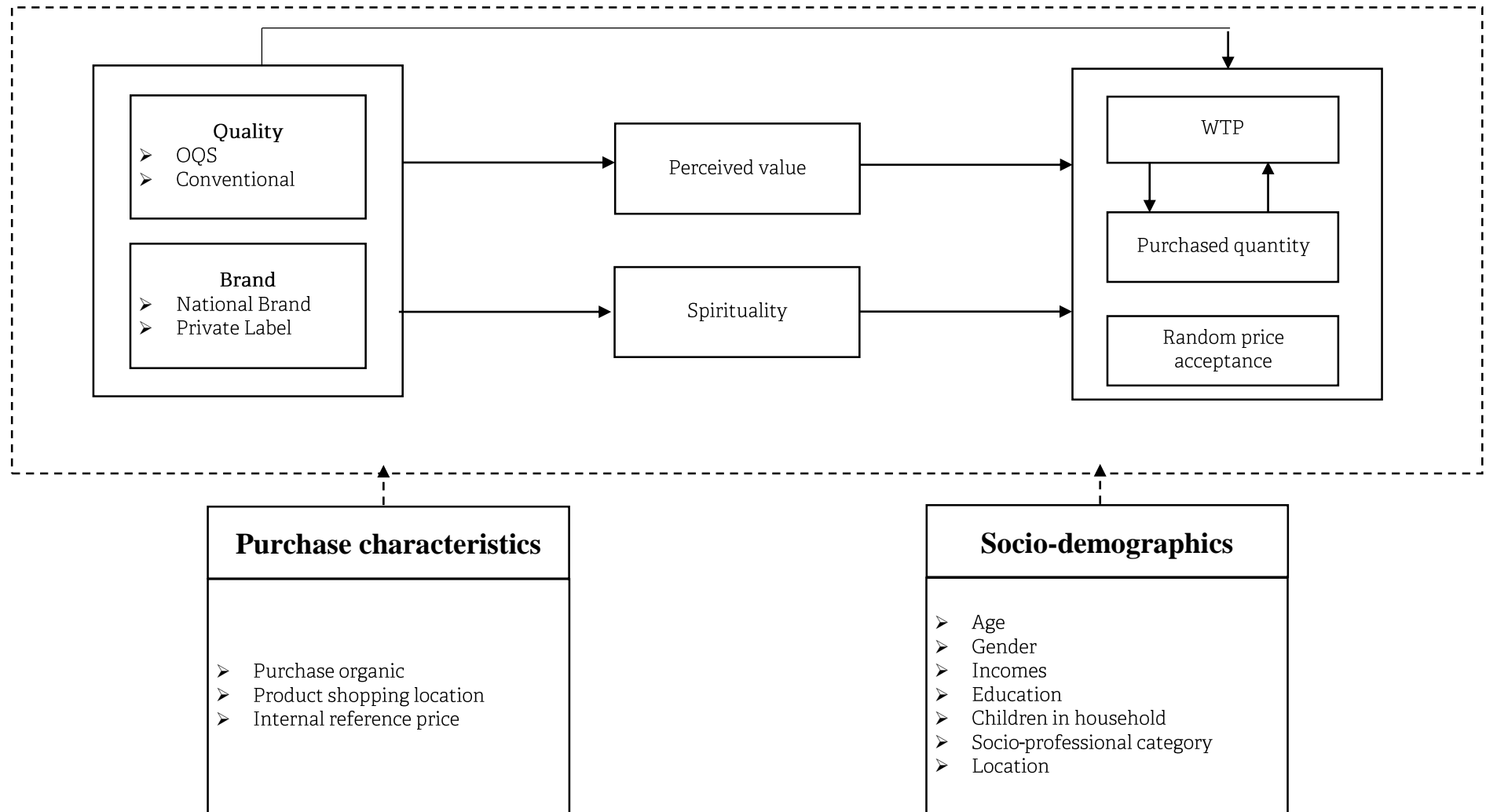
1.3.3 Mediation influences: models presentation

The first model tests the mediation and moderation effect between the quality signals and the willingness-to-pay with the mediation intermediate of perceived value.

Table 81. Hypotheses - Mediation model 1

H1	The perceived value mediates positively the relation between the official quality sign and consumer willingness-to-pay
H2	The perceived value mediates positively the relation between brand type and consumer willingness-to-pay
H3	Reference price moderates the mediation of perceived value
H4	Usually purchased product criteria moderates the mediation of perceived value

Figure 44. Conceptual mediation model 1
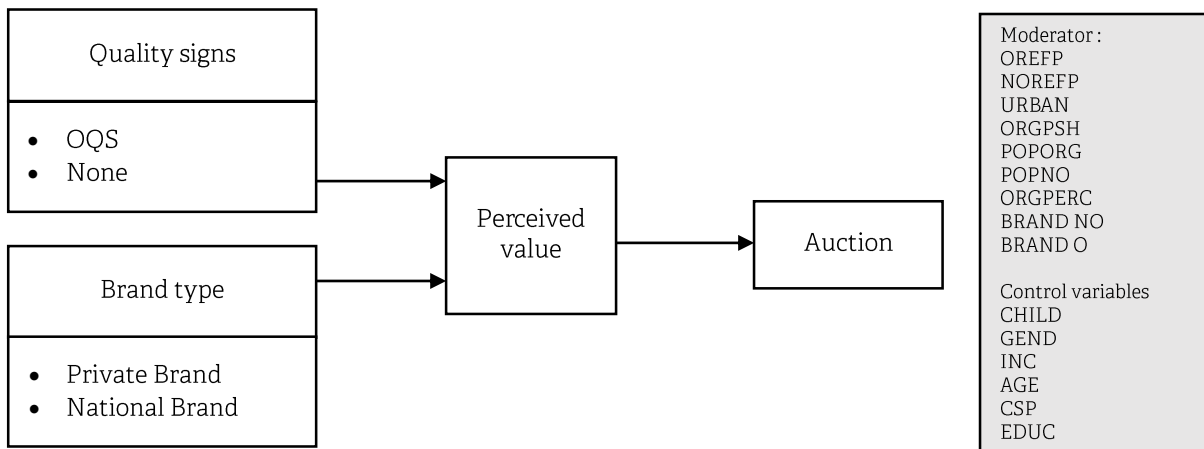
The second model tests the mediation and moderation effect between the quality signals and purchased quantity with the mediation intermediate of perceived value.

Table 82. Hypotheses - Mediation model 2

H5	The perceived value mediates positively the relation between the official quality sign and the consumers' purchase quantity
H6	The perceived value mediates positively the relation between the brand type and the consumers' purchase quantity
H7	Reference price moderates the mediation of perceived value
H8	Usually purchased product criteria moderates the mediation of perceived value

Figure 45. Conceptual mediation model 2
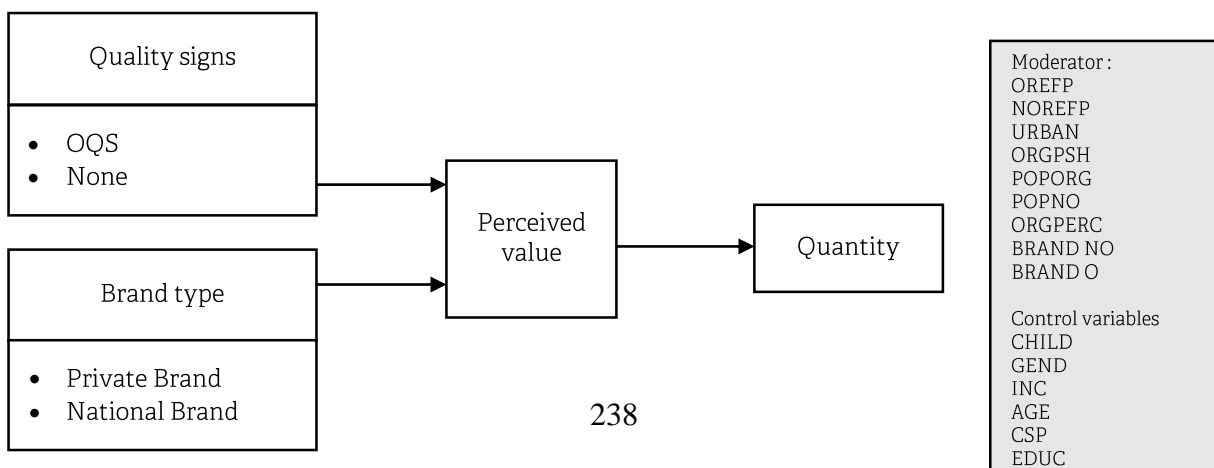
The third model focused on random price acceptance and the potential independent and intermediate variables.

Table 83. Hypotheses - Mediation model 3

H9	The perceived value mediates positively the relation between the official quality sign and random price acceptance
H10	The perceived value mediates positively the relation between the brand type and random price acceptance
H11	Reference price moderates the mediation of perceived value
H12	Usually purchased product criteria moderates the mediation of perceived value

Figure 46. Conceptual mediation model 3
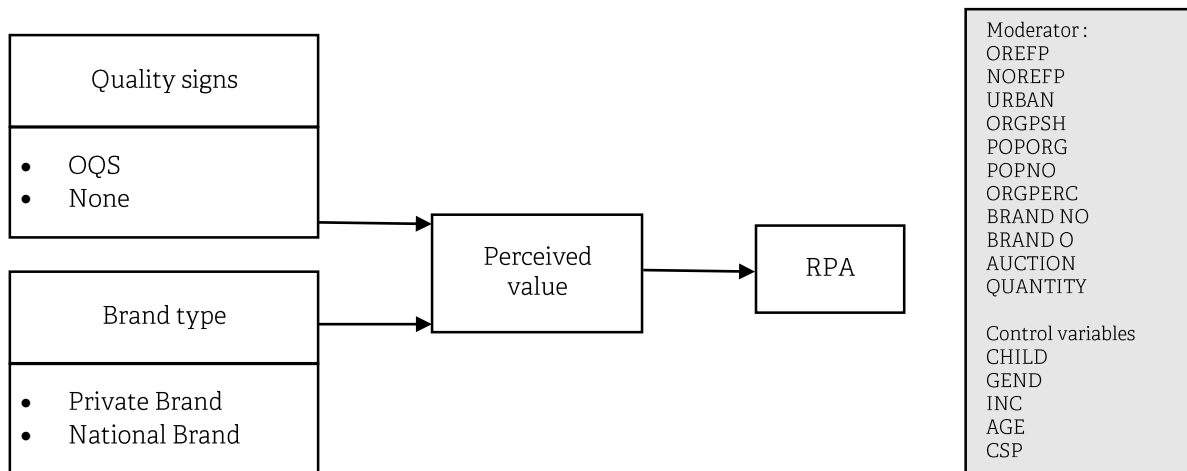
The fourth, fifth, and sixth models are the same as the three first ones but with spirituality as a mediation variable.

Table 84. Hypotheses - Mediation model 4

H13	Spirituality mediates positively the relation between the official quality sign and consumer willingness-to-pay
H14	Spirituality mediates positively the relation between brand type and consumer willingness-to-pay
H15	Reference price moderates the mediation of perceived value
H16	Usually purchased product criteria moderates the mediation of perceived value

Figure 47. Conceptual mediation model 4
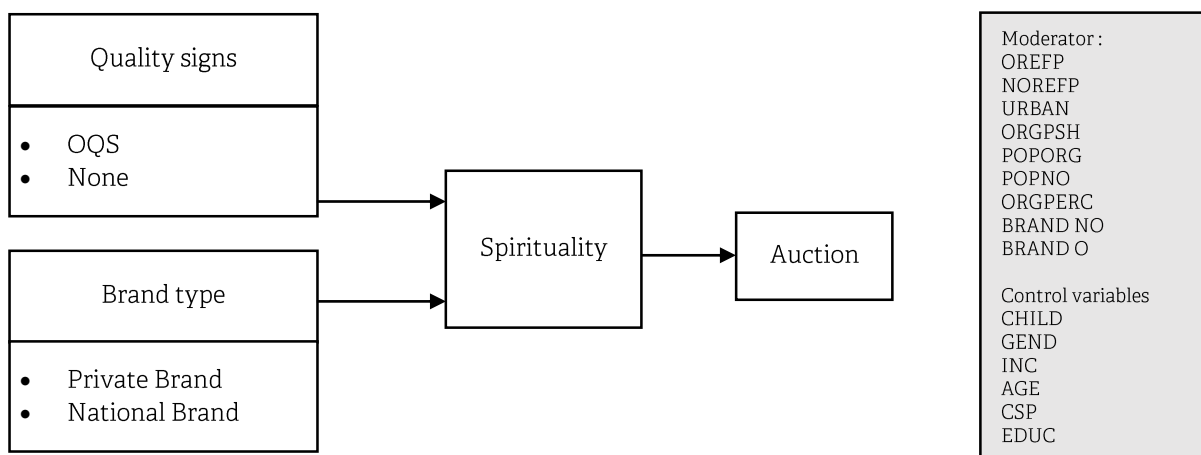
Table 85. Hypotheses - Mediation model 5

H17	Spirituality mediates positively the relation between the official quality sign and purchased quantity
H18	Spirituality mediates positively the relation between brand type and purchased quantity
H19	Reference price moderates the mediation of perceived value
H20	Usually purchased product criteria moderates the mediation of perceived value

Figure 48. Conceptual mediation model 5
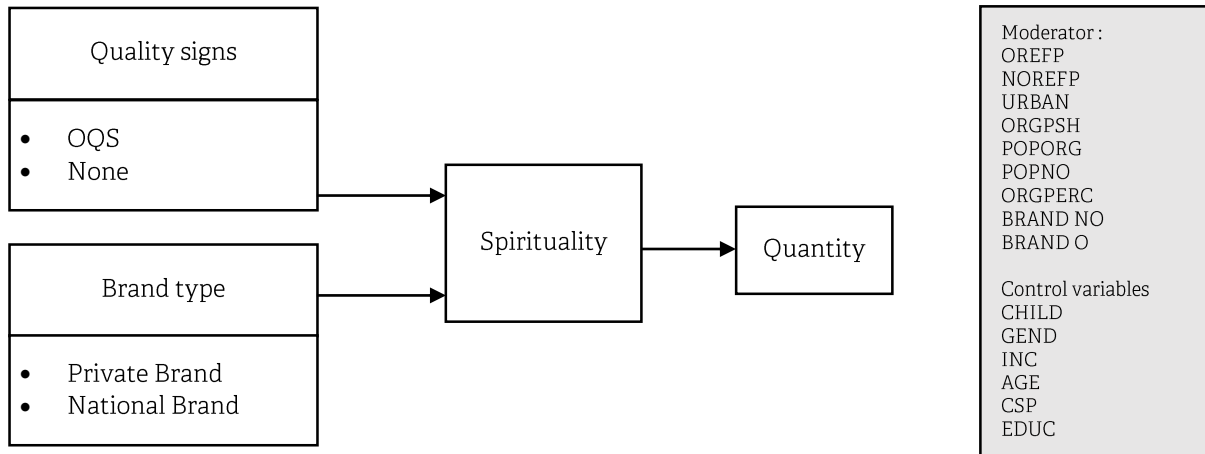
Table 86. Hypotheses - Mediation model 6

H21	Spirituality mediates positively the relation between the official quality sign and random price acceptance
H22	Spirituality mediates positively the relation between brand type and random price acceptance
H23	Reference price moderates the mediation of perceived value
H24	Usually purchased product criteria moderates the mediation of perceived value

Figure 49. Conceptual mediation model 6

240
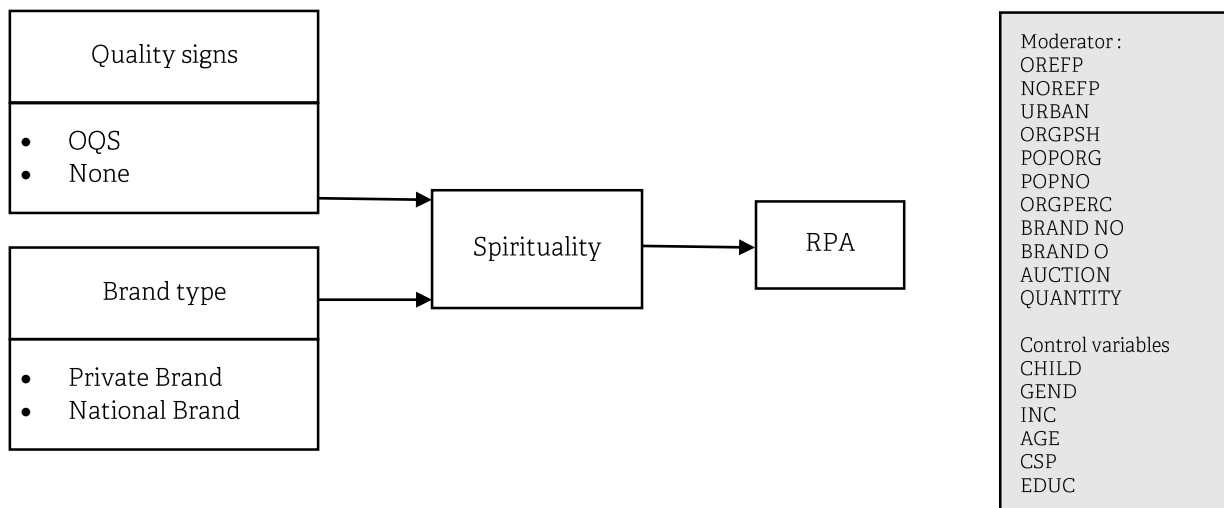
2. Methodologies

Agricultural economics have been using experimental economics and more specifically experimental auctions with marketing implications to eliciting values for food criteria. The specificities of auctions require the use of two complementary analyses: the econometric model (1) and the mediation effects (2). The models must answer three questions: how much consumers are willing to pay, how many units do they buy at a certain price, and what are the influence of consumers—specific factors.

2.1 Econometric model

The Tobit model also called the censored regression model, is often used in the literature for auctions analysis. Initially, it has been created to design the expenses of consumers in durable goods. This econometric model assumes that the *"dependent variable has a number of its values clustered at a limiting value, usually zero"* (McDonald & Moffitt, 1980, p. 318). Since negative bids are not possible and that zero bids are possible, the use of censored regression techniques is required. Moreover, it limits the potential of lower–bound censoring. As we measure the price respondents are willing to pay but also the quantity they are willing to buy, we use the Seemingly Unrelated Regression (SUR) method to explore a set of equations in the full system, and to explain the interactions between the individual equations.

In this model, N is the number of observations. The latent variable Bid_{ijk} represents the subject i's bid for the product with the brand type $j \in \{national\ brand, private\ label\}$ and the quality $k \in \{organic, non-organic\}$.

$$Bid_{ijk} = \begin{cases} 0 & if\ Bid_{ijk} \leq 0 \\ Bid_{ijk} = x\beta + \varepsilon & if\ Bid_{ijk} > 0 \end{cases}$$

Where x represents the independent variable, β is a vector of unknown coefficients, and ε is an independently distributed error term assumed to be normal with zero mean and standard deviation σ. The initial formation of the vector x is as follow:

$$x = (Quantity, Organic, Brand, Organic\ Internal\ reference\ price, Non$$
$$- organic\ Internal\ reference\ price, Primary\ shopper, Urban, Vegetarian, Age, Gender,$$
$$Incomes, Education, Children\ in\ household, Socioprofessional\ category\ )$$

Where organic, brand, urban, primary shopper, vegetarian, gender, children in the household, education, socio-professional category are dummy variables. To capture the effect of the

product brand type and the quality on each consumer, the following regression model was constructed:

Equation 11. Global Tobit Model

$$Bid_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

To complete the analysis of the global model, we conduct a comparison of two groups: the group A that bid on the organic version of the product, and the group B that bid on the non-organic version.

Equation 12. Organic product Tobit model

$$Bid\_O_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

Equation 13. Non-organic Tobit Model

$$Bid\_NO_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

We established other models to analyze how quantity was decided for the auction and the random price. The second set of Seemingly Unrelated Regressions (SUR) equations. In this model, N is the number of observations. The latent variables $QUANT_{ijk}$ and RPA_{ijk} represents respectively the subject i's quantity just after their bid, and the quantity purchased at a random price. Based on the previous set of equations, the product is evaluated considering the brand type $j \in \{national\ brand, private\ label\}$ and the quality $k \in \{organic, non-organic\}$.

$$QUANT_{ijk} = \begin{cases} 0 & if\ \ QUANT_{ijk} \le 0 \\ QUANT_{ijk} = x\beta + \varepsilon & if\ \ QUANT_{ijk} > 0 \end{cases}$$

$$RPA_{ijk} = \begin{cases} 0 & if\ \ RPA_{ijk} \le 0 \\ RPA_{ijk} = x\beta + \varepsilon & if\ \ RPA_{ijk} > 0 \end{cases}$$

Where x represents the independent variable, β is a vector of unknown coefficients, and ε is an independently distributed error term assumed to be normal with zero mean and standard deviation σ. The initial formation of the vector x is as follow for $QUANT_{ijk}$:

$$x = (Auction, Organic, Brand, Organic\ Internal\ reference\ price, Non\\-organic\ Internal\ reference\ price, primary\ shopper, urban, age, gender, study,\\ children\ in\ household, socioprofessional\ category\ )$$

and RPA_{ijk}

$$x$$
$$= (Price\ difference, Organic, Brand, Organic\ Internal\ reference\ price, Non$$
$$- organic\ Internal\ reference\ price, primary\ shopper, urban, age, gender, study,$$
$$children\ in\ household, socioprofessional\ category\ )$$

Where organic, brand, urban, primary shopper, gender, children in the household, education, socio-professional category are dummy variables. For the analysis of random price acceptance, the most important variable is the price difference. Indeed, the experiment focuses on how the price difference observed by the respondent (auction-random price) affects the purchased quantity.

To capture the effect of the product brand type and the quality on each consumer, the following regression models were constructed:

Equation 14. Quantity global Tobit Model

$$QUANT_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

Equation 15. RPA global Tobit Model

$$RPA_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

To complete the analysis of the global models, we conduct a comparison of two groups: the group A that bid on the organic version of the product, and the group B that bid on the non-organic version for quantity and random price acceptance.

Equation 16. Organic product quantity Tobit model

$$QUANT\_O_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

Equation 17. Non-organic product quantity Tobit model

$$QUANT\_NO_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

Equation 18. Organic product RPA Tobit model

$$RPA\_O_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

Equation 19. Non-organic product RPA Tobit model

$$RPA\_NO_{i,j,k} = x_i \beta_{jk} + \varepsilon_{ijk}$$

2.2 Mediation effects

This model analyses several relations between the variables. We propose three types of hypotheses. First, we develop hypotheses with direct influence. Second, we develop hypotheses

dealing with the mediation effects. Third, we formulate hypotheses to verify the moderation variables.

2.2.1 The direct influences

The first and main objective of the experiment is to analyze independently the influence of organic and brand on customer behavior. Below, we present them as sets of variables. First, we check the direct influence of quality signals on behavioral variables in a set of four hypotheses.

Table 87. The direct influence of stimuli on customer behavior

H1	The official quality sign influence positively the consumer behavior
H2	The brand type influence positively the consumer behavior
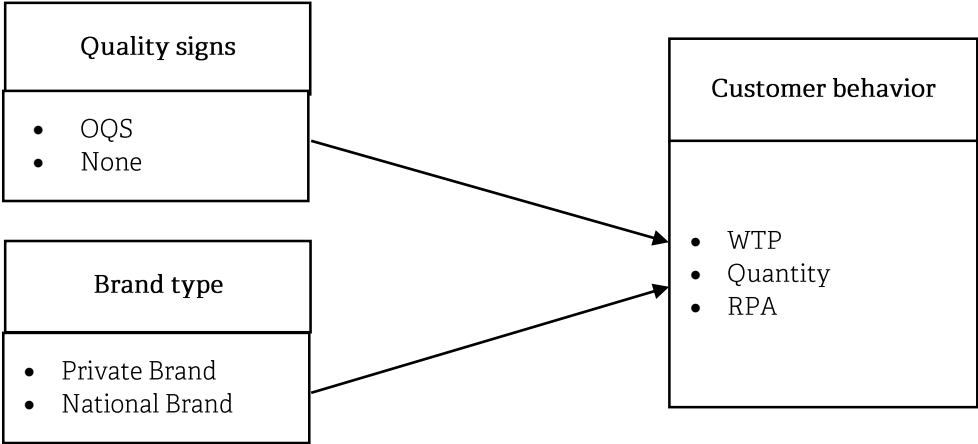
The second set of hypotheses concerns the reciprocal influence between behavioral variables.

Table 88. The reciprocal direct influence of willingness-to-pay and quantity

H3	The willingness-to-pay influences negatively the purchased quantity
H4	The purchased quantity influences negatively the consumer willingness-to-pay
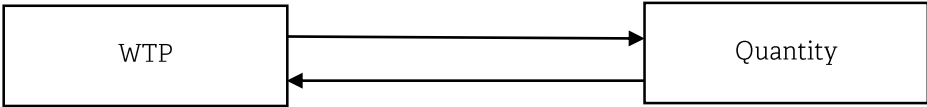
The third set of hypotheses is additional and aims to measure the primary behavioral variables influence on random price acceptance.

Table 89. The direct influence of willingness-to-pay and quantity on random price acceptance

H5	The willingness-to-pay influences positively the consumer random price acceptance
H6	The quantity influences positively the consumer random price acceptance
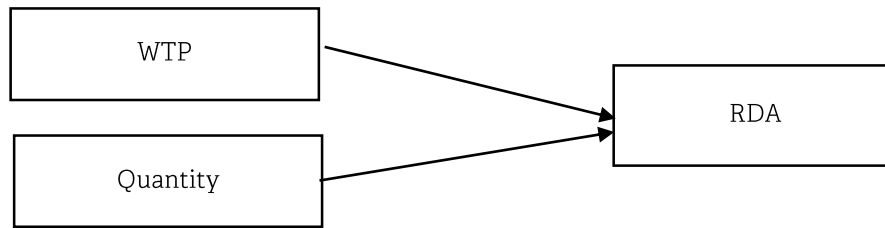
2.2.2 The mediation influences

The second step of the analysis is the assessment of the mediation effect. After the explanation of the mediation effect, we deliver the models with the related set of hypotheses.

<u>The concept of mediation and moderation</u>

Models include intermediate variables that can affect the relation of the dependent and independent variables. We analyze the theoretical model with moderation analysis and the effect of moderators.

Mediation

One of the simplest mediation models is presented in Figure 50. When the effect is significant, M is considered as a mediation variable and indicates the process between the principal relations. The mediation effect is made between the independent variable X and the dependent variable Y via the intermediate variable M.

Figure 50. Simple mediation model with a single mediator variable M causally located between X and Y
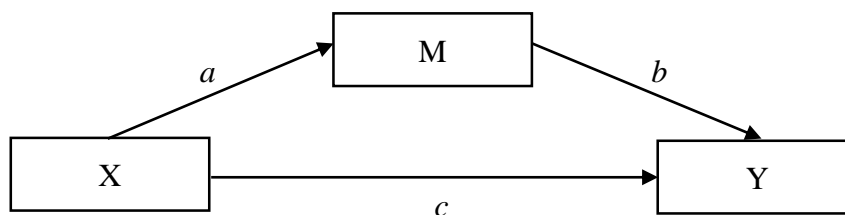
If c is significant, there is a direct effect. If it is not significant, there is no effect. The mediation effect is either indirect, competitive, or complementary. If $a \times b$ isn't significant, there is no mediation. Otherwise, the mediation exit, whatever the direct effect (c) exists. The mediation is competitive when indirect ($a \times b$) and direct effects (c) simultaneously exist. The effect becomes complementary when $a \times b \times c$ is significant.

Statistically, the mediation model requires two linear models as follow:

245

Equation 20. Equations for mediation models

$$M = i_M + aX + e_M$$

$$y = i_Y + c'X + bM + e_Y$$

Where i_M and i_Y are regression constants, e_M and e_Y are errors in the estimation of M and Y, respectively, and $a, b,$ and c' are the regression coefficients given to the antecedent variables in the model in the estimation of the consequents (Hayes, 2017). The mediation analyses are conducted on SPSS with the PROCESS macro, using the model 4, delivered by Andrew F. Hayes (2018) (Model 4 and Model 7, Bootstrap 5000).

Moderation

Moderation plays a key role in social science theories, The moderation is a process in which the effect of some variables on interest X on Y is influenced by another variable W. We should nevertheless not assume that W is not an antecedent of Y or M. The identification of moderators helps to establish the boundary conditions of the effect or the circumstances, stimuli, sociodemographics, or any other variable that might influence the relationship.

Figure 51. Conceptual moderation model with a single mediator variable M causally located between X and Y
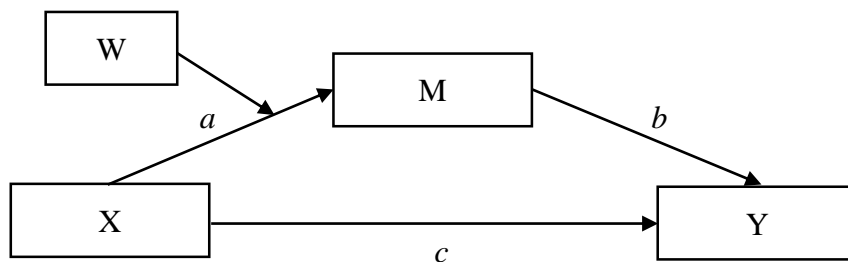
This conceptual diagram is tested in two equations that are presented in the statistical model.

Figure 52. Statistical moderation model with a single mediator variable M causally located between X and Y
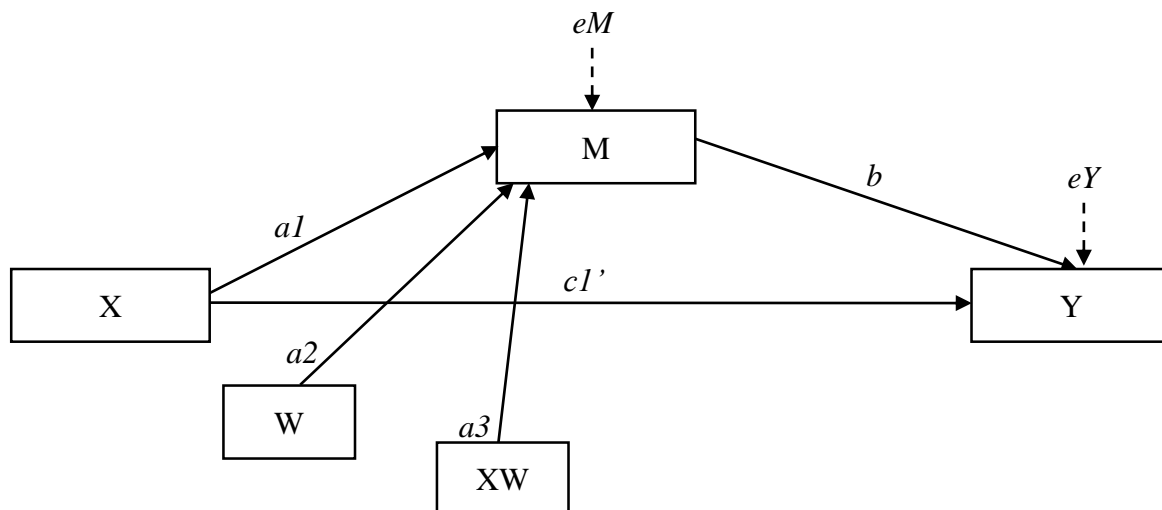
This diagram represents an integration of these three analyses into a single coherent model within a conditional process model. The model tests the moderation effect of the variable W on the indirect effect (M) of a variable X on Y. The related equations

Equation 21. Equations for the conditional process mediation model

$$M = i_M + a_1 X + a_2 W + a_3 XW + e_M$$

$$Y = i_Y + c'_1 X + e_Y$$

The moderation analyses are conducted on SPSS with the PROCESS macro, using model 7, delivered by Andrew F. Hayes (2018) (Model 7, Bootstrap 5000).

2.2.3 Evaluating measurement scale in five steps

The measurement scales must be tested to verify the reliability and validity of their use. It requires two steps analysis, the first step is realized on SPSS and the second step on AMOS. The first step is a mandatory exploratory that checks the relevance of the measurement in each specific study. The scale must fulfill three criteria, namely the reliability, the reliability, and the sensitivity (Evrard et al., 2009, p. 304).

Table 90 The criteria of measurement scales

Criteria	Translated definition	Original definition (French)
Reliability (Fiabilité)	If we measure the same phenomenon with the same instrument, we must obtain the same result.	Si on mesure un phénomène plusieurs fois avec le même instrument, on doit obtenir le même résultat.
Validity (Validité)	The selected measurement scales must be able to grasp the phenomenon that we want to measure. There are several varieties of validity.	Les instruments de mesures choisis doivent permettre d'appréhender le mieux possible le phénomène que l'on cherche à mesurer. Cette validité décline suivant plusieurs formes.
Sensibility (Sensibilité)	The measurement instrument must be able to detect a slight variation of the measured phenomenon (attitude, opinion…)	Il s'agit de se doter d'un instrument capable d'enregistrer des variations assez fines du phénomène mesuré (attitude, opinion…)

Following Churchill's paradigm, the second stage is a confirmatory phase which assesses the internal coherence, the relation with other measures, and the link with the theoretical hypotheses. The evaluation of the reliability and validity of a measurement scale requires two separate methods. Reliability refers to the consistency of the measure and its dimensions. The reliability can be assessed over time, across items, and by different researchers. In management studies, reliability is mostly assessed internally, which is the consistency of people's responses across the items on a multiple-item scale. The most common measure of internal consistency is Cronbach's α. The statistic varies between 0 and 1, and the score indicates their reliability. The

acceptability threshold varies according to the type of research. In this doctoral study, we refer to the typology elaborated by De Vellis (Carricano et al., 2010, p. 53).

Figure 53 Cronbach value

Cronbach's α value	Acceptability threshold interpretation
< 0.6	Insufficient
Between 0.6 and 0.65	Weak
Between 0.65 and 0.7	Minimum acceptable
Between 0.7 and 0.8	Good
Between 0.8 and 0.9	Very good
>0.9	Must consider the reduction of items

The validity refers to the extent to which the scores from a measure represent the variable they are intended to measure. The method to measure the validity is called the Explanatory Factor Analysis (EFA) with the use of principal component analysis (PCA). The validity tests assess the consistency of the scales dimensions with the literature. Two tests are required to assess the factorization of variables: Barlett's test which compares the observed correlation matrix to the identity matrix to check the redundancy between the variables, and the Kayser-Meyer-Olkin test (KMO) also called a measure of sampling adequacy (MSA). The MSA indicates to what extent the proportion of selected variables are consistent and measure adequately the concept. The significance of the MSA index is between 0 and 1.

Table 91 MSA index significance

MSA value	Acceptability threshold interpretation
< 0.6	Unacceptable
Between 0.6 and 0.65	Weak
Between 0.65 and 0.7	Mediocre
Between 0.7 and 0.8	Medium
Between 0.8 and 0.9	Good
>0.9	Excellent

This first test must be completed with two other indexes. First, the commonality index verifies the importance of the item in each variable. The index must be over 0.5 to be considered as acceptable to explain the variable.

Table 92 Commonality index significance

Commonality value	Acceptability threshold
> 0.8	Excellent
Between 0.65 and 0.8	Good
Between 0.45 and 0.65	Medium

The second test is the structural coefficient index that aims to eliminate the low significance items and decrease the validity of the scale, either because they do not belong to specific dimensions of no dimension at all.

Finally, the scale must respond to several indexes that measure the adjustment quality of the model: absolute indexes, incremental indexes, and parsimonious indexes. The absolute indexes verify the theoretical model to observed data. The incremental indexes compare the global model to the reference model. Finally, the parsimonious indexes consist of gathering as less as possible variables to explain a phenomenon.

The parsimonious indices state to overcome a problem related to the weakness of the theoretical model. The more complex the model, the lower the fit indices. Among the indices, we chose the CMIN/df which is the most used in the literature (Tahri, 2014).

The absolute fit indices are derived from the fit of the obtained and implied covariance matrices and the ML minimization function. Among the various indices, we have chosen the Tucker-Lewis Index (TLI), because of the size of our sample (<300). Also, we selected a non-normed ratio, and the CFI, a normed index.

The incremental fit indices compare the chi-square for the model tested to one from a null model which specifies that all measured variables are uncorrelated. We selected the Goodness-of-fit index (GFI) and the Root Mean Square Error of Approximation (RMSEA). Following the recommendation of Zhen and al (2017), we selected the indexes presented in the table below.

Table 93 The selected Latent Constructs Fitness Indexes (After CFA)

	Index	Interpretation	Description
Absolute Fit	GFI (Jöreskog)	>=0.90	GFI is the proportion of variance accounted for by the estimated population covariance. Analogous to R2.
	RMSEA	> 0,10 bad 0,08 < RMSEA < 0,10 poor 0, 05 < RMSEA < 0, 08 correct < 0, 05 good	A parsimony-adjusted index. Values closer to 0 represent a good fit.
Incremental Fit	NFI	> 0.90	The proportion of total covariance is explained by the model. This index is sensitive to small estimation models and small samples.
	CFI	> 0,80 acceptable > 0,90 correcte > 0,95 excellent	A parsimony-adjusted index. Values closer to 0 represent a good fit.
Parsimonious Fit	CMIN/df	The smaller the better : <=5 acceptable ; <3 correct; < 1 good	Indicates the degree of absolute parsimony and detects the under ou overestimated model. Sensitive to sample size.

Finally, the confirmatory analysis is completed with two steps: model validity and reliability.

The model reliability is assessed with the Jöreskog Rhö. It verifies the internal consistency of the scale by integrating the error terms. The index must be over 0,7 to indicate that factors are strongly correlated. The validity of the model is assessed with convergent validity and discriminant validity. The convergent validity is the "extent in which two measurement method of a single concept differ" (Evrard et al., 2009, p. 49). It is verified when the factorial contributions are above 0,5. The discriminant validity measures to what extent two concepts or items differ, and verify if the measurement scale distinguishes the studied concept and the others. We assessed these two indices with the plugin elaborated and shared by Gaskin (2019).

Table 94 Indices for convergent and discriminant validity

	Index	Minimum required
Convergent validty	AVE (Average Variance Extracted)	≥ 0.5
Discriminant validity	MSV (Maximum Shared Variance)	MSV < AVE

3. Experimental economics study

The experiment follows different steps in its protocol, respondent recruitment, and survey display to enhance the reliability of the results. We present below the characteristic of our research design.

3.1 Experimental protocol

We elaborated the survey to assess all the variables displayed in our global research model. We conducted two primary studies to detect potential issues and design a relevant experiment.

Figure 54. Steps of the study elaboration
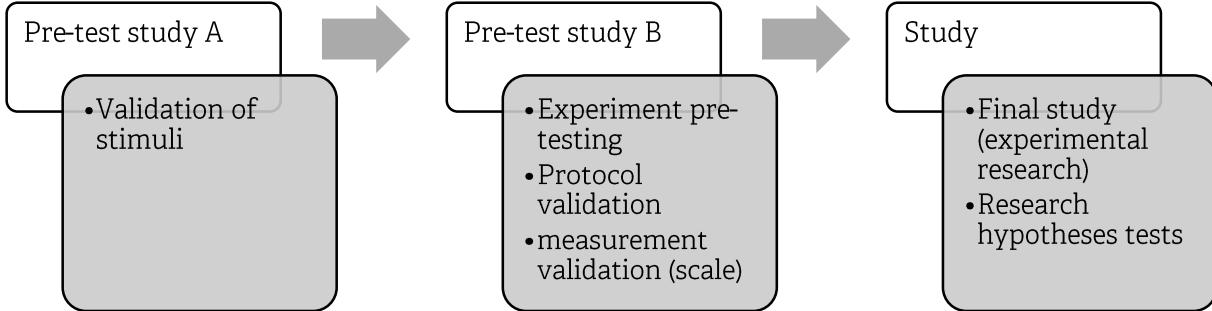
The pre-study A has been sent to ten persons to check the reaction to stimuli. The pre-study B has been sent to 10 other persons that must bid and answer the questionnaire. We improved the experiment with their feedback. The experiment has been elaborated on the client-server application Z-tree. It unable the design with a C++ program. The client's application is called z-leaf, and offer the respondent an interface to participate in the experiment (Fischbacher, 2007, p. 173).

3.2 Respondents' recruitment

The choice of the sample is an important decision in primary data collection because it is directly related to the external validity of the study. This issue of generalization of a study is central for researchers, and question the relevance of the results (Shadish et al., 2002). We decided to use convenience sampling with the selection of persons who buy milk. The respondents should be quite diverse in terms of profiles to represent the organic market segment. We selected three important criteria for recruitment: milk consumers, not students and over eighteen years old. The sample must be constructed with adults that are not students, because of their specificities in food purchase. Indeed, students constitute a convenient sample and are often used for experiments. Nevertheless, previous studies pointed out the fact that young people and students are not affected by quality signs (Aslihan Nasir & Karakaya, 2014; Bernard & Bernard, 2010; Tsakiridou et al., 2008; Jolly, 1991). Moreover, we require diversity in terms of study level (Aslihan Nasir & Karakaya, 2014; Paul & Rana, 2012; Tsakiridou et al., 2008). We aim to have a plurality of profiles, profession category, level of education, and location of living.

3.3 The online survey

We designed the survey to collect the bids, the purchased quantity, the new price acceptance influence on quantity, and then collect answers in the survey. The experiment is divided into 8 steps as follows.

Figure 55. Experiment process in 8 steps

Step 1
• Participants selections.

Step 2 *
• Subjects proceed to the implication test. The person who does not succeed are eliminated. The persons who succeed win 7 euros.

Step 3
• BDM mechanism explanations and quizz to test its understanding.

Sep 4
• Bidding on the milk bottle

Step 5
• Chosing the desired quantity

Step 6
• Monitor resolve the auctions and the screen display the eventual winning of each IDs and the total amount on personal ID account.

Step 7
• Possibility of respondants to increase their desire quantity with the random price

Step 8
• Subjects complete post-auction questionnaire.

*This step only displayed in the first data collection with the laboratory of experimental economics of Montpellier

After the introduction of the experiment, the first step was designed to eliminate people under eighteen years old, students, and/or no-milk diet consumers. The second step has been only made at the first data collection, following the instruction of the laboratory of experimental economics of Montpellier (LEEM). The real effort task is a way of implementing costly activities in a lab experiment. It has good external validity and increases the implication of subjects in the study. A large amount of real effort tasks exists (Gill & Prowse, 2011). Respondents must complete an effort task which consists in counting a certain number of figures in grids in less than a minute. The third step delivers the instruction for the bid, and an example with two questions was displayed to verify that respondents understood the auction mechanism. Then, the bid was launched. One of the four scenarios were presented, and the respondent must write the maximum price they would pay to get the described product. In a new window, we remind the respondent its auction and ask how many items they want for their price. After confirmation of their bid, the results are delivered. The respondent wins if their auction is higher than the random price, and lose if lower. The winner pays the random price. In both cases, we offer the possibility of the respondent to buy additional items at a random

price. After the auctions, the respondent must complete a questionnaire in four parts. First, they give information about incomes, studies, the number of children in the household, gender, and location. The second part deals with the product they bid on and answered the following question. All scales are 5-point Lickert.

Table 95. Lickert scales used for the experiment

Scale	Dimension	Question (French)	Translation
N/A	Control variable	Ce produit est un produit Bio	
PERVAL, Sweeney et Soutar (2001	Quality	Ce produit me semble être de bonne qualité	This product seems to be a good quality product
		La qualité de ce produit me semble tout à fait acceptable	The quality seems to be totally appropriate
	Emotion	J'ai envie de consommer ce produit	I feel like consuming the product
		Consommer ce produit m'aiderait à me détendre	The consumption of this product would help me relaxing
		Consommer ce produit m'aiderait à me sentir bien	The consumption of this product would help me feeling good
		Consommer ce produit me donnerait du plaisir	The consumption of this product would give me pleasure
	Price	Le prix de YY* pour ce produit me semble raisonnable	The price of (YY) for this product seems reasonable
		Ce produit semble offrir un bon rapport qualité/prix.	This product offer a good value for money
		Cela me semble être un bon produit pour le prix de YY.	This product seems to be a good product for the price of YY
		Le prix de YY pour ce produit semble économique	Price of YY for this product is economic
	Social	Ce produit donnerait une bonne image de moi aux autres	This product would give a good image of myself to others
		La personne qui consomme ce produit me semblerait socialement acceptable	The person who consumes this product would be socially acceptable
Spirituality, Aurier et al. (2004)	N/A	L'achat de ce produit pourrait me faire réfléchir sur les choses importantes de la vie.	The purchase of this product would make me think about important aspects of life
		Après avoir acheté ce produit, je me poserai certainement des questions importantes sur moi-même	After purchasing this product, I would question myself about important things

*YY was the random auction price.

Finally, they must complete a questionnaire about the criteria of product they usually purchase. These questions were not mandatory to avoid random answers and introduce bias in our survey.

Table 96. Experiment – Questions about consumer usually purchased product criteria

Concern	Question (French)	Translation
Achat Bio	Combien de litre de lait Bio achetez-vous par semaine ?	How many liters of organic fluid milk do you purchase per week?
Achat Non-Bio	Combien de litre de lait non-bio achetez-vous par semaine ?	How many liters of non-organic fluid milk do you purchase per week?

According to their answers, they answered a series of questions about their previous purchase for organic and/or non-organic milk.

Table 97. Experiment - Optional questions concerning the previous purchase of organic and non-organic milk

Purpose	Question (French)	Translation
Lieu	Où l'achetez-vous principalement ?	Where do you buy mostly buy it?
Answers	Supermarché, hypermarché, hard-discount; magasin bio; vente directe	Supermarket; hypermarket; hard-discount shop; organic shop; direct selling
Prix de référence	Quel est le prix moyen d'un litre de ce lait (Bio) ?	What is the mean price of one liter of (organic) milk?
Marque	Quel type de marque achetez-vous habituellement ?	What brand type do you mostly purchase?
Answers	Sans marque ; marque distributeur ; marque nationale ; marque de coopérative	No brand ; private label ; national brand ; cooperative brand

Then, we thank the participants.

Conclusion of section 1

Price is a central concept for managers and researchers which influences firms' revenues, market shares, and by extension profitability. Marketers consider price as a way to modify consumer behaviors (Chapman & Wahlers, 1999). Our main research deals with the influence power of official quality signs on market performance. Following the literature review, we selected the organic label as a stimulus, and include the brand type in the experiment to test both quality signals on customer behavior. We selected perceived value as an intermediate variable and the spirituality associated with product consumption.

We elaborated a study to understand customer behavior. We designed an experiment with auctions and quantity analysis in order to combine behavioral data and surveys. The experiment allows us to control and modify some variables. With this methodology, we assess the willingness-to-pay, the purchased quantity, and the random price acceptance with information about consumer profiles and consumer habits. We integrated direct and mediation effect that are modeled under Tobit regression models for direct effects in a set of seemingly unrelated equations, and mediation effects that are tests in six mediation sub-models.

The experiment is conducted on four versions of fluid milk. The product combines two characteristics: organic (or conventional) and national brand (or private label). Each respondent bid on one single randomly distributed product. Two scales are used for mediation effects, the perceived value from Sweeney and Soutar (2001), and a scale to evaluate the spirituality related to product consumption from Aurier, Evrard, and N'Goala (2004). These two scales are evaluated with a questionnaire after the bid. Finally, dependent variables are the auction, the purchased quantity, and the random price acceptance.

Based on these selected variables, we developed an experiment that has been presented to the respondent. The heterogeneity of organic consumers was in favor of convenience sampling with three restrictions. The respondents must be over eighteen years old, not students and milk consumers. We conducted the survey online for several reasons. The BDM auction that has been selected does not imply a bid against another respondent but only against a random price delivered by the computer, so there is no need for physical lab experiment. Moreover, the number of participants is higher online because of less constraint for respondents. They followed instruction online to first bid on the product, and then deliver information about the product they bid on, and personal information.

Section 2. Experiment results

This section presents the data collection and preparation (1) including the data collection, the pre-tests, the data treatment, the sample introduction, and the model analyses. Then, we display the results of each econometric and mediation effects models (2) with concluding remarks. We close the section with discussion and conclusion including limits and future researches.

1. Data collection and preparation

The first step has been to conduct pre-tests to improve the experiment and verify the understanding of the questions and bid mechanisms (1). Then, we launched several phases to collect data to reach a satisfying number of participants (2). We treated the data to generate the dummy variables and additional information (3). The sample is presented with descriptive statistics (4) and the measuring scales have been analyzed to fit the survey (5).

1.1 Pre-test

Pre-tests are an important phase of the experiment development. We run two pre-tests that helped us to adapt the questions and improve their understanding. First, we change the questions about the consumption habits to non-mandatory questions when the respondents were answering "0" to the question "How many liters of milk do you buy per week". The respondents were not able to answer the internal reference price, neither the shop location of the brands. These questions were mandatory only for buyers.

Also, we changed the verb tense of the PERVAL scale. As the respondents did not taste the product or had it in hands, we used the conditional tense instead of the present tense.

1.2 Data collection and sample

The data collection has been made in three phases. The first phase has been conducted online from the 7th of July to the 3d of September 2019. The server was in the Experimental Economics Lab of Montpellier (LEEM). Three sessions have been launched to complete the study. In all, 172 respondents participated in the experiment.

The two other phases have been conducted thanks to a consumer panel with the company Createst. The first session has been launched on the 28th of January 2020 and collected 268 observations in three days. The last session gathered the answers of 309 respondents between the 8 and the 9 of June 2020.

1.3 Data treatment

We used the classification of city size per population proposed by the National Institute of Statistics and Economic Studies (INSEE)[31], the national statistics bureau of France which is the French branch of Eurostat. We gathered the town and city category to create the dummy variable URBAN.

Table 98. Location data treatment

Type of city	Size of population	Scale
Small village	x < 5 000	1
Village	5 000 < x < 20 000	2
Small town	20 000 < x < 50 000	3
Town	50 000 < x < 200 000	4
City	200 000 < x	5

Our database contains several missing data concerning the consumption habits of respondents. Indeed, the respondent who did not consume one type of products did not answer the questions relative to the products (reference price, brand choice, store choice)

Table 99. Consumption habit data treatment

		Organic			Non-organic		
		Point of purchase	Reference price	Brand type	Point of purchase	Reference price	Brand type
N	Valide	414	439	422	570	591	575
	Missing	337	312	329	181	160	176
Moyenne		1,78	1,0839	2,76	1,55	,8731	2,51
Médiane		1,00	1,0000	3,00	1,00	,8000	2,00
St. Dev		1,059	,49188	,802	,662	,56603	,720
Variance		1,122	,242	,643	,438	,320	,519
Minimum		1	,40	1	1	,20	1
Maximum		5	8,00	4	5	8,00	4

We created several dummy variables by gathering responses when useful. The professional category has been split into two types, either respondent belonging to the categories managers and accredited professional, and tradesperson, shop or business owner, or others. We create the variable of EXECUTIVE. The dummy EDUC has been created by splitting the answers concerning education in two groups: respondents under bachelor degrees, and respondents with a bachelor's degree or a superior degree. The question about the number of children in the household has been transformed into a dummy variable (CHILD) to signal the absence or presence of children in the household. The respondent who answered that they do not buy organic fluid milk are recognized in the dummy variable PSHOP. Finally, the four varieties of

---

[31] https://www.insee.fr

products that have been used as stimuli in the experiment generated two dummy variables, ORG when organic and BRAND when national brand.

1.4 Descriptive statistics

We present below the sample of our study by sociodemographics. We also find it important to present the responses concerning the consumption and behavior of respondents.

1.4.1 Sample presentation

From a socio-demographic perspective, 37.15% of the sample is aged below 35. Women are slightly overrepresented with 54.99% of the sample. The large part of the sample acceded to higher education (62.84%). A third of respondents live in towns or cities (34.11%) and 50.20% are usual organic milk shoppers.

Table 100. Sample of experiment respondents - sociodemographics

Variable	Number of respondents	%
Gender.		
Male	338	45.01%
Female	413	54.99%
Age Cohort		
19 - 25	67	8.92%
26 - 35	212	28.23%
36 - 45	218	29.03%
46 - 55	147	19.57%
56 -65	94	12.52%
66-70	13	2%
Education		
No diploma	6	0.8%
CAP / BEP	101	13.45%
Bac	172	22.90%
Bac +2	163	21.70%
Bac +3	96	12.78%
Bac +4	49	6.52%
Bac +5	136	18.11%
Bac +8	28	3.73%
Geographical origin		
Small village	176	23.44%
Village	192	25.57%
Small town	127	16.91%
Town	97	12.92%
City	159	21.17%
Household incomes		
X ≤ 10 000	126	16.78%
10 000 < X ≤ 20 000	130	17.31%
20 000 < X ≤ 40 000	166	22.10%
30 000 < X ≤ 40 000	134	17.84%
40 000 < X ≤ 50 000	98	13.05%
50 000 < X ≤ 80 000	74	9.85%
80 000 < X	23	3.06%
Organic milk usual shopper		

Yes	374	50.20%	
No	377	49.80%	
Children in the household			
0	382	50.87%	
1	151	20.11%	
2	160	21.30%	
> 3	58	7.72%	

1.4.2 Consumption

During the experiment, information about respondents' lifestyle and consumption habits has been collected. Concerning organic milk, supermarkets (28.89%) and hypermarkets (17.84%) are the most frequented point of purchase. Only 1.33% of the respondents buy organic milk in hard discount stores and 1.20% from direct sales. The organic store registers a slightly better frequentation with 5.86%. Respondents are mostly buying national brands (25.70%), followed by private labels (17.58%). Non-organic milk consumption is more frequent than organic milk with a large majority of respondents (71.11%). Most of the consumers buy it in the supermarket (39.81%) and hypermarket (31.56%). Direct sales are not common (0.27%) such as hard-discount (3.60%). National brands are leaders (38.88%) followed by private labels (27.30%).

We also hiked the internal reference prices for organic and non-organic fluid milk. The organic internal reference price is systematically higher than non-organic.

Table 101. Internal reference price according to usually purchased brand

Internal Reference price		No brand	Private Label	National Brand	Cooperative
Non-organic	Number of respondents	20	290	204	56
	Mean reference price	0.74	0.84	0.95	0.83
Organic	Number of respondents	22	132	192	74
	Mean reference price	1.19	1.03	1.06	1.16

For non-organic, the respondent who purchases national brands present the highest internal mean price (0.95). Surprisingly, organic milk with cooperative of no brand show the highest internal reference (respectively 1.16 and 1.19).

The analysis per point of purchase revealed an unsurprising highest internal reference price for organic milk in organic shop (1.23) and the lowest for non-organic milk (0.61). What is striking is the relatively high responses for hard-discount shoppers (non-organic=1.07; organic=1.17) compared to hypermarket (non-organic=0.91; organic=1.10). Finally, the direct selling category shows similar internal price reference for organic and non-organic fluid milk (non-organic=0.80; organic=0.81). It appears in the results that primary shoppers do not show a significantly higher internal reference price (1.09) than organic shoppers (1.06).

1.4.3 Experiment behavior results

The objective of the doctoral thesis is to observe differences in customer behavior according to the official quality signs. We measured auctions, quantity, and random price acceptance in the experiment. We observe that non-organic auctions are more numerous below one euro per liter (197 auctions below one euro and 158 auctions over one euro), contrary to organic's auctions which are over one euro (196 auctions over one euro and 154 below one euro). The purchased quantity is relatively similar for organic and non-organic products with a proportion that is about 50% acceptance organic and non-organic and no specific tendency. Random price acceptance is in favor of organic products. Indeed, respondents reject more often the random price acceptance for non-organic products (number of respondents: non-organic rejection=79; organic rejection=60)) whereas organic products are more often accepted (number of respondents: non-organic acceptance=293; organic acceptance=319).

1.5 The measuring instruments: analysis of reliability and validity

The measurement scales are made to find more about a phenomenon and get a better understanding. Following the requirement explained in the previous section, we conduct an exploratory analysis (1) to identify the group of items that compose the several dimensions of the scales and the reliability of items. Then, a confirmatory analysis (2) ensures the adequacy between the empirical model and the measurement model we test, and verify the utility of each item.

1.5.1 Exploratory analysis

The exploratory analysis has been made on PERVAL scale with a new distribution of items among a reduced number of dimensions and on the one-dimensional scale of spirituality.

The scale of perceived value (Perval)

The PERVAL scale is made of four dimensions and twelve items. The exploratory factor analysis shows a KMO > 0.5 with an excellent rate (0,911) that indicates the quality of the correlation between items. Bartlett's test of sphericity is significant (p<0.0005), so we reject the null hypothesis and can analyze the scale. The reliability of the scale with its 12 components and we obtain a Cronbach alpha of 0.912, which confirms a satisfying internal coherence. Nevertheless, Price4 shows a weak representation quality (0.461< 0.5). After withdrawing the item, the new KMO is satisfying (0.908) and the variance is equal to 68.18% (instead of 65.18%) with two dimensions. The principal component analysis (PCA) after the Varimax

rotation shows the first component with social and emotional, and the second component with quality and price. We recall them Quality and Emotional. We want to check if we should withdraw items for the analysis.

Table 102. Exploratory Analysis results - PERVAL

Dimension	Items	Mean	St. dev.	KMO	Variance	α de Cronbach	Extraction	Factorial contribution (Varimax) 1	2
QUALITY	QUAL1	4.07	.714	.902	68.18%	.908	.618		,730
	QUAL2	4.10	.727				.632		,751
	PRICE1	4.27	.876				.878 .643		,785
	PRICE2	4.23	.795				.778		,861
	PRICE3	4.11	.854				.702		,810
EMOTIONAL	EMO1	1.85	.917				.624	.579	
	EMO2	2.98	1.043				.759	.857	
	EMO3	3.26	1.016				.900 .795	.858	
	EMO4	3.47	.994				.686	.785	
	SOC1	3.23	1.094				.678	,788	
	SOC2	3.37	1.058				.585	,736	

Spirituality

The spirituality scale is one-dimensional with two items. The exploratory factor analysis shows a KMO equal to 0.5, acceptable but low rate. The Bartlett's test of sphericity is significant ($p<0.0005$), so we reject the null hypothesis and proceed to the scale analysis. The reliability of the scale with its both components and we obtain a Cronbach alpha of 0.866, which confirms a satisfying internal coherence. Both items have good extraction (0.882).

Table 103. Exploratory Analysis results - Spirituality

Items	Mean	St. dev.	KMO	Variance	α de Cronbach
SPIR1	3.05	1.173	0.500	100%	.866
SPIR2	2.71	1.173			

1.5.2 Confirmatory analysis

The confirmatory test the factorial structure that has been defined in the exploratory analysis. The objective is to ensure the adequacy between the empirical model and the measurement model we test. The mediation models check if the covariance matrix of the model fit the empirical matrix (Tahri, 2014). We use these acceptability thresholds for the following indexes. We must verify the adjustment quality of the model through validity indices, namely parsimonious fit, incremental fit, and absolute fit indices, as described in section 7. Table 61 shows the significance level as a reminder.

Table 104. Indices for confirmatory analysis

Absolute Indices				Incremental indices		Parsimonious indices
CMIN	GFI	RMR	RMSEA	NFI	CFI	CMIN/F
Minimal	>0.90	Minimal	<0.08	>0.90	>0.90	≤ 5

PERVAL scale

Following the exploratory results, we tested the scale with two dimensions: quality and emotion. The first results of the confirmatory analysis shown insufficient significant levels for several indices.

Table 105 Confirmatory analysis indices before improvement

Absolute indices				Incremental indices		Parsimonious indices
CMIN	GFI	RMR	RMSEA	NFI	CFI	CMIN/F
586.999	0.873	0.57	0.130	0.888	0.895	13.651

The results show several covariances that we treated in the order shown in table 114, and also suggest to withdraw the EMO1 variable. The treatment improved the measurement model.

Table 106 Covariance - default model

Covariance	M.I	Per Change
QUAL1 – QUAL2	135.701	0.120
SOC1 – SOC2	95.737	0.215
PRICE1 – QUAL1	22.705	-0.50

Figure 56. Measurement scale - PERVAL

262
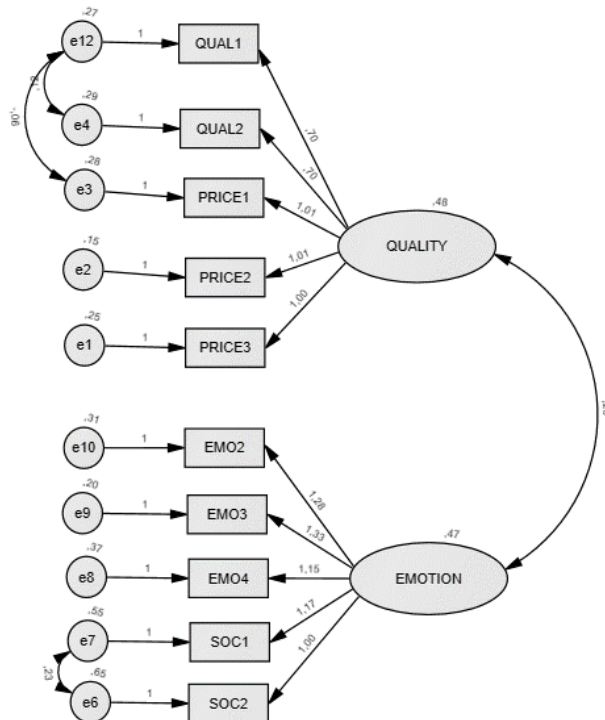
Table 107 presents the significant indices of the scales with a reduced amount of items.

Table 107. Confirmatory analysis indices after improvement

Absolute indices				Incremental indices		Parsimonious indices
CMIN	GFI	RMR	RMSEA	NFI	CFI	CMIN/F
106.480	0.973	0.039	0.057	0.977	0.983	3.435

The reliability is confirmed with a high Joreskog Rhô (> 0.7), and the convergent reliability is confirmed (AVE > 0.5) for both dimensions.

Table 108. Convergent validity and reliability

Construct	Item	Estimate	AVE	Jöreborg Rhô
QUALITY	QUAL1	0.680	0.592	0.878
	QUAL2	0.668		
	PRICE1	0.797		
	PRICE2	0.875		
	PRICE3	0.808		
EMOTION	EMO2	0.845	0.623	0.891
	EMO3	0.900		
	EMO4	0.794		
	SOC1	0.734		
	SOC2	0.649		

Discriminant validity indices show a high quality (MSV<AVE)

Table 109. Convergent and divergent validity

	CR	AVE	MSV	MaxR(H)	CA	PA
Quality	0.878	0.592	0.286	0.895	0.769	
Emotion	0.891	0.623	0.286	0.912	0.535***	0.769

Significance of Correlations: † p < 0.100; * p < 0.050; ** p < 0.010; *** p < 0.001

Spirituality

The scale of spirituality cannot be assessed in a confirmatory analysis because it is a one-dimensional scale with two items. The statistic treatment of scales with three or fewer items leads to an underestimation of the model. We include these items in a common construct on the base of theoretical proximity and previous studies.

2. Test of hypotheses

The model is tested according to two methodologies, as reported and justified in the previous section. The first data treatment is realized with the econometric Tobit model. The second data treatment investigates indirect effects and intermediates effects.

2.1 Econometric modeling

This section explores the direct effects on auctions, purchased quantity, and random price acceptance. The main objective is to estimate the customer behavior of the respondent according to the organic quality of the product, and the effect of brand type.

2.1.1 *The analysis of auctions*

The Tobit model was appropriate because bids cannot be a negative value. The models include the optional question of the reference price for organic and non-organic products. Even though it reduces the number of observations, the models are as significant as others, and the answers are more reliable. We first model the auctions on products according to their brand and their quality – either organic or non-organic, based on demographics, reference prices for organic and non-organic products, and usually purchased product criteria. Table 110 presents the descriptive statistic for each independent variable.

Table 110. Descriptive statistics - Model 1

Variables	Abbreviations	Modalities	Descriptive statistics
Auction	AUCTION	Continuous	Mean = 1.30 Sd Dev = 0.64
Quantity	QUANT	Continuous	Mean = 3.08 Sd Dev = 2.37
Official quality sign	ORG	Yes=1; No=0	180;151
National Brand	BRAND	National brand=1; Private label=0	159;172
Gender	GENDER	Female=1; Male=0	179;152
Age	AGE	Continuous	Mean = 39.51 Sd Dev = 11.46
Diet	VEG	Yes=1; No=0	
Professional category	EXECUTIVE	Managers, accredited professional, Tradeperson, shop or business owner = 1; Others = 0	99; 232
Children	CHILD	Yes=1;No=0	165;166
Education	EDUC	Licence or above=1; others=0	144;187
Urban	URBAN	Urban=1; Rural=0	126;205
Primary shopper	PSHOP	Yes=1;No=0	132;199
Organic product reference price	REFORG	Continuous	Mean = 1.08 Sd Dev = 0.37
Non-organic product reference price	REFNONORG	Continuous	Mean = 0.87 Sd Dev = 0.59

The results of the Tobit model are displayed in table 68. The organic characteristic of the product significantly increases the auction (0.21) but the desired quantity decreases slightly the auctions (-0.042). We find that the most statistically significant explanatory factor in the respondents' auction is the reference price for the organic products (0.333). None of the demographics or usually purchased product criteria were significant.

Table 111. Tobit regression results on auctions - Model 1

Variables	Estimate	Standard error	P-value
Intercept	1.003 ***	0.203	7.33e-07
Quantity	-0.042 **	0.015	0.006
Organic	0.210 **	0.068	0.002
Brand	0.070	0.068	0.302
Gender	-0.061	0.068	0.423
Age	-0.001	0.003	0.622
Vegetarian	0.000	0.113	0.998
Executive	-0.014	0.084	0.872
Children	-0.035	0.072	0.633
Education	-0.026	0.080	0.750
Urban	0.046	0.076	0.542
PShopper	-0.088	0.074	0.233
Ref Org	0.333 ***	0.095	0.001
Ref Nonorg	0.073	0.058	0.207
Log(scale)	-0.503 ***	0.039	< 2e-16 ***
Observations	331		
P-Value	4.7015e-05		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Then, we designed a model to compare the bids for the two quality products – organic milk (group A) and non-organic (group B). Table 69 and 70 present the descriptive statistics.

Table 112. Descriptive statistics – Model 2

Variables	Abbreviations	Modalities	Descriptive statistics	
			GROUP A	GROUP B
Auction	AUCTION	Continuous	Mean = 1.39 Sd Dev =0.74	Mean = 1.19 Sd Dev =0.49
Quantity	QUANT	Continuous	Mean = 3.13 Sd Dev =2.45	Mean = 3.01 Sd Dev = 2.28
National Brand	BRAND	National brand=1; Private label=0	83;97	76;75
Gender	GENDER	Female=1; Male=0	99;81	80;71
Age	AGE	Continuous	Mean = 38.54 Sd Dev = 11.22	Mean = 40.67 Sd Dev = 11.67
Diet	VEG	Yes=1; No=0	17;163	17;134
Professional category	EXECUTIVE	Managers, accredited professional, Tradeperson, shop or business owner = 1; Others = 0	50;130	49;102
Children	CHILD	Yes=1;No=0	88;92	77;74
Education	EDUC	Licence degree or above=1; others=0	73;107	71;80
Urban	URBAN	Urban=1; Rural=0	65;115	61;90
Primary shopper	PSHOP	Yes=1;No=0	70;110	62;89
Organic product reference price	REFORG	Continuous	Mean = 1.06 Sd Dev = 0.36	Mean = 1.09 Sd Dev = 0.38
Non-organic product reference price	REFNONORG	Continuous	Mean = 0.87 Sd Dev = 0.61	Mean = 0.86 Sd Dev = 0.57

Post hoc tests, applying the Bonferroni method, confirmed that mean bids were significantly different from each other at p<0.05. The dependent variable in our model was bid for each product. We used the Tobit model (with no interaction terms) as bids are continuous and censored.

Table 113. Tobit regression results on auctions - Model 2

Variables	Group A - Organic	Group B - Non-organic
Intercept	1.703 ***	0.459 *
QUANT	-0.062 *	-0.021
BRAND	0.074	0.070
GENDER	-0.044	-0.094
AGE	-0.005	0.002
VEG	-0.156	0.020
EXECUTIVE	-0.091	-0.011
CHILD	0.045	-0.113
EDUC	0.037	-0.045
URBAN	-0.129	0.219 **
PSHOP	-0.174	0.014
REFORG	0.196	0.541 ***
REFNONORG	0.002	0.136 *
Log(scale)	-0.343 ***	-0.905 ***
Observations	180	151
P-Value	0.3497	3.02e-10 ***

Table 71 summarizes selected parameter estimates and their significance for both groups. Model A is not significant, meaning that none of the variables can explain the bids, and additional factors have an impact on the final bid. Model B is significant with three influencing factors. Table 121 reports positively influence the organic reference price (0.541) and non-organic reference price (0.136) with a smaller influence. As regards socio-demographic variables, only one characteristic, urban, exerted a positive and statistically significant effect (0.219) on non-organic bids.

2.1.2 The analysis of the quantity

The Tobit model was also appropriate because the quantity cannot be a negative value. The models analyze two types of quantity: the quantity at auctions, and the additional quantity with the random price. The first equation evaluates the purchased quantity according to auctions, demographics, and the habits of buying organic food. Table 67 presents the descriptive statistic for each independent variable.

Table 114. Descriptive statistics - Model 3

Variables	Abbreviations	Modalities	Descriptive statistics
Quantity	QUANT	Continuous	Mean = 3.16 Sd Dev = 2.40
Auction	AUCTION	Continuous	Mean = 1.29 Sd Dev = 0.78
Official quality sign	ORG	Yes=1; No=0	379; 372
National Brand	BRAND	National brand=1; Private label=0	367;384
Gender	GENDER	Female=1; Male=0	413;338
Age	AGE	Continuous	Mean = 40.94 Sd Dev = 11.74
Professional category	EXECUTIVE	Managers, accredited professional, Tradeperson, shop or business owner = 1; Others = 0	199;552
Children	CHILD	Yes=1;No=0	369;382
Education	EDUC	Licence or above=1; others=0	144;187
Location	URBAN	Urban=1; Rural=0	256;495
Primary shopper	PSHOP	Yes=1;No=0	377;374

The second equation evaluates the random price acceptance according to the price differences, demographics, the habits of buying organic food, perceived quality, and spirituality. Table 67 presents a descriptive statistic.

Table 115. Descriptive statistics - Model 4

Variables	Abbreviations	Modalities	Descriptive statistics
Random Price Acceptance	RPA	Continuous	Mean = 3.10 Sd Dev = 3.00
Price difference	PDIFF	Continuous	Mean = 0.55 Sd Dev = 0.78
Official quality sign	ORG	Yes=1; No=0	379; 372
National Brand	BRAND	National brand=1; Private label=0	367;384
Gender	GENDER	Female=1; Male=0	413;338
Age	AGE	Continuous	Mean = 40.94 Sd Dev = 11.74
Professional category	EXECUTIVE	Managers, accredited professional, Tradeperson, shop or business owner = 1; Others = 0	309;442
Children	CHILD	Yes=1;No=0	369;382
Education	EDUC	Licence or above=1; others=0	144;187
Location	URBAN	Urban=1; Rural=0	256;495
Primary shopper	PSHOP	Yes=1;No=0	377;374

The results of the Tobit model are displayed in table 68. Auction has a significant and negative influence on quantity (-0.214*). Both quality signs show no significant results, neither does previous organic milk purchase. Two socio-demographic variables have significant results. First, and unsurprisingly, the fact of having children is linked to the number of items that

respondent purchases (0.625 **). Second, respondents from urban areas buy less quantity of fluid milk (-0.524 *) than people from rural areas.

Table 116. Tobit regression results on quantity - Model 3

Variables	Estimate	Standard error	P-value
Intercept	2.964 ***	0.559	1.18e-07
AUCTION	-0.214 *	0.110	0.005
ORG	-0.158	0.170	0.352
BRAND	0.267	0.170	0.103
GENDER	0.111	0.171	0.517
AGE	0.010	0.008	0.170
EXECUTIVE	-0.243	0.216	0.260
CHILD	0.625 ***	0.175	0.000
EDUC	-0.387.	0.200	0.053
URBAN	-0.524 **	0.191	0.006
PSHOP	-0.182	0.174	0.295
Log(scale)	0.835 ***	0.026	< 2e-16
Observations	751		
P-Value	2.2185e-09		

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

The random price acceptance model results are displayed in the table below. The brand has a significant influence on random price acceptance (0.514*), whereas the organic label does not increase quantity with the random price. We observe that price difference does not influence random price acceptance. Several socio-demographic variables are significant. Similarly to the previous model, Urban (-0.947***) and children in the household (0.490***) are significant. Age has a significant but very low coefficient (0.047). We notice that being an executive and having a university degree have a significant and negative effect on random price acceptance (EXECUTIVE= -0.846**; EDUC= -0.782**). The customer habit of purchasing organic fluid milk is not significant.

Table 117. Tobit regression results on RPA - Model 4

Variables	Estimate	Standard error	P-value
Intercept	-0.477	0.590	0.555
PDIFF	-0.160	0.166	0.334
ORG	0.214	0.249	0.389
BRAND	0.514 *	0.249	0.039
GENDER	- 0.167	0.251	0.504
AGE	0.047***	0.011	0.000
EXECUTIVE	-0.846 **	0.319	0.008
CHILD	0.490 ***	0.255	0.000
EDUC	-0.782 **	0.294	0.008
URBAN	-0.947 ***	0.281	0.001
PSHOP	-0.414	0.255	0.104
Log(scale)	1.193 ***	0.030	< 2e-16 ***
Observations	751		
P-Value	< 2.22e-16		

Then, we reproduce the model according to quality products – organic milk (group A) and non-organic (group B). Table 69 and 70 present the descriptive statistics for both groups.

Table 118. Descriptive statistics – Model 5 and 6

Variables	Abbreviations	Modalities	Descriptive statistics	
			GROUP A	GROUP B
Quantity	Quantity	Continuous	Mean = 3.09 Sd Dev = 2.41	Mean = 3.23 Sd Dev = 2.39
Random price acceptance	RPA	Continuous	Mean = 3.17 Sd Dev = 3.21	Mean = 3.03 Sd Dev = 2.78
Auction	Auction	Continuous	Mean = 1.34 Sd Dev = 0.69	Mean = 1.25 Sd Dev = 0.85
Price difference	PDIFF	Continuous	Mean = 0.59 Sd Dev = 0.69	Mean = 0.50 Sd Dev = 0.85
National Brand	Brand	National brand=1; Private label=0	187;192	180;192
Gender	Gender	Female=1; Male=0	210;169	203;169
Age	Age	Continuous	Mean = 40.53 Sd Dev = 11.58	Mean = 41.36 Sd Dev = 11.90
Professional category	Executive	Managers, accredited professional, Tradeperson, shop or business owner = 1; Others = 0	95;284	104;268
Children	CHILD	Yes=1;No=0	184;195	185;187
Education	EDUC	Licence or above=1; others=0	149;230	160;212
Location	Urban	Urban=1; Rural=0	124;255	132;240
Primary shopper	PShopper	Yes=1;No=0	179;200	198;174

We run the post hoc tests, applying the Bonferroni method, rejected that means quantity and random price acceptance were significantly different from each other at $p>0.05$.

2.1.3 Concluding remarks

BDM auctions mechanism and a survey were carried out to measure factors affecting the respondents' bids, the purchased quantity, and the random price acceptance for fluid milk bearing the organic official quality signs.

Concerning auctions, the results show that the organic feature increases significantly the customer bids, contrary to brand type that has no significant influence. We notice that the quantity has a significant but very low influence on bids, whereas the organic internal price reference is an important factor of auction increase. We run a comparison between two groups: group A bid on organic products, and group B bid on non-organic products. The Bonferroni test confirmed that the groups have significant differences in auctions. Group A revealed a non-significant model, in contrary to group B. The auction of group B has three significant and positive factors, including the two reference prices and the urban location.

The evaluation of purchased quantity factors revealed four significant variables, including three negative influences. Respondents with a higher level of education, high bids, and living in an

urban area significantly buy a fewer number of items. The fact of having children in the household positively increases the number of items.

Random price acceptance is positively affected by five factors. Surprisingly, the price difference between the bid and the random price has no influence on the purchased quantity at the random price. The brand type plays an important role in acceptance, as well as children in the household. Age has a significant low and positive coefficient. The acceptance is refrained mainly by urban location, executive professional category, and a high level of education. Bonferroni tests rejected that groups have significant differences in purchased quantity and random price acceptance (Appendix 10 Bonferroni Tests – Pariwise comparisons using t-test with pooled SD - model 2, 5 and 6). Also, we conducted models 1, 3, and 4 with interaction terms (Official quality signs and brand type), but none of the results were significant.

2.2 Intermediate effects modeling

We analyze below the interactions between the variables, the mediation effects, and the moderation effects of our model. We first present the sub-models of our global research model, evaluate their quality, and test the hypotheses in a two-step process (1). Then, we test the hypotheses for direct, mediating, and moderating effects (2).

2.2.1 Tests of the models

In this paragraph, we test the mediation effects imply in the theoretical model. We proceed in two steps. First, we have tested the global model (Figure 42 Behavioral experimental Model). Then, the model has been split into six sub-mediation models, and each of them has been tested with AMOS. The adjustment quality of structural model equations is tested with the same process that scale measurement adjustment. Table 74 presents the indices for all the models.

Table 119. Validity of the models

	Theoretical model	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
CMIN	45.231	11.299	12.057	10.398	5.430	4.348	4.770
GFI	0.968	0.994	0.994	0.994	0.996	0.997	0.997
RMR	0.058	0.11	0.027	0.025	0.010	0.028	0.037
RMSEA	0.057	0.049	0.052	0.046	0.048	0.040	0.043
NFI	0.956	0.958	0.958	0.968	0.669	0.813	0.883
CFI	0.968	0.972	0.971	0.980	0.671	0.864	0.921
CMIN/DF	3.479	2.825	3.014	2.600	2.715	2.174	2.385

The theoretical model required a correlation relationship between the random price acceptance and the quantity, as well as between the two intermediate variables. The indices of adjustments

are all meeting expectations except the incremental indices for models 4 and 5. They are both inferior to the accepted minimum (>0.90). All models are significant and allow the test of hypotheses.

2.2.2 Tests of hypotheses

We tested both models to confirm or reject our hypotheses. We used AMOS to test the relations between variables. We chose a minimum p-value of 0,05 for an error risk of 5%. As explained in the methodology, mediation and moderation analyses have been conducted on SPSS with the PROCESS macro delivered by Andrew F. Hayes (2018) (Model 4 and Model 7, Bootstrap 5000).

The direct effects

The following data treatments assess the causality of each relation in our research model. The aim is to assess the independent effect of one variable to another, to the test the hypotheses displayed in table 119.

Table 120. Hypotheses for direct effects

H1	The official quality sign influence positively the consumer behavior
H2	The brand type influence positively the consumer behavior
H3	The willingness-to-pay influences negatively the purchased quantity
H4	The purchased quantity influences negatively the consumer willingness-to-pay
H5	The willingness-to-pay influences positively the consumer random price acceptance
H6	The quantity influences positively the consumer random price acceptance

First, we look at the first hypothesis concerning the effects of quality signals on behavioral variables. Figure 57 presents the error bars concerning the behavior variables distribution according to quality signals.

Figure 57. Error bars of behavioral results (auction and purchase quantity) according to quality signals (OQS and brand type)

Non-organic and organic auctions

Private label and national brand auctions

Non-organic and organic purchase quantity

Private label and national brand purchase quantity

Non-organic and organic RPA

Private label and national brand RPA
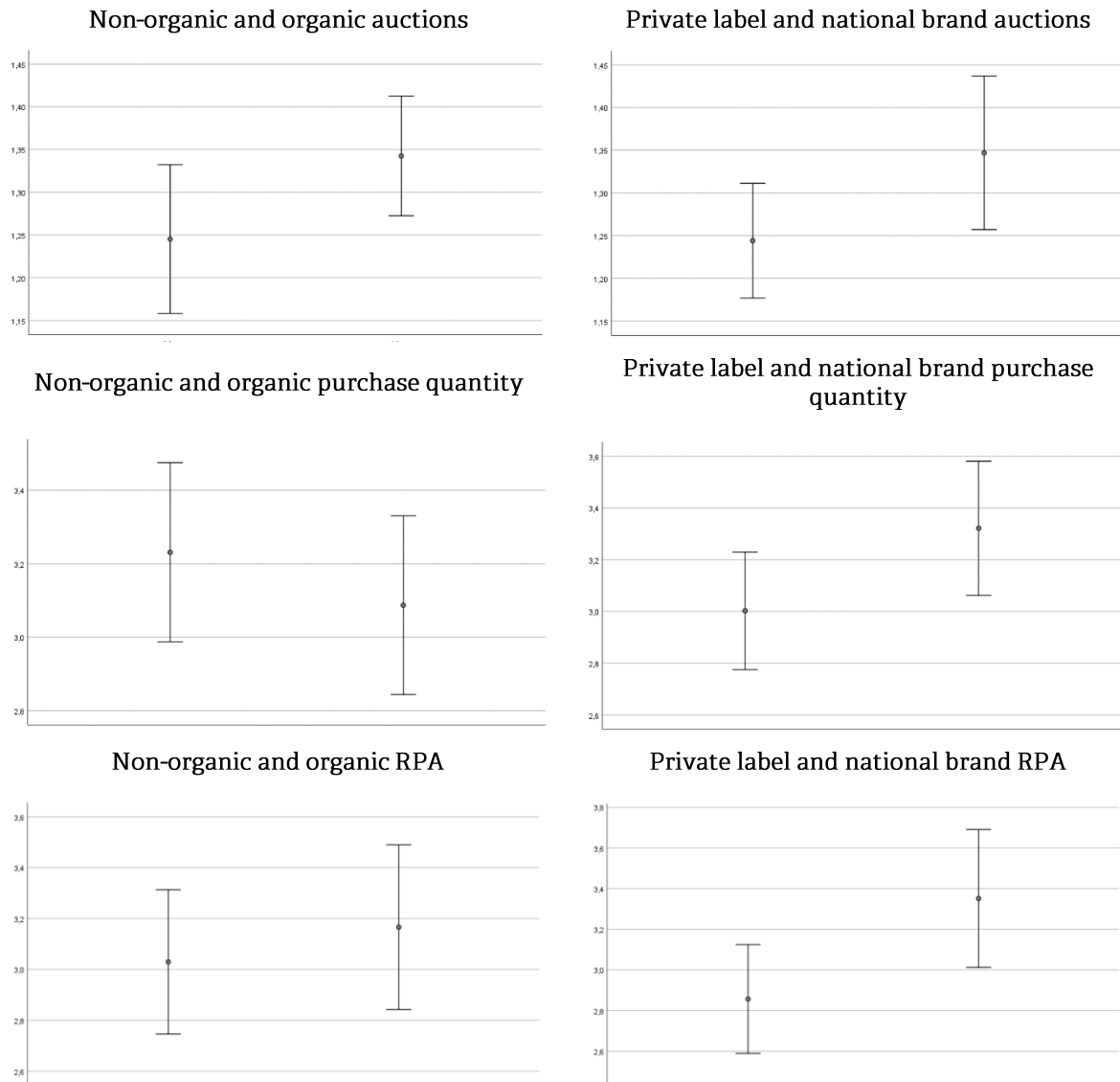
We notice that organic and national brand, considered as higher quality, show superior mean auctions, and mean random price acceptance than a non-organic and private label. For auctions, the non-organic product displays a larger interval, including higher standard-error. It is the opposite of brand type, with a larger interval for the national brand. Both auction graphs show overlapping of the bars, highlighting the possibility of several similar auction means for both products. For random price acceptance, the difference is slight concerning official quality signs with an important overlapping of the bars and two large intervals, highlighting the possibility of several similar random price acceptance for both products. The results are more distinct for brand type, with smaller intervals, less overlapping, and more differentiated means. In contrary to the two other variables, purchase quantity is higher for non-organic than organic products,

but both interval are very large and overlapping. The quantity for the national brand is higher than private labels, and the overlapping is smaller than official quality signs.

We conducted ANOVA treatment for both hypotheses on each customer behavior variable. Table 120 displays the significance of the homoscedasticity tests. We must exclude the hypothesis of variance homogeneity to proceed to ANOVA interpretation. Then, the ANOVA column indicates the F statistic and the associated p-value. The significant results are written in bold font.

Table 121. Hypotheses 1 and 2 – ANOVA results

	Auction		Quantity		RPA	
	Homosk.	ANOVA (p-value)	Homosk.	ANOVA (p-value)	Homosk.	ANOVA (p-value)
OQS	0.482	2.937 (0.087)	0.89	0.677 (0.411)	0.442	0.388 (0.533)
Brand type	0.09	3.289 (0.070)	0.068	3.325 (0.069)	0.169	**5,120** (0.024)

No direct effect from the official quality sign on behavioral variables is significant despite the homoscedasticity test that allows us to interpret the ANOVA (>0.05). All p-value is higher than the accepted limit of 0,05. Concerning the brand type, both auction and purchased quantity for brand types have homoscedasticity results just above the limits, and ANOVA p-value superior to the accepted limit (respectively 0.07 and 0.069). Only random price acceptance presents significant results (p-value=0.024).

Table 122. Hypothesis 1 and 2 - sum-up

H1	The official quality sign influences positively the consumer behavior	Rejected
H2	The brand type influence positively the consumer behavior	Partially rejected

The lack of significant indirect effects justifies the necessity of testing the effects of the intermediate variables. Then, we analyzed the reciprocal influence of behavioral variables. We used linear regression analysis. Table 122 presents the non-standardized coefficient, significance, standard error, and adjusted R^2.

Table 123. Hypotheses 3 and 4 - Linear regression results

Independent variable	Dependent variable	Coef	Sig.	Standard error	Adjusted R^2
Auction	Quantity	- 0.247 .	0.028	0.112	0.005
Quantity	Auction	- 0.26 .	0.028	0.012	0.005

Both relations are significant (both p-value=0.028) and have a similar coefficient (Auction=0.247; Quantity=0.26). The R-square is identical for both regressions and relatively small (0.5%). We cannot deny the existence of a reciprocal relation but the very low power of explanation of it.

Table 124. Hypothesis 3 and 4 sum-up

H3	The willingness-to-pay influences negatively the purchased quantity	Confirmed
H4	The purchased quantity influences negatively the consumer willingness-to-pay	Confirmed

Then, we conducted linear regression to test the influence of willingness-to-pay and quantity on random price acceptance.

Table 125. Hypotheses 5 and 6 - Linear regression results

Independent variable	Coef	Sig.	Standard error	Adjusted R²
Auction	- 0.226	0.109	0.141	0.059
Quantity	0.527 ***	0.000	0.041	0.421

Purchase quantity has a positive (0.527) and significant (0.000) influence on RPA. The R-square is high (42.1%).

Table 126. Hypotheses 5 and 6 - Sum-up

H5	The willingness-to-pay influences positively the consumer random price acceptance	Rejected
H6	The quantity influences positively the consumer random price acceptance	Confirmed

The mediating and moderating effects

We explore below the mediation and moderation effect between quality signals and behavioral variables with the concept of perceived value and spirituality for each behavioral variable. We present the results in tables and with a graph. Moderation can be either direct or indirect. We also report the independent effects. The type of effect is mentioned with a graph legend. For a better reading, direct effects are shown with colors.

Direct effect	Indirect effect	Independent effect
→	→	- - - - - - - ➤
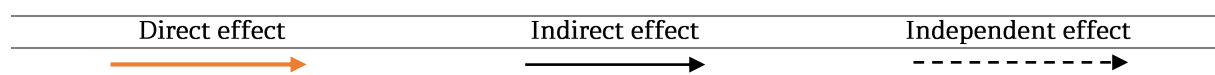
Model 1

We first investigate the mediation of perceived value between the official quality sign and the auction. None of the dimensions of perceived value is significant. The test confirms the influence of organic on perceived value for both dimensions (QUAL=0.209; EMO=0.178), but the relationship between perceived value and auction is not significant (p-value>0.05).

Table 127. Results of mediation effect of perceived value between OQS and auction

Mediation	Effect nature	Direct effect			Indirect effect									
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
QUAL	NONE							0.209	4.433	0.000			
EMO	NONE							0.178	2.803	0.005			

We test the relation between brand type and auctions on a second model. There is no mediation effect between brand type and auction. Nevertheless, the brand type influence positively the dimension of quality in perceived value (0.166).

Table 128. Results of mediation effect of perceived value between Brand and auction

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
QUAL	NONE												
EMO	NONE							0.166	2.612	0.009			

Figure 58 presents the graphic model with relations

Figure 58. Indirect effects sum-up - Model 1
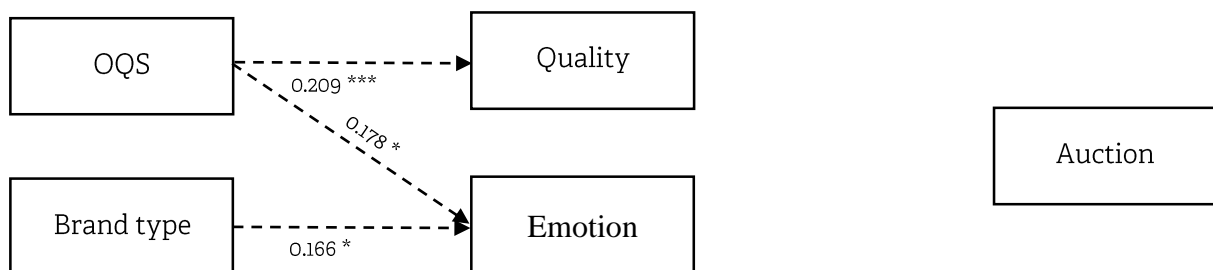
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'

Model 2

The dimension of emotion has an intermediate effect (0.24) between the organic feature and the number of items chosen by respondents. We notice that the effect of organic on the quality dimension (0.178) and the effect of quality dimension on purchased quantity (0.314) are both positive and significant, but the test does not confirm a mediation (p-value>0.05).

Table 129. Results of mediation effect of perceived value between OQS and quantity

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
QUAL	None							0.209	4.433	0.00	0.314	2.016	0.044
EMO	Indirect				0.024	0.005	0.052	0.178	2.803	0.005	0.328	2.838	0.005

The emotion dimension of perceived quality mediate the influence of brand type on purchased quantity, but the effect is quite low (0.051). Figure 59 presents the independent relations and mediation effects of the model.

Table 130. Results of mediation effect of perceived value between Brand and quantity

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
QUAL	None												
EMO	Indirect				0.051	0.006	0.112	0.166	2.612	0.009	0.308	2.649	0.008

Figure 59. Indirect effects sum-up - Model 2
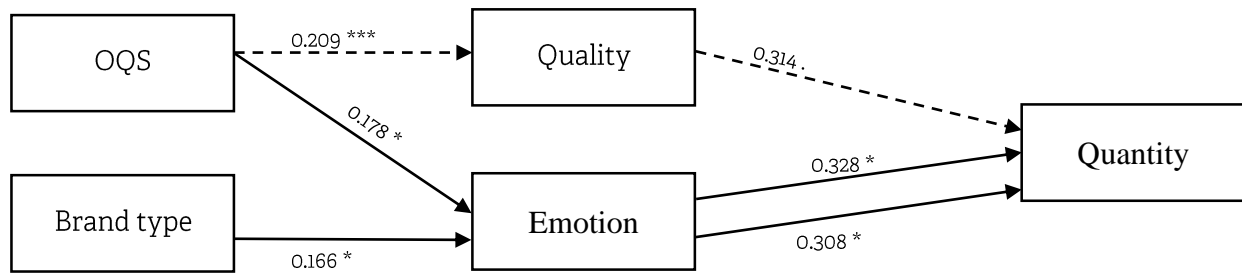
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'

The moderation is testes with model 7 of Hayes (5000 Bootraps). None of the variables were significant.

Model 3

The mediation model is significant (p-value<0.001). Table 92 displays the results. The dimension of emotion and quality have both a significant intermediate effect (QUAL=0.209; EMO=0.178). There is no direct effect. We test the relation between brand type and random price acceptance.

Table 131. Results of mediation effect of perceived value between OQS and RPA

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
QUAL	Indirect				0.1182	0.0415	0.2091	0.209	4.4330	0.000	0.567	2.975	0.003
EMO	Indirect				0.1206	0.0325	0.2261	0.178	2.803	0.005	0.679	4.804	0.000

Emotion dimension of perceived value generates an indirect mediation between brand type and RPA (QUAL=0.166; EMO=0.653). Figure 60 presents the effects.

Table 132. Results of mediation effect of perceived value between brand type and RPA

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
QUAL	Indirect										0.564	2.991	0.003
EMO	Indirect				0.0108	0.0247	0.2140	0.166	2.6118	0.009	0.653	4.615	0.000

Figure 60. Indirect effects sum-up - Model 3
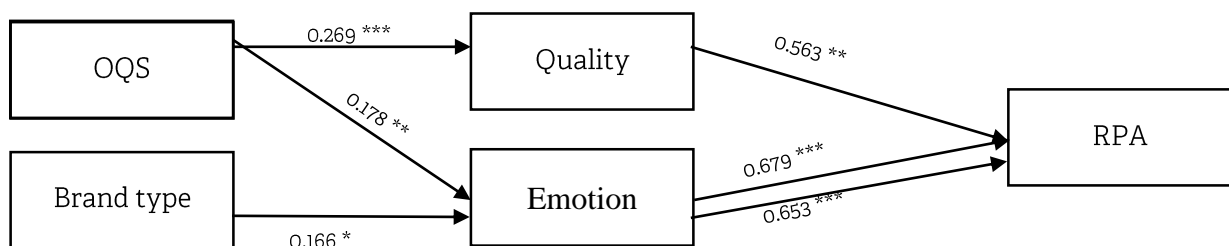
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'

The moderation is testes with model 7 of Hayes (5000 Bootraps). None of the variables were significantly moderating the mediation.

Model 4

There are no direct nor indirect effect mediation effects of spirituality between quality signals and auctions.

Table 133. Results of the mediation effect of spirituality between OQS and auction

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	A	T	P	b	T	P
SPIRIT	NONE							0.16	2.036	0.042	0.062	2.41	0.016

Independent relations are reported in table 141 and 142.

Table 134. Results of the mediation effect of spirituality between Brand and auction

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	A	T	P	b	T	P
SPIRIT	NONE										0.064	2.491	0.013

Figure 61 report the independent effects.

Figure 61. Indirect effects sum-up - Model 4
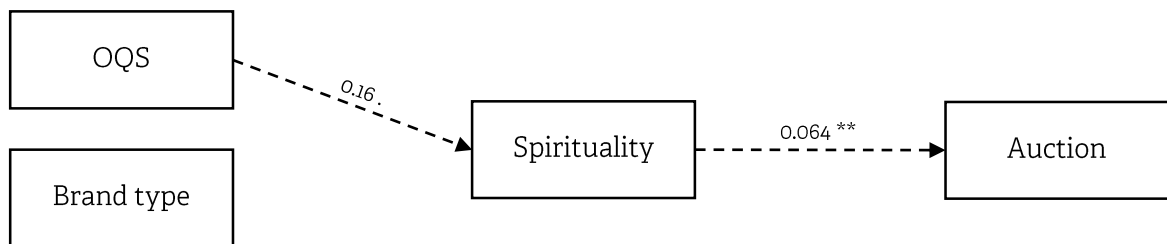
Model 5

Spirituality shows an indirect mediation effect between official quality signs and purchased quantity.

Table 135. Results of the mediation effect of spirituality between OQS and quantity

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
SPIRIT	Indirect				0.050	0.002	0.114	0.16	2.036	0.042	0.307	3.878	0.001

Spirituality has no intermediate effect between the brand type and the purchased quantity of product. Figure 62 presents the results with a graph.

Table 136. Results of the mediation effect of spirituality between brand and quantity

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
SPIRIT	None										0.297	3.768	0.001

Figure 62. Indirect effect - Model 2
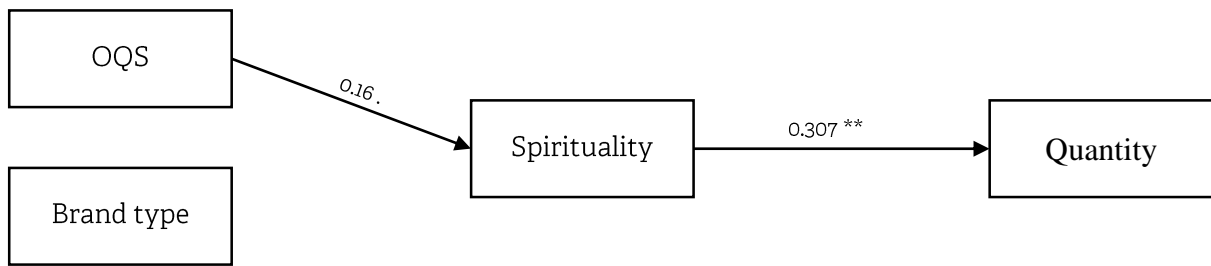
The moderation influences have been tested (PROCESS macro; model 7). None of the variables were significantly moderating the mediation effects.

Model 6

Table 92 displays the results of spirituality mediation between official quality signs and random price acceptance. Spirituality has a significant intermediate indirect effect.

Table 137. Results of the mediation effect of spirituality between OQS and RPA

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
SPIRIT	Indirect				0.090	0.0011	0.1890	0.163	2.0355	0.042	0.551	5.632	0.000

Table 150 reports a direct effect between brand type and random price acceptance but no indirect effect. Figure 63 report the effects in a graph.

Table 138. Results of mediation effect of perceived value between brand type and RPA

Mediation	Effect nature	Direct effect			Indirect effect								
		C	T	P	axb	IC inf	IC sup	a	T	P	b	T	P
SPIRIT	NONE	0.466	2.175	0.03							0.548	5.629	0.000

Figure 63. Indirect effects sum-up - Model 3
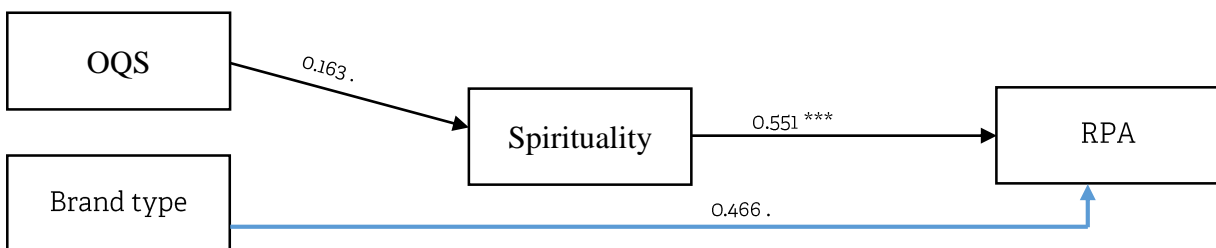
Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.'

The moderation is testes with model 7 of Hayes (5000 Bootraps). None of the variables were significant. The hypotheses results are all displayed in table 149.

Table 139. Results of mediation effects - hypotheses sum up

H1	The perceived value mediates positively the relation between the official quality sign and consumer willingness-to-pay	Rejected
H2	The perceived value mediates positively the relation between brand type and consumer willingness-to-pay	Rejected
H3	Reference price moderates the mediation of perceived value	Rejected
H4	Usually purchased product criteria moderates the mediation of perceived value	Rejected
H5	The perceived value mediates positively the relation between the official quality sign and the consumers' purchase quantity	Partially confirmed (Emotion – indirect effect)
H6	The perceived value mediates positively the relation between the brand type and the consumers' purchase quantity	Partially confirmed (Emotion – indirect effect)
H7	Reference price moderates the mediation of perceived value	Rejected
H8	Usually purchased product criteria moderates the mediation of perceived value	Rejected
H9	The perceived value mediates positively the relation between the official quality sign and random price acceptance	Confirmed (Indirect effect)
H10	The perceived value mediates positively the relation between the brand type and random price acceptance	Partially confirmed (Emotion – indirect effect)
H11	Reference price moderates the mediation of perceived value	Rejected
H12	Usually purchased product criteria moderates the mediation of perceived value	Rejected
H13	Spirituality mediates positively the relation between the official quality sign and consumer willingness-to-pay	Rejected
H14	Spirituality mediates positively the relation between brand type and consumer willingness-to-pay	Rejected
H15	Reference price moderates the mediation of perceived value	Rejected
H16	Usually purchased product criteria moderates the mediation of perceived value	Rejected
H17	Spirituality mediates positively the relation between the official quality sign and purchased quantity	Confirmed (Indirect effect)
H18	Spirituality mediates positively the relation between brand type and purchased quantity	Rejected
H19	Reference price moderates the mediation of perceived value	Rejected
H20	Usually purchased product criteria moderates the mediation of perceived value	Rejected
H21	Spirituality mediates positively the relation between the official quality sign and random price acceptance	Confirmed (Direct and indirect effect)
H22	Spirituality mediates positively the relation between brand type and random price acceptance	Rejected (Direct effect)
H23	Reference price moderates the mediation of perceived value	Rejected
H24	Usually purchased product criteria moderates the mediation of perceived value	Rejected

2.2.3 Concluding remarks

The theoretical model and all mediation models have been validated with adjustment quality tests. We first tested the direct effects before testing the mediations. Concerning direct relations, official quality signs have no effects on behavioral variables. Brand type shows a direct relationship with the random price acceptance, but neither with auctions nor with purchased quantity. Concerning the relations between behavioral variables, we notice that willingness-to-pay and purchased quantity are related to a reciprocal but weak relation. We also showed a positive and middle strength effect of purchased quantity on random price acceptance. The lack

of direct effects of quality signals on customers' behavior variables supports the interest in intermediate variables.

The results for mediating effects are surprising. Indeed, no mediating effect has been significant between quality signals and auction. We found three indirect effects between quality signals and purchased quantity. Official quality signs affect purchased quantity through spirituality, and through the emotion dimension of perceived value. This dimension also causes an indirect effect on the relation between brand type and purchased quantity. Finally, the relation between quality signals and random price acceptance shows numerous significant mediations. Official quality signs have indirect mediated relation with random price acceptance with both perceived value dimensions and spirituality. Brand type registers an indirect effect through the emotion dimension. Figure 80 summarizes the mediation effects that have been found. The quality signs have much more indirect effects than brands as it influences all the intermediate variables. Brand type only has an impact on emotion and influences random price acceptance and the purchased quantity. What is striking is the lack of effects on auctions except for the direct relation with purchased quantity.

Figure 64. Theoretical model effects
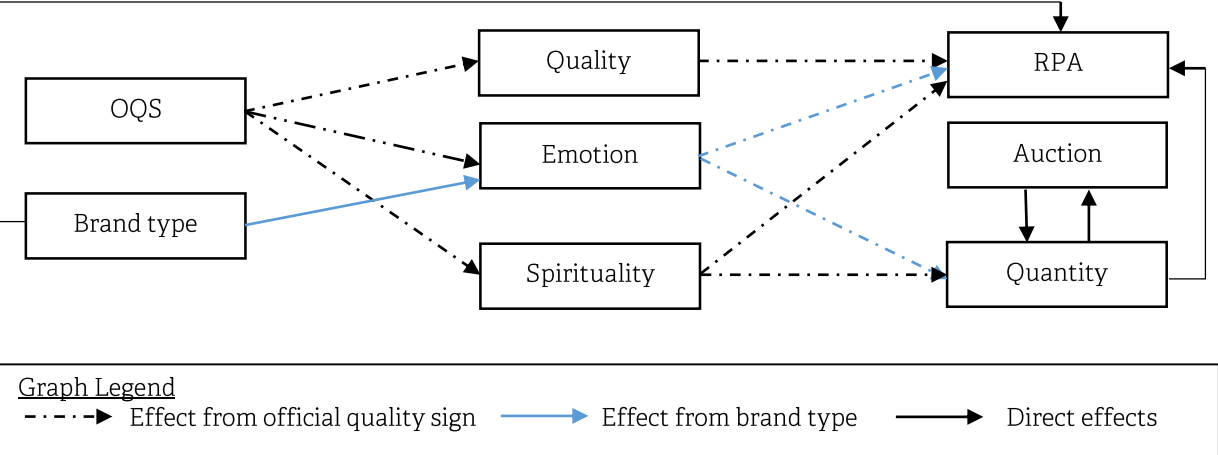
Discussion and conclusion of section 2

The mediation effects models complete the econometric models with the tests of mediation effects and variable interactions. This section presented the main results of the experiment we conducted between September 2019 and June 2020. Based on experimental economics, we ran three sessions of data collection after two pre-tests that helped to design a relevant experiment with checked stimuli and eliminate the potential misunderstanding in the survey.

From a theoretical implication, we highlight three main findings. First, we acknowledge that credence quality has some influence on customer responses, including Potemkin attribute related to social performance (Achilleas & Anastasios, 2008, p. 831). The mediation analysis revealed a positive influence of the national brand and the organic feature on customer perceived quality. Concerning customer behavior, the organic feature is a positive predictor concerning willingness-to-pay in the Tobit model. The mediations models revealed indirect effects on purchased quantities. With numerous positive results concerning the quality signals influence on random price acceptance, we are tempted to confirm partially the findings of Grewal and al (1998, p. 349) who state that *"brand name and price discounts explain 85% of the variation in perceived value".* Indeed, brands were related to perceived value but only the dimension of emotion and the random price had a high perceived value relation. The official quality signs had more numerous influences on perceived value and acted on both dimensions, even if the relations were not generating positive customer behavior. Customer perception gives value to attributes and can affect the behavior (Howard, 1977), especially on purchased quantity. Consumers' perception change with the available information and influences the purchase (Nelson, 1970). Second, concerning the marketing value chain, we point out a certain weakness of perceived value transformation into a price premium, but a positive market value through quantity. We confirm the importance of sales volumes is market performance. Finally, reference price acts as an antecedent of willingness-to-pay. The models from Dodds and al. (1991) and Grewal, Krishnan, and al. (1998) must be investigated to understand the role of reference prices.

Concerning the political implications, price does not seem to lower market competition. The fear of losing national market shares can be faced with an increase of credence quality (social and environmental responsibility) and pushed in terms of quantity. The market does not seem saturated and could benefit from new policies based on a piece of additional qualitative information.

From a managerial perception, we suggest influencing more on purchased quantity than price. The price difference between auction and random price was not significantly influencing customer behavior. Moreover, we have seen that many respondents were buying milk in 6-pack packaging.

This research has some limitations that offer new research perspectives. First, we suggest to investigate and compare the influence of promotion on price and quantity for non-processed virtue food. Moreover, our survey could not assess elasticity. Another survey could investigate the model of Dodds and al. (1991) and Grewal, Krishnan, and al. (1998) to understand better the mechanism between the market price acceptance, the price difference, and quality signals. The dimension of perceived quality could be assessed based on another random price corresponding to the market price of each quality product. Finally, we were not able to conduct the entire survey with financial compensation for technical reasons.

CONCLUSION OF CHAPTER 3

This chapter was dedicated to the experiment we conducted in 2019 and 2020. Based on the methodology of BDM auction, we elaborated an experiment to test the customer behavior in terms of price acceptance and purchased quantity. The experiment was on a virtue low-processed agri-food product that is usual in French consumption: fluid milk. We controlled two variables to assess customer behavior and customer perception influence of brand type - private label and national brand, and official quality signs – none or organic.

The first section presented the elaboration of the experiment with the justifications of all choices. We presented the cow milk market and the specific context of this market. Then we elaborated on the conceptual model and the methodologies used to test the relations. We selected two methodologies. First, the Tobit model was selected because bids and quantity are censored data. The econometric models test the influence of several factors on the two behavioral variables. Then, we elaborated models to test the direct effect of stimuli on behavior, and the mediations of perceived value and spirituality. We closed the first section with the presentation of the experimental protocol, respondent recruitment, and the survey itself.

The second section presents the data collection and preparation before running the statistical tests. We presented the sample and descriptive statistics concerning the purchasing habits and behavior of respondents. The two measurement scales and all research models have been validated and confirmed with exploratory analysis and confirmatory analysis. The study revealed higher importance of organic signal than brand type on perceived value and spirituality. Nevertheless, the psychological value for consumers is not systematically transformed into a positive behavioral response and by extension a market value creation. Brand type generated effects on the emotional dimension of perceived value only. We notice that the perceived value and spirituality only influence quantity and random price acceptance. The willingness-to-pay was not related to customer perception.

We highlight the willing-to-purchase more product units under certain conditions and the importance of credence value in the virtue low-processed market of farm animal products. We highlight the importance of information in the market and the potential public help to generate a homogeneous information system based on public policies.

This study completes the previous part of the doctoral thesis and gives additional information about market performance mechanisms.

Key elements

- Major findings
  - Purchase quantity and auction have an inverse reciprocal relations
  - Purchased quantity influences random price acceptance
  - Organic feature increases significantly the customer bids
  - The lack of direct effects of quality signals on customers' behavior variables supports the interest in intermediate variables
  - No mediating effect between quality signals and auction
  - Official quality signs affects purchased quantity through spirituality, and through the emotion dimension of perceived value
  - Brand affects purchased quantity though the only emotion dimension of perceived value
  - Official quality sign have indirect mediated relation with random price acceptance with both perceived value dimensions and spirituality
  - Brand type registers an indirect effect through the only emotion dimension of perceived value
  - Reference price is an antecedent of auctions but not a moderator
  - Quality signs have much more indirect effects than brand
  - There is a lack of effects on auctions except the direct relation with purchased quantity
- Theoretical implications
  - Competition is not solely on price
  - Credence quality influence customer performance and is a good lever for market competition
  - Sales volumes is an important factor in market performance
  - Customer perceived value can affects customer behavior
- Managerial implications
  - Retailers must rely on purchased quantity to increase sales revenues more than price
  - Retailers and brands must highlight credence quality
- Political implications
  - A public policy must be tested on milk to give homogeneous information in the market about credence quality
  - Protection of national market should be perceived from the higher quality rather than price competition
- Limits – Further research
  - We should compare the influence of promotion on price and quantity for non-processed virtue food
  - The lack of cross-elasticity should be assessed in another survey
  - The investigation of the relations between all the type of prices (reference, willingness-to-pay, market price)

CONCLUSION OF PART 2

The empirical part revealed several information to understand the market value creation of official quality signs. We conducted two studies based on market data that revealed heterogeneity among the official quality signs market results. We completed with an experiment to understand better the mechanism of willingness-to-pay and purchased quantity for official quality signs.

The analysis of the official quality signs market performance revealed a good market trend for Label Rouge for oven-ready chicken and the organic label for table eggs. The Label Rouge for table eggs gain fewer market shares and organic oven-ready chicken represents a very small part of the total sales volumes. The official quality signs do not have the same influence on the performance of each product.

The consumer converts the intangible value into market value under certain conditions. The experiment revealed a lack of significant influence on willingness-to-pay but a higher possibility of increasing sales revenues from purchased quantity. These results are consistent with the market observation that points out a slightly decrease of stable price for eggs but higher sales volumes. Despite the higher price registered for official quality signs in the market, official quality signs do not necessarily increase the marketing margins of the products due to a different distribution of the value along the value chain. Moreover, the official quality sign products show more price volatility. Retailers must compensate by lowering their marketing margins to keep a stable market price. As official quality signs are a financial risk, the necessity of creating sufficient sales revenues and profits is central. The risk related to a strategy of differentiation and the increase of brand equity with official quality signs is to increase the profit margin per article but a decline in acquisition and retention.

The official quality signs must be adapted to the product, but also the other quality signals that are available in the market. Price, sales volumes, and marketing margins do not depend on the official quality signs alone, but on the consumers' understanding of the related commitment, consistency with the other signals such as retailers and other connections, and the consistency with the brand type. The market competition is not based on price for high-quality products but credence value.

Public policies help to deliver homogeneous information in the market, especially for credence value. It increases positively the sales revenues of virtue low-processed market of farm animal products.

GENERAL DISCUSSION AND CONCLUSION

In a system in which the economy is based on growth, the social and environmental responsibility can be perceived as a burden for firms. In this science essay, we try to answer an actual issue for agribusiness: combining the increase of social and environmental quality of food products and economic viability. With the use of the marketing productivity and the 3C-SR perception of corporate responsibility performance, we elaborated a research model to understand the value creation and capture, and the role of official quality signs in the process of increasing market value. We used atypical methodologies in management and elaborated a quantitative mix-methods research made of hedonic price method, price elasticity, theoretical price analysis, marketing margins, and experimental economics. The measurement of market data on one side, and primary data from auctions on the other side enabled the analysis of the marketing productivity and the transformation from marketing resources to market results.

We conclude this doctoral thesis with a reflection about the main theoretical concepts that have been mobilized. This discussion is based on the three empirical studies that have been conducted during this doctoral thesis. We address four main points:

- The complexity of the marketing value chain

- The necessity of consistency

- The corporate social responsibility strengthens and weaknesses

- The public authority efficiency

The first section discusses the theoretical model of value creation (1) and specifically the marketing value chain mean-end model. Then, we highlight the importance of analyzing responsible features value with the criteria of the 3C-SR model (2). Finally, we query the fundamental concepts of responsibility and liberalism (2) with a discussion about the social responsibility in a profit maximization perception of the business, and the efficiency of public authorities in market regulation.

The second section presents the implications (1) of the work that have been realized in the empirical studies from a theoretical and managerial perception, but also methodological and political. We participate in the decompartmentalisation of the research domains and we invite readers to a more global reflection about management research by connecting business with other spheres of society. We also display the associated limits (2) and future research (3).

Market value, social responsibility and limited regulation in the market

Kumar and Reinartz wrote that *"Clearly, business is about creating value. The purpose of a sustainable business is, first, to create value for customers and, second, to extract some of that customer value in the form of profit, thereby creating value for the firm."* (2016, p. 36)

The perception of the authors follows the mean-end chain of marketing value. This doctoral thesis explored how official quality signs create values with the use of official quality signs to inform consumers and other stakeholders about the responsible practices of the firms. The creation and extraction of the value is a complex mechanism along the mean-end chain (1). According to the 3C-SR model, some requirement increases the efficiency of value creation(2).

1. Marketing value: a complex means-end chain

As presented in the first part of the thesis, marketing value is represented in a mean-end chain that starts with marketing actions, strategies, and resources that influences in order: customer perception, customer behavior, market value, economic and firm financial outcomes (Katsikeas et al., 2016; Rust et al., 2004). The literature suggests that the presence of a label delivers additional information and influences the consumers' purchase decisions. The transformation from quality signals to economic value is discussed further with the assessment of the market indicators as performance indicators (1), the comparison between the different quality signals we assessed in the studies (2), and the key role of consumers in the marketing chain (3).

1.1 Assessment of market value creation: relevance of indicators

Marketing performance cannot be assessed with "silver metrics", which means a single number or a single indicator. Whether it is with revealed or preference data, a silver metric is a trap, and performance assessment must be multidimensional (Ambler & Roberts, 2006). First because of the period of performance assessment, either short, middle, or long-term, and second because of the purpose of the assessment, such as planning future actions or returns, or assessing a current statement of the marketing returns. In this doctoral thesis, we assessed market outcomes with two main indicators: price and sales volumes. We acknowledge that the marketing margin analysis should take into consideration the cost related to quality improvement and the sales revenues to measure the profitability of improving credence quality. Missing information in analysis leads to incomplete results and restrain the interpretation of the study.

Concerning price and quantity, there are numerous measurement methods to assess the two indicators, and each of them reveals different information. The use of market data and customer

data allowed us to analyze marketing action outcomes with real purchase data and customer preferences. We consider the two assessments as complementary because the type of data does not give the same information. While market data are used to know the current trends, market shares, and weight of attributes within an unstable environment, experimental auctions reveal the customer mindset results of selected attributes and information about their habits. *"Behavioral effects, such as sales volumes and the price paid, can quickly be translated to financial equivalent but intermediate platform effects, such as intention to purchase or customer satisfaction, are another matter "* (Ambler et al., 2004, p. 743). The willingness-to-pay has been studied for quality ranges and quality signs, but we notice a lack of studies concerning the willingness-to-buy.

In a pure theory of utility, the price premium and the market price variation must affect sales volumes. Variables must be strongly related, but the analysis of customer demand revealed changes in customer behavior and the lack of influence of prices in certain cases. A weak inverse and reciprocal relation between willingness-to-pay and purchased quantity show certain independence between indicators and complementarity for generating value. Quality signals are publicly visible but the buyer does not receive a direct utility and does not pay less the product. In this context, the utility is not related to needs and any type of a rational decision, but related to a perceived utility of social and emotional value (Sheth et al., 1991), with respectively the scale of spirituality, considered social utility because it is related to the perception of themselves within the society, and the dimension of perceived value that influences mostly with the emotion dimension. The use of hedonic price, willingness-to-pay, and market price deliver more information with the combined analysis of quantity – sales volumes, willingness-to-buy, purchased quantity. The study of market shares and sales revenues revealed higher importance of sales volumes than the price in value creation in the case of a higher quality product.

Competition is not limited to price, and sales volumes do not react similarly to a price increase, depending on the variety, and intangible value creation.

1.2 Consumers: the main chain link for corporate social responsibility success

Among the firms' performance assessment, reducing cost is one of the internal ways of increasing the profitability of a company. In the case of increasing farm animal product quality, farmers are often – if not always, forced to increase their production cost. Extensive farming requires more land (decreasing the number of animals per square meter), higher quality of animal feeding (organic, non-genetically modified, unprocessed, national production…) and

different type of animal cares or environmental-friendly practices that imply extra cost. If farmers can implement some strategies to generate scale economies, they would hardly compensate for the investment. The market depends on the acceptance from stakeholders of paying a price premium. The actors of the value chain are important, but the response of the consumers is the main argument to convince other stakeholders. The creation of new trends, new consumer demand, and by extension new market shares is the opportunity to create value. We also pointed out the risks related to price variability for a higher quality product. The economic actors would bear the risk and support high-quality markets if they have security in consumer demand. Then, marketing research on customer demand and responses to quality signals is central to push corporate socially responsible actions and help firms succeeding in their social and environmental investments.

1.3 Official quality signs: from intangible resource to market-based asset

Official quality signs are part of marketing actions, used as stimuli to create customer value. They are used as intangible resources that affect the performance, first because it affects the cost, and second because it affects the revenues. This basic resource-based view explains the theoretical customer, market, and financial outcomes (Hooley et al., 2005). The firms employ the resource to create value, defined as an *"additional revenue minus the costs of generating the additional revenue"* (McWilliams & Siegel, 2011, p. 1492).

The success of using resources is not the sole resource itself, but the coordination of a set of resources that might lead to a competitive advantage. The previous studies have shown that the selected partners for distribution and the brand type are other resources that, all together, generate better revenues. The resources are managed to create market-based assets. There are several interrelated dimensions of the market-based assets, such as brand equity, customer satisfaction, and strategic relationship. All of these three dimensions can be impacted by the use of official quality signs. And it is only if the resources become an asset that the customer performance, market performance, and financial performance can occur (Srivastava et al., 1998).

The influence of stimuli on market performance must create the intermediate factor of market-based assets. We suggest that the transformation from the use of a resource to an asset is related to the consistency of the signals.

2. The necessity of consistency: a reflection about the 3C-SR models

The doctoral thesis has based a part of the reflection about performance on the 3C-SR model, which suggests that three dimensions are required to enhance the performance of socially responsible actions, namely the commitment, consistency, and the connections. Below, we discuss the necessity of performance and coherence (1) and introduce the concept of the price of conviction (2).

2.1 Coherence and performance

The corporate social performance is analyzed with the 3C-SR perception. We first discuss the coherence among signals, and then the effect of price.

2.1.1 Quality signals and market performance

Firms show their commitment to customers with the use of their resources, including the official quality signs. They develop a set of commitments made of the labels they use, other quality signs such as the brand or corporate image, and any involvement in the social or environmental process. When the set of commitments, reveals robust ethical standards, it enhances corporate legitimacy. Nevertheless, the set of commitments must be consistent over time and across all the facets of the firm. Inconsistency attracts critical attention and by extension increase skepticism. Finally, the firms' partners also play a role in the perceived global coherence of the corporation. The perceived credibility of social actions is higher with coherent business relationships.

The previous studies support the importance of coherence in value creation. We highlighted that the "label effect" varies according to the type of brand it is associated with (Larceneux & Renaudin, 2016), and the store type increase the customer performance in term of price acceptance.

The interaction of the store type and the organic label is the key to the organic product margin creation. Official quality signs have a positive impact on producers making high quality (Linnemer & Perrot, 2000), and create value upstream in the chain. The value creation depends on the stakeholders' relationships. They must share the risks related to higher quality (price variations, production variations) together (N. A. Morgan et al., 2009). The store is a partner and a quality signal. It influences the market results of marketing actions because they do not deliver the same perceived quality. *Because price sensitivity differs between consumer segments, price variations in different channels and through different levels of organic quality*

or added value could better meet consumer needs; if so, more differentiated certification, labeling, or branding would be required." (Aschemann-Witzel & Zielke, 2017, p. 241)

The empirical studies confirm the literature by showing a higher pricing strategy for super- and hypermarkets compared with discount stores (Rondán Cataluña et al., 2005). Customer price acceptance is different from one store to another. Dodds, Monroe, and Grewal found that the negative effect of a price increase is reduced when the consumer has information about the brand and the store name (1991, p. 317) and even more when the signals are consistent. Following our results, we suggest that the coherence among signals and relationships influence customer performance in terms of perceived quality and perceived value. This suggestion would explain the positive trend line for organic products' prices in specialized stores.

Concerned about the danger of over-interpretation, we would conclude that farm low-processed products create value with the use of the quality signals' coherence. All signals together, either coming from stakeholders, visual in-store signals, or firm reputation, transform the marketing resources into a marketing asset that modify customer perception and behavior.

2.1.2 Price and market performance

Consumers face a wide range of prices on the market. The importance of the price in the purchase decision is not similar among the products but depends on their quality. As mentioned above, the price does not hurt systematically the sales volumes. For example, lower pricing does not increase the sales of organics or Label Rouge products. The results confirm the work of Ngobo (2011) and Bezawada and Pauwels (2013). Reducing the prices of organic and label rouge quality is ineffective. The labeled products gain market shares and command a price premium that cannot be input in other quality range, as it would hurt the sales volumes. The high price for high quality does not deter market penetration and market shares (Phillips et al., 1983). This trend is in contradiction with the economic model of niche markets, which states that high-quality lead to higher prices and smaller market shares. *"To encourage those potential consumers actually to buy organic products it is necessary to make them more readily available in the supermarkets. The increasing involvement of the supermarkets may be seen as a "natural" progression of the marketing system as organic food becomes more and more mainstream."* (Latacz-Lohmann & Foster, 1997, p. 280-281). We infirm the findings of Chang and al (2010, p. 421) who found *"high price premiums observed for cage-free and organic eggs, [...] also reveal that the market shares for such products are very small."*

We confirm that *"quality is consistently an important factor determining market position and is not merely a strategy to be used only by small companies facing well-entrenched competitors"* (Phillips et al., 1983, p. 41). Indeed, any company can use quality to gain market position, as long as the company shows a certain consistency in its actions.

Official quality signs play an important role in pricing, but one must be careful in not rushing to judgment. The complexity of official quality success is confirmed, and many other factors lead to price premium acceptance.

2.2 The price of the conviction

The complex equation that leads from marketing resources to performance includes the conviction of the actors that the product is more valuable than others. In the case of corporate social performance, the price premium is linked to the intangible value of the product, and the customer conviction that the social or emotional values deserved to be paid. Non-commercial attributes of products and the increasing importance of social quality (Auger et al., 2008), are accepted despite a related price premium (Kehlbacher et al., 2012).

When a situation is seen in a moral light, people are more likely to make compromises and generate political implications in their behavior (Skitka, 2010). Conviction is one side of attitude, but reflect the core moral beliefs of individuals. It is strongly associated with emotion and leads to activist intentions (Skitka & Wisneski, 2011). The psychological approach suits business, and would be connected to the consumer activists[32] but also all economic actors that are in a militant approach of business and prioritize social issues over profitability. Conviction is a strong predictor of attitudes and a wide range of behaviors. The financial outcome in business would be the price of conviction, the specific price premium that is related to the conviction of customers that do not switch to lower quality range even with price increase, because they cannot act differently without hurting their own perception of hat is immoral.

3. From corporate social responsibility to marketing actions: a reflection about responsible practices

The responsible actions of firms are the concrete implementation of corporate social responsibility into the business. The first part of this doctoral thesis presented the corporate social responsibility in several perceptions and theories, including the consideration of internal

---

[32] From the French term « Consom'acteur"

and external stakeholders. This section aims to discuss the literature related to social responsibility in the current context (1) and the role of the public authorities in corporate social responsibility implementation (2).

3.1. The place is given to social and environmental performance in a free-market

On one side, a part of the stakeholders demands more social consideration, environmental-friendly practices, moral-driven actions, and ethics in business. On the other side, a plurality of firms with different considerations of what are their responsibilities and how to tackle societal issues. Based on the literature and the results of the empirical studies we conducted, we discuss the implication of firms into social responsibility (1) and their relations with the regulations (2).

3.1.1. Socially responsible or using market opportunities

Firms must respond to social demand to do not jeopardize their business. Social responsiveness is the pragmatic perception of ethical considerations that focus on the way to implement customers' consideration in the goods or services in the short or long-term. Using their resources, firms decide how they will respond to social pressure, from inactions to pro-actions. The firms which invest in social responses create value business and society. They offer micro-social contracts corresponding to the macro-social contract of corporate responsibility.

Following the 3C-SR perception of corporate social performance, the responses must curb the moral blindness and implement socially responsible actions in their organizations, and not only the minimum required to meet the social demand. Consumers respond positively to consistent deontological charter and accept the social contract in which firms support societal concerns, and customers support firms.

In the empirical studies of this doctoral thesis, the analysis of the demand confirmed that the low price does not compensate for the low level of social responsibility, confirming the work of Mohr and Webb (2005). In other words, the low level of social responsibility, which includes the production methods and the use of pesticides, for example, is not accepted even with a cheap offer. Consumers will not be attracted to a low price if the perceived social cost is considered too excessive. The social contract is transformed into the market.

For example, stores progressively stop selling battery hens' eggs because of a social trend that cares about farm animal welfare. The non-governmental organizations and the public authorities act as an important stakeholder in that change. Associations act as a third-party (Roguet et al., 2018) and enhance the perception of firms' social responsibility.

In this social contract, all stakeholders get new constraints (cost) and benefits (fairness, transparency, food safety, environment care, etc.). Business extended its responsibilities to all stakeholders that may be impacted directly or indirectly by the activities. The social contract is about creating social value and sharing the related cost. Social responsibility created a better symmetry between the buyers and producers, enhancing fairness and balance in the bargaining power along the value chain. In the long-term, shareholders may put pressure on other firms to force them to get certifications (Bouslah et al., 2013) and change the market dynamics from niche markets of higher social quality products to mainstream offers. We observed this phenomenon with free-range eggs, now market leaders, and Label Rouge oven-ready chicken.

The profitability of corporate social responsibility depends on the social contract, clearer and more reliable with consistency among the organization's decisions, and the acceptance of stakeholders to increase the tangible and intangible quality of the products and services, and the related risk and costs.

3.1.2. Laisser-faire, optional regulation and constraint

Society and public authorities ask for more responsible practices in the agri-food sector and call into question the capacity of firms to manage ethics for themselves. Firms curb the constraint and ask for freedom of capitalism instead of what Friedman called a "fundamentally subversive doctrine" (1970, p. 6). Corporate social responsibility is perceived as a strategy that makes only sense in the twenty-first century as it generates long-term profit and shareholders value (Vogel, 2005). From a business perception, firms will increase their responsible behavior and actions, not because they change in terms of morals and value, but because socially responsible moves will be a competitive advantage. Firms use philanthropy, partnerships with non-governmental associations, but also marketing actions such as country-of-origin claims, highlighting responsible practices in the production process, and showing fairness in their relationship with farmers. The system of official quality signs, but also the European directive for table eggs, for example, offers the possibility to companies to deliver a piece of extra information about higher quality without prohibiting practices that appear as not responsible. The tool is available with freedom of choice (Larceneux et al., 2012).

Our findings suggest that each optional marketing action and each quality sign will have different influences in the market. It appears than higher-quality takes advantage in the market of table eggs and oven-ready chicken. The analysis of fluid milk is not complete enough to compare the different quality, but we highlight a weakness of organic quality in increasing

market value indirect influence, and the use of intermediaries can be used by other stimuli than the organic label. Concerning the two other markets, label rouge and organic have opposite results. Label Rouge is a staple of oven-ready chicken quality, well-known, and purchased by consumers. It is the leader and the mainstream quality, whereas organic register very low market shares. Organic table eggs are in contrary gaining market shares, whereas the Label Rouge can be considered as a failure. But none of the official quality sign is the leader, and the highest non-labeled quality is now the new standard in the market.

Optional social responsibility allows firms to adapt themselves, innovate, and to find the most profitable way to implement social responsibility. For example, the social responsibility for oven-ready chicken has been largely profitable in the market, and the other tool of European directive with production process information is nowadays the most efficient. On the other hand, the multiple options offered to firms may be a constraint for social and environmental performance. Firms must be tempted to find the least investment in their responsibility in response to social demand, to extract the highest profit (Griethuysen, 2009).

Alternative production of intensive farming rethinks the market out of the box, and out of the demand law of supply and demand, with new value distribution. Without the detailed and controlled rules to do organic, but also fair or socially responsible production, economic actors would, under economic pressure, elaborate less coherent solutions (Padel et al., 2009). Harmonization of values and rules, optional or constrained, would increase the transparency and clarity of information, and by extension the efficiency.

3.2. Public policy efficiency

The public authorities can create new directives and rules to interfere in the market. We call into question the regulations that we have studied in the empirical studies (1) and identify political implications for other markets (2).

3.2.1. Political efficiency for marketing performance

The political authorities create new directives and tools to respond to the economical necessities of social expectations and political responsibilities. Public policies can influence customer behavior and support new trends in agribusiness. According to Larceneux and al. (2012), the judgment on food quality is based on four dimensions, including the process attribute of the product. Organic production, Label Rouge quality, and the European directive deliver information about the production process. It aims to improve transparency in the market with

simple information and rebalance the asymmetry. The differences in market results may be explained by public policy efficiency and the understanding of the added value.

Concerning table eggs, we suggest that the public authorities delivered clear information about the marking system, but failed the Label Rouge. The elasticity between Label Rouge and free-range show asymmetrical substitutability between the two products. We make two assumptions to explain the failure. First, we suggest that Label Rouge delivers lower quality information than organic and the marking system because they share the same code number, and the price difference is consequently higher for the Label Rouge. Moreover, Label Rouge benefits might be more confused than the health and environmental benefits of organic Label. We believe that the marking system was efficient to increase the importance of quality for customers thanks to the delivery of good information and a large scope of action. Oven-ready chicken reveals organic quality failure compared to Label Rouge, and we also suggest that information is unclear for organic benefits, whereas Label Rouge is a pioneer in the sector with a higher level of customer information.

Mandatory information such as egg code seems to enhance the market value and help optional information such as official quality signs to gain value. *"When a firm applies a HACCP[33] system, uncertainty reduction implies risk reduction stemming from consumption. Hence the higher the producer cost in providing attributes to consumers, the higher the equilibrium price level and the shadow price."* (Karipidis et al., 2005, p. 70). Following the authors, the European directive would be based on the consumers' value creation. The information in the market reduced the uncertainty about the quality and reduced perceived risks.

Nevertheless, stakeholders fear to achieve market saturation. The policymakers must support the marketing structure to handle a larger quantity and do not destroy the performance. The higher demand requires larger production, or it would increase competition among buyers and increase pressure on price (Latacz-Lohmann & Foster, 1997). The multiplication of extensive farming must be realistic. Nevertheless, constraints can generate innovation and performance (Ivan Dufeu & Le Velly, 2016).

---

[33] HACCP is a preventive system assuring the safe production of food products. The application of HACCP is based on technical and scientific principles that assure food safety. Source: https://food.unl.edu/introduction-haccp-training

3.2.2. Homogenization of information

Institutions face and respond to market failures, and must investigate beyond market trends to understand the determinant of behavior and prevent de cost related to irrationality (Ferey et al., 2013). Agri-food production has been regulated in many countries either by volumes or price, especially for milk production, with limited success (Gouin & Kroll, 2018). Regulation generates expenses for the states and must tackle societal issues to increase the performance of topics that do not attract firms and profitability but generate market opportunities. The management of market equilibrium in fresh food is central for public authorities because perishable goods are more delicate to manage and constitute a social necessity.

Coding seems to have changed the market of table eggs, empower one of the Label Rouge but more importantly disallows the lowest quality ranges. Signaling the quality of a higher product can, by extension, signaling the lack of quality of other products.

We suggest that customers understand better the quality of products in a homogenized frame in which all products are involved. The system of table egg codes is a frame in which the customer gets information about credence value and can rank production practices with their system of value. Moreover, the system does not hurt other marketing quality signals, and following our findings, is profitable and efficient only if turned into marketing assets. The increasing value of agri-food products is a stake for the independence of the sector and the economic autonomy of farmers.

Milk and oven-ready chicken could benefit from a quality frame to highlight the benefits linked to production. The mention of the products is mainly given by advertising and communication on packaging (outdoor breeding, fair price to farmers, no use of antibiotics, French or regional production, and other characteristics). The creation of a chart and a system of codes must make the information clearer and enhance the marketing assets with the use of a controlled by a third-party agency.

Implications, limits, and future research

This doctoral thesis had to gather several studies to get a better picture of how performance occurs for the responsible feature of agri-food products. We developed three studies that are complementary to understand the path from stimuli to financial outcomes in the market, mainly at retail stores but also along the value chain. Researchers must have the capacity to stand back from their work and assess it critically. We discuss below our studies and their implications (1) for the theory and the methodology, but also from a managerial and political perception. We also acknowledge limits to our studies (2) that facilitate future researches (3).

1. Implications

The comments concerning the implications for each study separately in the previous chapters were necessary to identify the outcomes of each finding with details. We now stand back and comment on the entire thesis to understand our overall contributions.

1.1. Theoretical implications

Ou work highlight the complexity of value creation due to the multitude of factors that influence the marketing actions outcomes of resources (1). On the light of 3C-SR, we sight the conditions of value creation and a new perception of market performance (2). Finally, we call into questions and rethink the marketing value chain and the variable relations.

1.1.1. *A better understanding of the relationship between responsible stimuli and financial outcomes*

The relations between the stimuli signaling a responsible practice and performance outcomes have been investigated along with this doctoral research. We highlighted and contrasted several axes of the theories.

- Value creation is a very complex phenomenon that occurs under peculiar conditions. Any change in the environment can modify the process of value creation. The role of the co-signals, such as brand, is important, and customer behavior depends on a plurality of factors difficult to grasp. The lack of direct effect between official quality signs and price or quantity reveals the inadequacy of the study focusing on one single attribute. We have demonstrated that official quality signs are the consequences of an understanding of the credence quality (Auger et al., 2008; Baltzer, 2004; Bismuth et al., 2018; Ochs et al., 2019). The credence quality can be generated by official quality signs but also other signals that may overlap official quality signs value but also substitute.

We confirmed that brands have an influence on price formation (Larceneux et al., 2012; Larceneux & Renaudin, 2016) and that stores are one of the factors of price acceptance.

- The diversity of consumers' responses is a constraint to analyze the market evolution and foresee the customers' reactions. All of the customers' criteria that might be in favor of performance, such as price sensitivity, reference price, the importance of health and environment, level of social concerns, etc. change among the subjects but is also modified from an intra-subject perception along time and with new knowledge and experiences. Market data are more relevant because it reveals the big trends and the niche market.

1.1.2. Performance on the light of 3C-SR

Information about quality does not necessarily conduct to higher market performance. We light up the necessity to look at value creation with the use of 3C-SR with three main aspects.

- We have shown that the analysis of performance by measuring the level of commitment, the type of connections, and the global product signals and firm's consistency is relevant to explain and foresee the performance of social actions. Then, a high commitment in a product social quality can fail if the connections are made with inconsistent stakeholders, or if other products from the same firms send opposite signals. A global coherence in terms of social responsibility signals are generating value (organic and specialized stores), whereas inconsistent quality image (organic and discount store) decreases the market value (price or willingness-to-buy) of organic quality. Global coherence increases the legitimacy of the high price (Blombäck & Scandelius, 2013).

- Marketing resources must be used to create marketing assets. This responsible asset that generates value is created if the three dimensions are gathered. All these dimensions are controllable by social organizations (Yuchtman & Seashore, 1967, p. 900), and can be implemented in a marketing strategy to generate returns to the firms.

1.1.3. Marketing value chain: the limits of the mean-end chain

We approached the marketing value creation with the mean-end chain of Katsikeas and al. (2016). With the light of the resource-based view and the complexity of social performance, we established different relations between the variable in a nonlinear chain.

Figure 65. The Marketing–Performance Outcome Chain and Exemplar Measures (adapted from Katsikeas and al, 2016)

FIRMS DECISIONS

Firms marketing resources, strategy and actions
- Brand
- OQS
- Stakeholders

Realized marketing program
- Commitment
- Connection
- Consistency

OPERATIONAL PERFORMANCE

Product-market performance
- Unit sales
- Price premium

Accounting performance
- Sales revenue
- Sales growth
- Profit
- Margin

CUSTOMER BACKGROUND

Customer personal beliefs
- Social and environmental concerns

Customer Experiences
- Reference price
- Previous purchase
- Satisfaction

Marketing assets
- Perceived value
- Spirituality

300

Firms' decisions must take into consideration the resources that they have or can acquire, and how to develop a program that responds to the three dimensions of commitment, connection, and consistency, to generate marketing assets in the eyes of the customers. What is called Customer Mindset in the model of the marketing-performance outcome chain is renamed as marketing assets. Moreover, we must include in marketing what we call a customer background. We distinguished the customer beliefs to the customer experiences and we suggest a reciprocal relationship between the two variables. The beliefs concerning the concerns of societal issues will improve the marketing assets as it would increase the value of features, especially emotion. Concerning the experiences, they interact with the dimension of quality of the perceived value. The perceived value of responsible products is the results of the program and its sub-dimensions, and the personal background of customers.

1.2. Methodological implications

Few marketing studies combine market data and experimental economics. The advantages of user preference data and state data in a methodological process lies in the investigation of an issue and the adaptation of the measurement methods. First, the investigation of the market movement during a period delivers information about the trends of the products. The analysis and identification of the market issue define better the research question and contribute to the exploration of the topic. The use of hedonic prices revealed the relevance of the attributes and confirmed the importance of taking into consideration a set of signals to understand the price formation and the market value. With a better understanding of verified market reactions, the elaboration of an experiment enables the researcher to isolate a phenomenon and understand its role in the market. The experimental auctions that have been used to understand the customer decision process for willingness-to-pay. We adapted the methodology to include quantity and if random price acceptance, and then enhance the quality of the experiment to adapt it to the market, because we identified the necessity of purchased quantity to assess performance, and because the price variation should generate different reaction for high and low-quality products. This method for analyzing product performance is an interesting alternative to other methodologies: the reality of the data in the first phase and the mechanism of auction curb the assumptions made on only hypothetical data, and get the analysis closer to the reality.

1.3. Managerial implications

The food market trends have shown positive evolution and current statement for high credence quality products. Nevertheless, and as discussed above, the increase of market shares requires

few conditions concerning the connections and the nature of stakeholders, the consistency within the firms' practice, and the degree of commitment into responsible practices. We divide the implications according to these dimension of performance to give some guidelines to managers and professionals that must be willing to invest in corporate social responsibility implementation.

1.3.1. Enhancing value with connections

Connections are approached at two levels. The first level is the choice of the stakeholders that send a signal in-store. We make here a reference to the store type that is chosen to distribute the product. The choice of the connections can either enhance or decrease the product-market performance because the "co-signal" effect is less effective that independent signals. In that sense, discount stores, because of a low-quality image and a low-price image, will affect the market price because of the lower price premium acceptance of customers. Not only important for brand image, but the choice of the distributor can also affect the responsible choice implementation, and decrease the sales revenues. Moreover, each store type has a specific customer target that can reveal different price sensitivity or social concerns. The target of the stakeholders must be adapted to the firms' target.

The second choice of the stakeholder is based on the value chain perception. The Label Rouge chain distributes the value creation with more fairness between the actors. The stakeholders sharing the same conviction toward corporate social responsibility must be able to support each other in the case of cost increase or production decrease. If responsible firms and stakeholders share the risks and cost all along the value chain, they all contribute to the marketing margin creation and the fair distribution of value, increasing the sustainability of the chain in the long-term.

1.3.2. Enhancing value with consistency

"Consistency refers to the behavioral element of social resources over time and across all facets of an organization's operation." (Meehan et al., 2006, p. 395). All the resources that are used by the firm must be a coherent and sustained commitment to signal socially responsible business practices. The brands have importance, and all other signals such as packaging, other certifications, brand name, etc. If not, the social performance does not reach a sufficient level to convince the customer, it decreases the price premium acceptance and can even decrease the willingness-to-buy. This consistency joins the connections importance and the necessity of

302

consistency with the degree of commitment. Social responsibility must be a whole objective to create value. Limited involvement in social practices will lead to mild or no growth.

1.3.3. Enhancing value with commitment

Ethical and social commitments must encompass the economic, social, and legal objectives of corporate social responsibility. Robust standards and clear information are the keys to commitment success. The information must be accredited and controlled by an independent third-party to show transparency and involvement of "good ethics and good business". For stores, this commitment can be difficult to manage because of the plurality of product quality they offer. Conventional super and hypermarkets gather plenty of offers. They now organize by area, with organic areas, discount areas, world cuisine areas, etc. As we mentioned above, they also start to specialize in some outlets, like organic Carrefour in Paris. The necessity of consistency in-store is a major concern to increase responsible product performance.

1.4. Political implication

The challenge for the European Union is to enhance food quality and make the agribusiness sustainable in terms of economy, but also to protect the society (e.g. employment, cultures) and the lands in long-term exploitation. In a context of liberal economy, they try to constrain but not prohibit the market. In this doctoral thesis, we have studied the performance of official quality signs, voluntary and optional tools. Signaling good practices helps socially responsible firm to signal their implication to respond to societal needs, and do not hurt not responsible practices. The resource must be allied to other signals to create marketing assets and increasing market competition and performance. On the contrary, the coding system constrains all actors in the sector and signal also the low responsible practices. The coding system seems to have been more efficient to increase credence quality performance in the market. We believe that the ranking system is more efficient to deliver clearer information to customers and increase the market value of socially responsible practices. The coding system is not completely inconsistent with a free-market policy because it does not prohibit the practice, but increase transparency and symmetry of information. We encourage public policy for managing transparency and information in the market and would suggest the implementation of a similar system for other food sectors.

2. Limits

We took a lot of precautions during the model elaborations, experiment conduction, data treatment, and results' interpretation. Nevertheless, among the choices we had to make for the feasibility of the research and the coherence with data, we were not able to avoid some limitations that we describe below.

2.1. Population and samples

The studies were focused on the French market and French customers. We have made this choice because of several factors. First, the official quality signs do not have the same notoriety in other European countries, especially the Label Rouge which exist in all Europe but are mostly known in France, where it has been created. Moreover, other countries have other labels and certifications that can compete with the official quality signs, and create noise in our data treatment. Finally, the differences in culture may have been a barrier to data interpretation. As we mentioned, environmental and social concerns are important in decisions, and a plurality of cultural background may have decreased the relevance of the study. Nevertheless, this study deals with European policy implementations and should be extended to other countries with the consideration or their market specificities.

Concerning the studied sample of the experiment, we have two main limitations. The first data collection shows a majority of respondents from the south of France, and especially from Montpellier. Moreover, the level of education was higher than the mean of the French population. We balanced this limitation by the use of a customer panel. Nevertheless, the customer panels are conducted on people that are used to answer questionnaires and might have less implication in answering, decreasing the level of reliability. Combining the answers and using several methods of data collections, we limited the related issues.

2.2. Data caracteristics

The market data present several advantages that we mentioned in the second part of the thesis. Nevertheless, we must recognize that they also present limitations that constrain the interpretation of the results. The information was aggregated and present a lack of details. The studies would show higher quality if we would have been able to get databases with all information for each product: brand, store type, and quality. We had to analyze each feature separately, and make sets of equations instead of a global equation.

Moreover, the data are time series of dynamic markets. The place of each quality ranges evolved along the period, and niche or restraint market became mainstream. The table eggs is the most dynamics and present today free-range and organic as mainstream, whereas the former leader, battery hens' eggs, is slowly disappearing. Also, free-range oven-ready chicken are gaining market shares, and the standard indoor breading are slowly replaced by the free-range. Credence quality importance change in the society and are reflected in the market dynamics of animal-based products.

2.3. Experiment methodology

The experiment presents two main limitations of its methodology. First, we have been conducted the assessment of the perceived value with the random price. We were conscious of the biases of lower and higher prices compared to the participant auctions, and the potential perception of promotion in the new price, stimulating the purchase of extra quantity. The decision of not using the auction to assess perceived value was based on the limited reliability of the judgment of participant own-answers, and the intention of comparing the answers according to neutral price. But this decision lead to a limitation of results interpretation, and we should not rush in random price acceptance judgment.

3. Future research

Marcus Aurelius Antoninus wrote that *"Nothing has such power to broaden the mind as the ability to investigate systematically and truly all that comes under thy observation in life"* (Antoninus, 1944). A science research investigates life with a single question, and end up with plenty of new questions. We have observed market phenomenon and customer actions and reactions towards socially responsible signals. We identified market mechanisms, performance factors, and we suggested relations. We invite researchers to investigate these suggestions and phenomena with future research.

3.1. Measuring the level of commitment, consistency, and connection

Future studies must analyze the transformation from marketing resources combination and coherence into marketing assets for socially responsible products. This multifactorial assessment should be assessed with scales, to understand the perception of these three dimensions. The elaboration of the perceived consistency in responsibility could improve future research and assess the efficiency of the 3C-SR in product-market performance.

Aside from the necessity of an adapted measurement scale, we suggest to assess signals in a set of other signals and not independently. The value overlapping of signals, and the complexity of the customer value perception in the market make the studies irrelevant if taken independently.

3.2. Assessing the distribution of created value along the chain

We briefly analyzed the value distribution in the production chain and noticed differences in the case of socially responsible products. The power of connection to create value and have a fair distribution (and we use fair referring to socially responsible business practices) must be investigated from a financial perception taking into consideration the cost related to social practices investment, and the market price margins, to see if profitability is better distributed among actors in case of socially responsible production.

3.3. The price of convictions

We also believe that the value distribution and the success of performance depend on the conviction of the actors. The degree of commitment might be correlated with the actors' conviction, and the target must also have a certain level of conviction to accept the price premium. Measuring the relation between the conviction and the price acceptance along the value chain would have several managerial implications concerning the connections, but also to give public authorities and marketers some guidelines to convince customers about the necessity of responsible practices.

3.4. Investigate responsible practices coding system effects

The coding systems are investigated in Europe in several food sectors. Recently, the "Nutri-Score"[34] has been launched in the market, an optional tool to indicate the nutritional value and healthiness of a product with a letter and color code that gives information on the quality value of the food products. The non-mandatory policy might here again, like for organic labels, increase the asymmetry of information. Future research should investigate the differences in customers' behavioral reactions in the case of the absence and the presence of low-quality signals. The experiment must be conducted to indicate if the product-market performance of socially responsible products is higher is not responsible actors must indicate their practices.

---

[34] Source: https://www.mangerbouger.fr/Manger-mieux/Comment-manger-mieux/Comment-comprendre-les-informations-nutritionnelles/Qu-est-ce-que-le-Nutri-Score

Key elements

- Marketing value chain
  - More complex than a mean-end chain
  - Requires the analysis of a set of signals to assess the product-market performance
  - Customers are the key actor because demand is the only way to compensate the cost related to responsible activities
  - Official quality signs must be treated as a marketing resource and not an asset
- 3C-SR model
  - Commitment, consistency and connections are three pillars of social responsibility market performance
  - The global coherence of social responsibility of a firm generate a higher price acceptance
  - Customer, as a stakeholder, must be convinced about the importance of social and environmental good practices
- Corporate social responsibility
  - Social responsibility can create new opportunity and facilitate innovations
  - Public policies can push social responsible practices by increasing information transparency and homogenize market information without hurting free-market
- Implications
  - Theoretical
    - Better understanding of the stimuli implication in market-product performance
    - Performance in the light of the 3C-SR model
    - Highlighting the mean-end chain model complexity
  - Methodological
    - Mix-method with preference and stated data
    - Elaboration of experimental economics with implementation of auctions and purchase quantity
  - Managerial
    - Consideration commitment, consistency and connections to enhance the socially responsible product profitability
    - Considering connections to share the risks generated my social and environmental responsibility and to distribute the value along the chain with fairness
  - Politics
    - Comparing the "good practices" system with the system of mandatory information about credence quality
- Limits
  - French population
  - Aggregated market data with lack of details
  - Methodology of the experiment limited to one perceived value of random price
- Future research
  - Creating a scale for perceived coherence of socially responsible products
  - Assessing the value creation distribution along the value chain
  - Understanding the relation between the conviction, the commitment and the price premium acceptance in a trade
  - Investigate responsible practices coding system as a regulation for food products

BIBLIOGRAPHY

Abraham, A., & Patro, S. (2014). 'Country-of-Origin' Effect and Consumer Decision-making. *Management and Labour Studies, 39*(3), 309-318.

Achilleas, K., & Anastasios, S. (2008). Marketing aspects of quality assurance systems: The organic food sector case. *British Food Journal, 110*(8), 829-839.

Acquier, A., & Aggeri, F. (2015). Une généalogie de la pensée managériale sur la RSE. *Revue Française de Gestion, 41*(253), 387-413.

Adalja, A., Hanson, J., Towe, C., & Tselepidakis, E. (2015). An examination of consumer willingness to pay for local products. *Agricultural and Resource Economics Review, 44*(3), 253–274.

Agence Bio. (2016). *La bio en France des producteurs aux consommateurs.* http://www.agencebio.org/sites/default/files/upload/documents/4_Chiffres/Broch ureCC/cc2016_france_1.pdf

Agence Bio. (2018). *Baromètre de consommation et de perception des produits biologiques en France* (Rapport d'étude quantitatives N° 1400610). http://www.agencebio.org/sites/default/files/upload/documents/4_Chiffres/Baro metreConso/barometre_agence_bio_public.pdf

Agence Bio. (2019a). *Le marché alimentaire bio en 2018.* https://www.agencebio.org/vos-outils/les-chiffres-cles/

Agence Bio. (2019b). *Un ancrage dans les territoires et une croissance soutenue.* https://www.agencebio.org/vos-outils/les-chiffres-cles/

Agence Bio. (2020). *Edition 2020 du baromètre de consommation et de perception des produits biologiques en France.* https://www.agencebio.org/vos-outils/les-chiffres-cles/

Ailawadi, K. L., Borin, N., & Farris, P. W. (1995). Market power and performance: A cross-industry analysis of manufacturers and retailers. *Journal of Retailing, 71*(3), 211-248.

Ailawadi, K. L., & Harlam, B. (2004). An Empirical Analysis of the Determinants of Retail Margins: The Role of Store-Brand Share. *Journal of Marketing, 68*(1), 147-165.

Akaichi, F., Nayga Jr, R. M., & Gil, J. M. (2012). Assessing consumers' willingness to pay for different units of organic milk: Evidence from multiunit auctions. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie, 60*(4), 469–494.

Akdeniz, M. B., Calantone, R. J., & Voorhees, C. M. (2014). Signaling quality: An examination of the effects of marketing-and nonmarketing-controlled signals on perceptions of automotive brand quality. *Journal of Product Innovation Management, 31*(4), 728-743.

Akerlof, G. A. (1970). The market for" lemons": Quality uncertainty and the market mechanism. *The quarterly journal of economics,* 488-500.

Alchian, A. A., & Demsetz, H. (1972). Production, Information Costs, and Economic Organization. *The American Economic Review, 62*(5), 777-795. JSTOR.

Alfnes, F. (2009). Valuing product attributes in Vickrey auctions when market substitutes are available. *European Review of Agricultural Economics, 36*(2), 133–149.

Amadieu, P., & Viviani, J.-L. (2010). Intangible effort and performance: The case of the French wine industry. *Agribusiness, 26*(2), 280-306. 26

Ambler, T., Kokkinaki, F., & Puntoni, S. (2004). Assessing Marketing Performance: Reasons for Metrics Selection. *Journal of Marketing Management, 20*(3-4), 475-498.

Ambler, T., & Roberts, J. (2006). Beware the Silver Metric: Marketing Performance Measurement Has to Be Multidimensional. *Marketing Science Institute.*

https://www.msi.org/working-papers/beware-the-silver-metric-marketing-performance-measurement-has-to-be-multidimensional/

Amine, A. (1999). *Le Comportement du consommateur face aux variables d'action du marketing*. Ed. Management et société.

Andersen, L. M. (2011). Animal Welfare and Eggs – Cheap Talk or Money on the Counter? *Journal of Agricultural Economics, 62*(3), 565-584.

Anderson, W. T., & Cunningham, W. H. (1972). The Socially Conscious Consumer. *Journal of Marketing, 36*(3), 23-31.

Angulo-Ruiz, F., Donthu, N., Prior, D., & Rialp, J. (2014). The financial contribution of customer-oriented marketing capability. *Journal of the Academy of Marketing Science, 42*(4), 380-399.

Anselmsson, J., Vestman Bondesson, N., & Johansson, U. (2014). Brand image and customers' willingness to pay a price premium for food brands. *Journal of Product & Brand Management, 23*(2), 90-102.

Antoninus, M. A. (1944). Book III. In *The Meditations of the Emperor Marcus Antoninus*. Oxford University Press; Wikisource.

Apfelbaum, M. (1998). *Risques et peurs alimentaires*. Odile Jacob.

Arndt, J. (1981). The Political Economy of Marketing Systems: Reviving the Institutional Approach. *Journal of Macromarketing, 1*(2), 36-47.

Aschemann-Witzel, J., & Niebuhr Aagaard, E. M. (2014). Elaborating on the attitude–behaviour gap regarding organic products: Young Danish consumers and in-store food choice. *International Journal of Consumer Studies, 38*(5), 550–558.

Aschemann-Witzel, J., & Zielke, S. (2017). Can't buy me green? A review of consumer perceptions of and behavior toward the price of organic food. *Journal of Consumer Affairs, 51*(1), 211–251.

Aslihan Nasir, V., & Karakaya, F. (2014). Consumer segments in organic foods market. *Journal of Consumer Marketing, 31*(4), 263–277.

Assemblée nationale ~ Première séance du mardi 22 mai 2018. (s. d.). Consulté 6 janvier 2020, à l'adresse http://www.assemblee-nationale.fr/15/cri/2017-2018/20180217.asp

Auger, P., Devinney, T. M., Louviere, J. J., & Burke, P. F. (2008). Do social product features have value to consumers? *International Journal of Research in Marketing, 25*(3), 183-191.

Aurier, Ph. (2006). Mixer marque privée et origine géographique: Quelles stratégies pour quels résultats dans une PME agroalimentaire? *La stratégie dans tous ses états. Mélanges en l'honneur du professeur Michel Marchesnay. Paris: Economica.*

Aurier, Philippe, Couderc, J.-P., & others. (2012). *Stratégies de marque: Pour quelle création de valeur? Application aux entreprises agroalimentaires du Languedoc-Roussillon.*

Aurier, Philippe, Evrard, Y., & N'goala, G. (2004). Comprendre et mesurer la valeur du point de vue du consommateur. *Recherche et Applications en Marketing (French Edition), 19*(3), 1–20.

Aurier, Philippe, & Fort, F. (2005). Effets de la région d'origine, du produit, de la marque et de leurs congruences, sur l'évaluation des consommateurs: Application aux produits agroalimentaires. *Recherche et Applications en marketing, 20*(4), 29-52.

Auriol, E., & Schilizzi, S. G. (2015a). Quality signaling through certification in developing countries. *Journal of Development Economics, 116*, 105–121.

Auriol, E., & Schilizzi, S. G. M. (2015b). Quality signaling through certification in developing countries. *Journal of Development Economics, 116*, 105-121.

Bagwell, K., & Riordan, M. H. (1991). High and Declining Prices Signal Product Quality. *The American Economic Review, 81*(1), 224-239. JSTOR.

Bahadir, S. C., Bharadwaj, S., & Parzen, M. (2009). A meta-analysis of the determinants of organic sales growth. *International Journal of Research in Marketing, 26*(4), 263-275.

Bai, X., & Chang, J. (2015). Corporate social responsibility and firm performance : The mediating role of marketing competence and the moderating role of market environment. *Asia Pacific Journal of Management, 32*(2), 505-530.

Baltzer, K. (2004). Consumers' willingness to pay for food quality – The case of eggs. *Acta Agriculturae Scandinavica, Section C — Food Economics, 1*(2), 78-90.

Barham, E. (s. d.). *Towards a theory of values-based labeling.* 12.

Barney, J. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management, 17*(1), 99-120.

Basoglu, K. A., & Hess, T. J. (2014). Online business reporting : A signaling theory perspective. *Journal of Information systems, 28*(2), 67–101.

Becchetti, L., Ciciretti, R., & Hasan, I. (2015). Corporate social responsibility, stakeholder risk, and idiosyncratic volatility. *Journal of Corporate Finance, 35*, 297-309.

Becker, G. M., Degroot, M. H., & Marschak, J. (1964). Measuring utility by a single-response sequential method. *Behavioral Science, 9*(3), 226-232.

Benghozi, P.-J., & Paris, T. (2003). De l'intermédiation à la prescription : Le cas de la télévision. *Revue française de gestion, 29*(142), 205-228.

Berger, L. (1989). Economics and Hermeneutics. *Economics and Philosophy, 5*, 209-234.

Bernard, J. C., & Bernard, D. J. (2009). What is it about organic milk ? An experimental analysis. *American Journal of Agricultural Economics, 91*(3), 826-836.

Bernard, J. C., & Bernard, D. J. (2010). Comparing parts with the whole : Willingness to pay for pesticide-free, non-GM, and organic potatoes and sweet corn. *Journal of Agricultural and Resource Economics,* 457–475.

Bernard, J. C., Zhang, C., & Gifford, K. (2006). An experimental investigation of consumer willingness to pay for non-GM foods when an organic option is present. *Agricultural and Resource Economics Review, 35*(2), 374–385.

Bezawada, R., & Pauwels, K. (2013). What is special about marketing organic products ? How organic assortment, price, and promotions drive retailer performance. *Journal of Marketing, 77*(1), 31-51.

Bhattacharya, C. B., Korschun, D., & Sen, S. (2009). Strengthening Stakeholder–Company Relationships Through Mutually Beneficial Corporate Social Responsibility Initiatives. *Journal of Business Ethics, 85*(S2), 257-272.

Bismuth, R., Demaret, A., Concetto, A. D., Epstein, A.-S., Rouxel, M., & Soubigou, Y. (2018). La concurrence des normativités au cœur de la labellisation du bien-être animal. *Revue internationale de droit economique, t. XXXII*(3), 369-392.

Blombäck, A., & Scandelius, C. (2013). Corporate heritage in CSR communication : A means to responsible brand image? *Corporate Communications: An International Journal, 18*(3), 362-382.

Bonnet, C., & Bouamra-Mechemache, Z. (2015). Organic label, bargaining power, and profit-sharing in the French fluid milk market. *American Journal of Agricultural Economics, 98*(1), 113–133.

Bonnieux, F., Appéré, G., Nassiri, A., & Travers, M. (s. d.). *Évaluation des bénéfices environnementaux par la méthode des prix hédonistes : Une application au cas du littoral.* Consulté 1 avril 2020, à l'adresse https://www-cairn-info.ezpum.biu-montpellier.fr/revue-economie-et-prevision-2008-4-page-47.htm

Bonroy, O., & Constantatos, C. (2008). On the use of labels in credence goods markets. *Journal of Regulatory Economics, 33*(3), 237–252.

Botonaki, A., Polymeros, K., Tsakiridou, E., & Mattas, K. (2006). The role of food quality certification on consumers' food choices. *British Food Journal, 108*(2), 77-90.

Boulding, W., & Kirmani, A. (1993). A Consumer-Side Experimental Examination of Signaling Theory: Do Consumers Perceive Warranties as Signals of Quality? *Journal of Consumer Research, 20*(1), 111-123.

Boulstridge, E., & Carrigan, M. (2000). Do consumers really care about corporate responsibility? Highlighting the attitude—behaviour gap. *Journal of Communication Management, 4*(4), 355-368.

Bouslah, K., M'zali, B., & Turcotte, M.-F. (2013). 13-Certifications et performances financières. In *Repenser la responsabilité sociale de l'entreprise* (p. 231-242). Armand Colin.

Bowen, H. R. (2013). *Social Responsibilities of the Businessman.* University of Iowa Press.

Bowman, C., & Ambrosini, V. (2000). Value Creation Versus Value Capture: Towards a Coherent Definition of Value in Strategy. *British Journal of Management, 11*(1), 1-15.

Bradu, C., Orquin, J. L., & Thøgersen, J. (2014). The mediated influence of a traceability label on consumer's willingness to buy the labelled product. *Journal of Business Ethics, 124*(2), 283–295.

Brantsæter, A. L., Ydersbond, T. A., Hoppin, J. A., Haugen, M., & Meltzer, H. M. (2017). Organic Food in the Diet: Exposure and Health Implications. *Annual Review of Public Health, 38*(1), 295-313.

Breidert, C., Hahsler, M., & Reutterer, T. (2006). A review of methods for measuring willingness-to-pay. *Innovative Marketing, 2*(4), 25.

Breuer, W., Müller, T., Rosenbach, D., & Salzmann, A. (2018). Corporate social responsibility, investor protection, and cost of equity: A cross-country comparison. *Journal of Banking & Finance, 96*, 34-55.

Breusch, T. S., & Pagan, A. R. (1979). A Simple Test for Heteroscedasticity and Random Coefficient Variation on JSTOR. *Econometrica, 47*(5). https://doi.org/10.2307/1911963

Briesch, R. A., Krishnamurthi, L., Mazumdar, T., & Raj, S. P. (1997). A Comparative Analysis of Reference Price Models. *Journal of Consumer Research, 24*(2), 202-214.

Brij, K., Bloemer, J., & Kasper, H. (2011). Country-of-Origin Effects on Perceived Brand Positioning—ScienceDirect. *Journal of Business Research*, 1259-1269.

Brønn, P. S., & Vrioni, A. B. (2001). Corporate social responsibility and cause-related marketing: An overview. *International Journal of Advertising, 20*(2), 207-222. 7

Bryman, A. (1984). The Debate about Quantitative and Qualitative Research: A Question of Method or Epistemology? *The British Journal of Sociology, 35*(1), 75-92. JSTOR.

Carricano, M., Poujol, F., & Bertrandias, L. (2010). *Analyse de données avec SPSS®.* Pearson Education France.

Carroll, A. B. (1979). A three-dimensional conceptual model of corporate performance, 4 (4), 497–505. *Carroll, AB (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders, 34*(4), 39–48.

Carroll, Archie B. (1979). A Three-Dimensional Conceptual Model of Corporate Performance. *Academy of Management Review, 4*(4), 497-505.

Carter, C., Krissoff, B., & Zwane, A. P. (2006). Can Country-of-Origin Labeling Succeed as a Marketing Tool for Produce? Lessons from Three Case Studies. *Canadian Journal of Agricultural Economics/Revue canadienne d'agroeconomie, 54*(4), 513–530.

Chandrashekaran, R. (2001). The implications of individual differences in reference price utilization for designing effective price communications. *Journal of Business Research, 53*(2), 85-91.

Chang, J. B., Lusk, J. L., & Norwood, F. B. (2010). The price of happy hens: A hedonic analysis of retail egg prices. *Journal of Agricultural and Resource Economics*, 406–423.

Chapman, J., & Wahlers, R. (1999). A revision and empirical test of the extended price-perceived quality model. *Journal of Marketing Theory and Practice, 7*(3), 53–64.

Charreaux, G. (2014). *Finance d'entreprise.* Éditions EMS.

Clark, B., Stewart, G. B., Panzone, L. A., Kyriazakis, I., & Frewer, L. J. (2017). Citizens, consumers and farm animal welfare : A meta-analysis of willingness-to-pay studies. *Food Policy, 68,* 112-127.

Clark, J. M. (1916). The changing basis of economic responsibility. *Journal of political economy, 24*(3), 209–229.

Clark, W. H. (1958). *The psychology of religion* (p. xii, 485). Macmillan.

Clarkson, M. E. (1995). A Stakeholder Framework for Analyzing and Evaluating Corporate Social Performance. *Academy of Management Review, 20*(1), 92-117.

CNIEL. (2020). *L'économie laitière en chiffres.* www.filiere-laitiere.com

Cooper, L. G. (1988). Competitive Maps: The Structure Underlying Asymmetric Cross Elasticities. *Management Science.*

Cruz, L. B., & Boehe, D. M. (2008). *CSR in the global marketplace : Towards sustainable global value chains*

CSA - « Perception et consommation des œufs en France ». (2013). csa.eu. https://www.csa.eu/fr/survey/perception-et-consommation-des-oeufs-en-france

Curzi, D., & Pacca, L. (2015). Price, quality and trade costs in the food sector. *Food Policy, 55,* 147–158.

Darby, M. R., & Karni, E. (1973). Free competition and the optimal amount of fraud. *The Journal of law and economics, 16*(1), 67–88.

Davis, K. (1967). Understanding the social responsibility puzzle. *Business Horizons, 10*(4), 45-50.

Davis, K. (1973). The Case for and Against Business Assumption of Social Responsibilities. *Academy of Management Journal, 16*(2), 312-322.

De Bry, F. (2008). Concept d'éthique l'éthique au cœur du management. *Management Avenir, n° 20*(6), 102-114.

De George, R. T. (1987). The status of business ethics : Past and future. *Journal of Business Ethics, 6*(3), 201-211.

Deanna Wang, H.-M. (2010). Corporate social performance and financial-based brand equity. *Journal of product & Brand management, 19*(5), 335–345.

DevelopmentCoreTeam, R. (2005). R: A language and environment for statistical computing, R Foundation for Statistical Computing, Vienna, Austria, ISBN3 · 900051 · 07-0, The R Project for Statistical Computing , *www. R-project.*

Dietsch, M., Bayle-Tourtoulou, A.-S., & Krémer, F. (2000). Les déterminants de l'élasticité prix des marques. *Recherche et Applications en Marketing (French Edition), 15*(3), 43–53.

Dodds, W. B., Monroe, K. B., & Grewal, D. (1991). Effects of Price, Brand, and Store Information on Buyers' Product Evaluations. *Journal of Marketing Research (JMR), 28*(3), 307-319.

Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation : Concepts, evidence, and implications. *Academy of management Review, 20*(1), 65–91.

Drichoutis, A. C., Lazaridis, P., & Nayga Jr, R. M. (2008). The role of reference prices in experimental auctions. *Economics Letters, 99*(3), 446–448.

Dufeu, I., Ferrandi, J.-M., Gabriel, P., & Le Gall-Ely, M. (2014). Multi-labellisation socio-environnementale et consentement à payer du consommateur. *Recherche et Applications En Marketing, 29*(3), 34-55.

Dufeu, Ivan, & Le Velly, R. (2016). Quelle régulation pour les filières biologiques ? *Innovations Agronomiques, 51,* 67-76.

Dunfee, T. W., & Donaldson, T. (1999). Tightening the Ties That Bind—Defending a Contractarian Approach to Business Ethics. *American Business Law Journal, 37,* 579.

El Ghoul, S., Guedhami, O., Kwok, C. C. Y., & Mishra, D. R. (2011). Does corporate social responsibility affect the cost of capital? *Journal of Banking & Finance, 35*(9), 2388-2406.

El-Ansary, A. I. (1974). Towards a definition of social and societal marketing. *Journal of the Academy of Marketing Science, 2*(2), 316-321.

Ellen, P. S., Webb, D. J., & Mohr, L. A. (2006). Building Corporate Associations: Consumer Attributions for Corporate Socially Responsible Programs. *Journal of the Academy of Marketing Science, 34*(2), 147-157.

Erdem, T., & Swait, J. (1998). Brand equity as a signaling phenomenon. *Journal of consumer Psychology, 7*(2), 131–157.

Eteokleous, P. P., Leonidou, L. C., & Katsikeas, C. S. (2016). Corporate social responsibility in international marketing: Review, assessment, and future research. *International Marketing Review, 33*(4), 580-624.

European Commission. (2019a). *Corporate Social Responsibility, Responsible Business Conduct, and Business & Human Rights: Overview of Progress* (Commission Staff Working Document SWD(2019)).

European Commission. (2019b). *Reflection paper towards a sustainable Europe by 2030* (COM(2019)22).

European Commission. (2001). *Green Paper Promoting a European framework for Corporate Social Responsibility* [Policy Document]. http://eur-lex.europa.eu/LexUriServ/site/en/com/2001/com2001_0366en01.pdf

Evrard, Y., Pras, B., & Roux, E. (2009). *Market, Fondements et méthodes des recherches en marketing* (4ᵉ éd.). Dunod.

Farooq, O., Payaud, M., Merunka, D., & Valette-Florence, P. (2014). The Impact of Corporate Social Responsibility on Organizational Commitment: Exploring Multiple Mediation Mechanisms. *Journal of Business Ethics, 125*(4), 563-580.

Fatemi, A., Fooladi, I., & Tehranian, H. (2015). Valuation effects of corporate social responsibility. *Journal of Banking & Finance, 59,* 182-192.

Fatemi, A. M., & Fooladi, I. J. (2013). Sustainable finance: A new paradigm. *Global Finance Journal, 24*(2), 101–113.

Fédération Nationale d'Agriculture Biologique. (s. d.). *Histoire de l'agriculture biologique et création de la FNAB* [Fédération Nationale d'Agriculture Biologique]. http://www.fnab.org/index.php/un-reseau-des-valeurs-des-hommes/historique/2-lhistoire-de-lagriculture-biologique-a-travers-quelques-ouvrages-

Feng, H., Morgan, N. A., & Rego, L. L. (2015). Marketing department power and firm performance. *Journal of Marketing, 79*(5), 1-20.

Ferey, S., Gabuthy, Y., & Jacquemet, N. (2013). L'apport de l'économie expérimentale dans l'élaboration des politiques publiques. *Revue francaise d'economie, Volume XXVIII*(2), 155-194.

Fischbacher, U. (2007). z-Tree: Zurich toolbox for ready-made economic experiments. *Experimental economics, 10*(2), 171–178.

France Agrimer. (2018). *Consommation de produits laitiers en 2018* [Annuel].

FranceAgriMer. (2020). *Les marchés des produits laitiers, carnés et avicoles. Bilan 2019 et perspectives 2020.* https://www.franceagrimer.fr/Actualite/Filieres/Lait/2020/PUBLICATION-du-BILAN-ANNUEL-Les-marches-des-produits-laitiers-carnes-et-avicoles.-Bilan-2019-et-perspectives-2020

Frederick, W. C. (1978). From CSR1 to CSR2: The maturing of business and society thought (Working Paper 279). *Graduate School of Business, University of Pittsburgh.*

Frederick, William C. (1986). Toward CSR3: Why Ethical Analysis is Indispensable and Unavoidable in Corporate Affairs. *California Management Review, 28*(2), 126-141.

Freeman, R. E., & Reed, D. L. (1983). Stockholders and stakeholders: A new perspective on corporate governance. *California management review, 25*(3), 88–106.

Friedman, M. (1970). The Social Responsibility of Business Is to Increase Its Profits. In W. C. Zimmerli, M. Holzinger, & K. Richter (Éds.), *Corporate Ethics and Corporate Governance* (p. 173-178). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-540-70818-6_14

Frisch, R. (1933). Editor's Note. *Econometrica, 1*(1), 1–4.

Funk, T. F., & Phillips, W. (1990). Segmentation of the market for table eggs in Ontario. *Agribusiness, 6*(4), 309-327.

Gabor, A., Granger, C. W. J., & Sowter, A. P. (1970). Real and hypothetical shop situations in market research. *JMR, Journal of Marketing Research, 7*(000003), 355.

Gall-Ely, M. L. (2009). Définition, mesure et déterminants du consentement à payer du consommateur: Synthèse critique et voies de recherche. *Recherche et Applications en Marketing (French Edition), 24*(2), 91–113.

Garriga, E., & Melé, D. (2004). Corporate Social Responsibility Theories: Mapping the Territory. *Journal of Business Ethics, 53*(1), 51-71.

Gaskin, J., James, M., & Lim, J. (2019). *Master Validity Tool, AMOS Plugins.* http://statwiki.kolobkreations.com

Gill, D., & Prowse, V. L. (2011). A Novel Computerized Real Effort Task Based on Sliders. *SSRN Electronic Journal.*

Ginon, E., Combris, P., Loheac, Y., Enderli, G., & Issanchou, S. (2014). What do we learn from comparing hedonic scores and willingness-to-pay data? *Food Quality and Preference, 33*, 54–63.

Giraud, G. (2001). *Entre marques et Labels: Comment s'orientent les choix des consommateurs? 183/184*, 169.

Golder, P. N., Mitra, D., & Moorman, C. (2012). What is quality? An integrative framework of processes and states. *Journal of Marketing, 76*(4), 1–23.

Goodman, A. C. (1978). Hedonic prices, price indices and housing markets. *Journal of urban economics, 5*(4), 471–484.

Goodman, A. C. (1998). Andrew Court and the invention of hedonic price analysis. *Journal of urban economics, 44*(2), 291–298.

Gotsi, M., & Wilson, A. M. (2001). Corporate reputation: Seeking a definition. *Corporate Communications: An International Journal, 6*(1), 24-30.

Gottschalk, I., & Leistner, T. (2013). Consumer reactions to the availability of organic food in discount supermarkets. *International Journal of Consumer Studies, 37*(2), 136–142.

Gouin, D.-M., & Kroll, J.-C. (2018). La régulation laitière face à la volatilité des marchés – États-Unis, Nouvelle-Zélande, Canada, France, Suisse. *Économie rurale. Agricultures, alimentations, territoires, 364*, 13-30.

Grankvist, G., & Biel, A. (2007). Predictors of purchase of eco-labelled food products: A panel study. *Food quality and preference, 18*(4), 701–708.

Grau, S. L., & Folse, J. A. G. (2007). Cause-Related Marketing (CRM): The Influence of Donation Proximity and Message-Framing Cues on the Less-Involved Consumer. *Journal of Advertising, 36*(4), 19-33.

Gray, R., Kouhy, R., & Lavers, S. (1995). Corporate social and environmental reporting. *Accounting, Auditing & Accountability Journal, 8*(2), 47-77.

Green, T., & Peloza, J. (2011). How does corporate social responsibility create value for consumers? *Journal of Consumer Marketing, 28*(1), 48-56.

Greenwald, B., & Stiglitz, J. (1990). *Asymmetric Information and the New Theory of the Firm : Financial Constraints and Risk Behavior* (N° w3359). National Bureau of Economic Research.

Grewal, D., Krishnan, R., Baker, J., & Borin, N. (1998). The effect of store name, brand name and price discounts on consumers' evaluations and purchase intentions. *Journal of retailing, 74*(3), 331–352.

Grewal, D., Monroe, K. B., & Krishnan, R. (1998). The effects of price-comparison advertising on buyers' perceptions of acquisi... *Journal of Marketing, 62*, 14.

Griethuysen, P. van. (2009). *La RSE : Nouvelle régulation du capitalisme ou interprétation capitaliste de la régulation ?* LERSE.

Griliches, Z. (1988). *Hedonic Price Indexes and the Measurement of Capital and Productivity : Some Historical Reflections* (N° w2634; p. w2634). National Bureau of Economic Research.

Grønholdt, L., & Martensen, A. (2006). Key marketing performance measures. *The Marketing Review, 6*(3), 243–252.

Guérin, L. (2017). Ronan Le Velly, Sociologie des systèmes alimentaires alternatifs. *Lectures.*

Guibert, F., & Victoria, R. (2010, février). 60 millions de consommateurs. *Tous dans le même panier, 446*, 36-41.

Guo, X., & Jiang, B. (2016). Signaling through price and quality to consumers with fairness concerns. *Journal of Marketing Research, 53*(6), 988–1000.

Gupta, S. (1988). Impact of Sales Promotions on when, what, and how Much to Buy. *Journal of Marketing Research, 25*(4), 342-355.

Haanpää, L. (2007). Consumers' green commitment : Indication of a postmodern lifestyle? *International Journal of Consumer Studies, 31*(5), 478-486.

Hansen, T., Sørensen, M. I., & Eriksen, M.-L. R. (2018). How the interplay between consumer motivations and values influences organic food identity and behavior. *Food Policy, 74*, 39–52.

Hanssens, D. M., & Pauwels, K. H. (2016). Demonstrating the Value of Marketing. *Journal of Marketing, 80*(6), 173-190.

Hartmann, M. (2011). Corporate social responsibility in the food sector. *European Review of Agricultural Economics, 38*(3), 297-324.

Hayes, A. F. (2017). *Introduction to Mediation, Moderation, and Conditional Process Analysis, Second Edition : A Regression-Based Approach.* Guilford Publications.

Hayes, A. F. (2018). *PROCESS Macro for SPSS.* https://www.processmacro.org

He, N., & Bernard, J. C. (2011). Differences in WTP and consumer demand for organic and non-GM fresh and processed foods. *Agricultural and Resource Economics Review, 40*(2), 218–232.

Heal, G. (2005). Corporate Social Responsibility : An Economic and Financial Framework. *The Geneva Papers on Risk and Insurance - Issues and Practice, 30*(3), 387-409.

Hinson, R. E., & Kodua, P. (2012). Examining the marketing-corporate social responsibility nexus. *International Journal of Law and Management, 54*(5), 332-344.

Hoch, S. J., Kim, B.-D., Montgomery, A. L., & Rossi, P. E. (1995). Determinants of Store-Level Price Elasticity. *Journal of Marketing Research, 32*(1), 17-29.

Hogan, J. E., Lehmann, D. R., Merino, M., Srivastava, R. K., Thomas, J. S., & Verhoef, P. C. (2002). Linking Customer Assets to Financial Performance. *Journal of Service Research, 5*(1), 26-38.

Holbrook, M. B. (1999). *Consumer Value : A Framework for Analysis and Research.* Psychology Press.

Holt, D. B. (1995). How Consumers Consume : A Typology of Consumption Practices. *Journal of Consumer Research, 22*(1), 1.

Hooley, G. J., Greenley, G. E., Cadogan, J. W., & Fahy, J. (2005). The performance impact of marketing resources. *Journal of Business Research, 58*(1), 18-27.

Howard, J. A. (1977). *Consumer behavior : Application of theory* (Vol. 325). McGraw-Hill New York.

Huang, C. L. (1996). Consumer preferences and attitudes towards organically grown produce. *European Review of Agricultural Economics, 23*(3), 331-342.

Husemann, K. C., & Eckhardt, G. M. (2019). Consumer spirituality. *Journal of Marketing Management, 35*(5-6), 391-406.

Igalens, J. (2013). 9—Corégulation, l'expérience européenne. In *Repenser la responsabilité sociale de l'entreprise* (p. 167-182). Armand Colin.

INAO. (2016). *Chiffres clés 2016—Viandes et charcuteries sous signes de la qualité et de l'origine.*

INAO. (2018). *Les produits sous signes d'identification de la qualité et de l'origine—Chiffres clés 2018.*

Institut National de l'Origine et la Qualité. (s. d.). *AOP - AOC* [Origine et Qualité: L'engagement des filières, l'attente des consommateurs, l'avenir des teritoires].

Isa, S. M. (2012). Corporate Social Responsibility : What can we Learn from the Stakeholders? *Procedia - Social and Behavioral Sciences, 65*, 327-337.

ITAVI. (2015). *Performance techniques et coûts de production.* http://www.itavi.asso.fr/recherche?especes=40

ITAVI. (2018). *Situation du marché des volailles de chair—Édition avril 2018* [Service économie ITAVI].

Janssen, M. C. W., & Roy, S. (2010). Signaling quality through prices in an oligopoly. *Games and Economic Behavior, 68*(1), 192-207.

Janssen, M., & Hamm, U. (2014). Governmental and private certification labels for organic food : Consumer attitudes and preferences in Germany. *Food Policy, 49*, 437–448.

Jedidi, K., Mela, C. F., & Gupta, S. (1999). Managing Advertising and Promotion for Long-Run Profitability. *Marketing Science, 18*(1), 1-22.

Jensen, M. C. (2002). Value Maximization, Stakeholder Theory, and the Corporate Objective Function. *Business Ethics Quarterly, 12*(2), 235-256. JSTOR.

Jitmaneeroj, B. (2018). A latent variable analysis of corporate social responsibility and firm value. *Managerial Finance, 44*(4), 478–494.

Johnson, H. L. (1971). *Business in contemporary society : Framework and issues.* Wadsworth Pub. Co.

Jolly, D. A. (1991). Differences between buyers and nonbuyers of organic produce and willingness to pay organic price premiums. *Journal of Agribusiness, 9*(1).

Jones, T. M. (1980). Corporate Social Responsibility Revisited, Redefined. *California Management Review, 22*(3), 59-67.

Kale, S. (2006). Consumer Spirituality and Marketing. *ACR Asia-Pacific Advances, AP-07.* https://www.acrwebsite.org/volumes/13027/volumes/ap07/AP-07

Kanji, R., & Agrawal, R. (2016). Models of Corporate Social Responsibility : Comparison, Evolution and Convergence. *IIM Kozhikode Society & Management Review, 5*(2), 141-155.

Kapferer, J.-N. (2013). *Ré-inventer les marques : La fin des marques telles que nous les connaissons.* Editions Eyrolles.

Karipidis, P., Tsakiridou, E., & Tabakis, N. (2005). Hedonic Analysis of Retail Egg Prices. *Journal of Food Distribution Research, 36,* 6.

Katsikeas, C. S., Morgan, N. A., Leonidou, L. C., & Hult, G. T. M. (2016). Assessing Performance Outcomes in Marketing. *Journal of Marketing, 80*(2), 1-20.

Keeling, L. J. (2005). Healthy and Happy : Animal Welfare as an Integral Part of Sustainable Agriculture. *Ambio, 34*(4/5), 316-319.

Kehlbacher, A., Bennett, R., & Balcombe, K. (2012). Measuring the consumer benefits of improving farm animal welfare to inform welfare labelling. *Food Policy, 37*(6), 627–633.

Kinoshita, J., Suzuki, N., Kawamura, T., Watanabe, Y., & Kaiser, H. (2001). Estimating own and cross brand price elasticities, and price-cost margin ratios using store-level daily scanner data. *Agribusiness, 17,* 515-525.

Kirmani, A., & Rao, A. R. (2000). No pain, no gain : A critical review of the literature on signaling unobservable product quality. *Journal of marketing, 64*(2), 66–79.

Klein, B., & Leffler, K. (1981). The role of price in guaranteeing quality. *Journal of Political Economy, 89*(4), 615–641.

Kotler, P. (1972). What consumerism means for marketers. *Harvard Business Review, 50,* 48-57.

Kotler, P., & Zaltman, G. (1971). Social Marketing : An Approach to Planned Social Change. *Journal of Marketing, 35*(3), 3-12.

Krishnamurthi, L., & Raj, S. P. (1988). A model of brand choice and purchase quantity price sensitivities. *Marketing Science, 7*(1), 1–20.

Krystallis, A., Fotopoulos, C., & Zotos, Y. (2006). Organic Consumers' Profile and Their Willingness to Pay (WTP) for Selected Organic Food Products in Greece. *Journal of International Consumer Marketing, 19*(1), 81-106.

Kumar, V., Keller, K. L., & Lemon, K. N. (2016). Introduction to the Special Issue—Mapping the Boundaries of Marketing : What Needs to be Known. *Journal of Marketing, 80*(6), 1-5.

Kumar, V., & Reinartz, W. (2016). Creating enduring customer value. *Journal of Marketing, 80*(6), 36–68.

Lancaster, K. J. (1966). A new approach to consumer theory. *Journal of political economy, 74*(2), 132–157.

Landon, S., & Smith, C. E. (1997). The Use of Quality and Reputation Indicators by Consumers : The Case of Bordeaux Wine. *Journal of Consumer Policy, 20*(3), 289-323.

Larceneux, F. (2003). Segmentation des signes de qualité : Labels expérientiels et labels techniques. *Décisions Marketing,* 35-46.

Larceneux, F., Benoit-Moreau, F., & Renaudin, V. (2012). Why might organic labels fail to influence consumer choices ? Marginal labelling and brand equity effects. *Journal of Consumer Policy, 35*(1), 85-104.

Larceneux, F., & Renaudin, V. (2016). Quelle utilité des signes de qualité pour les MDD ? Le cas du saumon fumé chez Monoprix. *Decisions Marketing, 82.*

Latacz-Lohmann, U., & Foster, C. (1997). From "niche" to "mainstream" - strategies for marketing organic food in Germany and the UK. *British Food Journal, 99*(8), 275-282.

Le Roy, A. (2008). Redéfinir le produit agricole. *Sociétal (Paris),(3e trimestre 2008), 61,* 105–111.

Les chiffres clés. (s. d.). CNPO Site filière. Consulté 26 août 2019, à l'adresse https://oeuf-info.fr/infos-filiere/les-chiffres-cles/

Les poules pondeuses | ITAVI. (s. d.). Consulté 23 mars 2020, à l'adresse https://www.itavi.asso.fr/content/les-poules-pondeuses

Linnemer, L., & Perrot, A. (2000). Une analyse économique des" signes de qualité": Labels et certification des produits. *Revue économique*, 1397–1418.

Linnemer, L., & Perrot, A. (2007). Conflits liés à la certification dans une relation commerciale. *Economie prevision*, 2, 15–24.

List, J. A., & Gallet, C. A. (2001). *What Experimental Protocol Influence Disparities Between Actual and Hypothetical Stated Values?* 241–254.

Lupton, S. (2009). *Incertitude sur la qualité. De l'asymétrie d'information à l'incertitude partagée* [Thesis, Université de Nanterre - Paris X].

Lusk, J., Alexander, C., & Rousu, M. (2004). Designing Experimental Auctions for Marketing Research : The Effect of Values, Distributions, and Mechanisms on Incentives for Truthful Bidding. *Review of Marketing Science*, 5, 3-3.

Lusk, J. L., & Hudson, D. (2004). Willingness-to-pay estimates and their relevance to agribusiness decision making. *Applied Economic Perspectives and Policy*, 26(2), 152-169.

Lusk, J. L., Jamal, M., Kurlander, L., Roucan, M., & Taulman, L. (2005). A meta-analysis of genetically modified food valuation studies. *Journal of agricultural and resource economics*, 28–44.

Magistris, T. D., Giudice, T. D., & Verneau, F. (2015). The Effect of Information on Willingness to Pay for Canned Tuna Fish with Different Corporate Social Responsibility (CSR) Certification : A Pilot Study. *Journal of Consumer Affairs*, 49(2), 457-471.

Maher, T., & Zohra, G. (2017). Commitment enhancement to an organic product through corporate social responsibility (CSR) and the mediating role of the consumers' emotional attachment. *International Journal of Advanced and Applied Sciences*, 4(1), 28–39.

Maignan, I., & Ferrell, O. C. (2004). Corporate Social Responsibility and Marketing: An Integrative Framework. *Journal of the Academy of Marketing Science*, 32(1), 3-19.

Maignan, I., Ferrell, O. C., & Ferrell, L. (2005). A stakeholder model for implementing social responsibility in marketing. *European Journal of Marketing*, 39(9/10), 956-977.

Maloni, M. J., & Brown, M. E. (2006). Corporate Social Responsibility in the Supply Chain : An Application in the Food Industry. *Journal of Business Ethics*, 68(1), 35-52.

Margolis, J. D., & Walsh, J. P. (2003). Misery loves companies : Rethinking social initiatives by business. *Administrative science quarterly*, 48(2), 268–305.

Marketing Science Institute. (2013). *Understanding customers—2014-2016 research priorities*

McConnell, J. D. (1968). The Price-Quality Relationship in an Experimental Setting. *Journal of Marketing Research*, 5(3), 300-303.

McDonald, J. F., & Moffitt, R. A. (1980). The Uses of Tobit Analysis. *The Review of Economics and Statistics*, 62(2), 318-321. JSTOR. 66

McGuire, J. B., Sundgren, A., & Schneeweis, T. (1988). Corporate Social Responsibility and Firm Financial Performance. *Academy of Management Journal*, 31(4), 854-872.

McWilliams, A., & Siegel, D. (2000). Corporate social responsibility and financial performance : Correlation or misspecification? *Strategic Management Journal*, 21(5), 603-609.

McWilliams, A., & Siegel, D. S. (2011). Creating and capturing value : Strategic corporate social responsibility, resource-based theory, and sustainable competitive advantage. *Journal of Management*, 37(5), 1480–1495.

Meas, T., Hu, W., Batte, M. T., Woods, T. A., & Ernst, S. (2015). Substitutes or Complements? Consumer Preference for Local and Organic Food Attributes. *American Journal of Agricultural Economics*, 97(4), 1044-1071.

Meehan, J., Meehan, K., & Richards, A. (2006). Corporate social responsibility : The 3C-SR model. *International Journal of Social Economics, 33*(5/6), 386-398.

Milanesi, J. (2010). Éthique et évaluation monétaire de l'environnement : La nature est-elle soluble dans l'utilité ? *VertigO, Volume 10 numéro 2.*

Milgrom, P., & Roberts, J. (1986). Price and advertising signals of product quality. *Journal of political economy, 94*(4), 796–821.

Miller, K. M., Hofstetter, R., Krohmer, H., & Zhang, Z. J. (2011). How should consumers' willingness to pay be measured? An empirical comparison of state-of-the-art approaches. *Journal of Marketing Research, 48*(1), 172–184.

Mitchell, R. K., Agle, B. R., & Wood, D. J. (1997). Toward a theory of stakeholder identification and salience : Defining the principle of who and what really counts. *Academy of management review, 22*(4), 853–886.

Mitnick, B. M. (1995). Systematics and CSR : The Theory and Processes of Normative Referencing. *Business & Society, 34*(1), 5-33.

Mohr, L. A., & Webb, D. J. (2005). The effects of corporate social responsibility and price on consumer responses. *Journal of consumer affairs, 39*(1), 121–147.

Mohr, L. A., Webb, D. J., & Harris, K. E. (2001). Do Consumers Expect Companies to be Socially Responsible? The Impact of Corporate Social Responsibility on Buying Behavior. *Journal of Consumer Affairs, 35*(1), 45-72.

Monroe, A. E. (2014). *Early Economic Thought : Selected Writings from Aristotle to Hume.* Courier Corporation.

Monroe, K. B., & Zoltners, A. A. (1979). Pricing the product line during periods of scarcity. *Journal of marketing, 43*(3), 49–59.

Montgomery, C. A., & Wernerfelt, B. (1992). Risk reduction and umbrella branding. *Journal of Business, 65*(1), 31.

Morgan, N. A. (2012). Marketing and business performance. *Journal of the Academy of Marketing Science, 40*(1), 102-119.

Morgan, N. A., Slotegraaf, R. J., & Vorhies, D. W. (2009). Linking marketing capabilities with profit growth. *International Journal of Research in Marketing, 26*(4), 284-293.

Morgan, R. M., & Hunt, S. D. (1994). The Commitment-Trust Theory of Relationship Marketing. *Journal of Marketing, 58*(3), 20-38.

Muller, L., & Ruffieux, B. (2011). Do price-tags influence consumers' willingness to pay? On the external validity of using auctions for measuring value. *Experimental Economics, 14*(2), 181-202.

Murray, K. B., & Vogel, C. M. (1997). Using a hierarchy-of-effects approach to gauge the effectiveness of corporate social responsibility to generate goodwill toward the firm : Financial versus nonfinancial impacts. *Journal of Business Research, 38*(2), 141-159.

N° 1017—Rapport d'information de MM. Alexandre Freschi et André Chassaigne déposé par la commission des affaires européennes sur une agriculture durable pour l'Union européenne—XVe législature—Assemblée nationale. (s. d.). Consulté 2 septembre 2019, à l'adresse http://www2.assemblee-nationale.fr/documents/notice/15/europe/rap-info/i1017/(index)/rapports-information

Nelson, P. (1970). Information and consumer behavior. *Journal of political economy, 78*(2), 311–329.

Nelson, P. (1974). Advertising as Information. *Journal of Political Economy, 82*(4), 729-754.

Neslin, S. A., Henderson, C., & Quelch, J. (1985). Consumer Promotions and the Acceleration of Product Purchases. *Marketing Science, 4*(2), 147-165.

Ngobo, P. V. (2011). What Drives Household Choice of Organic Products in Grocery Stores? *Journal of Retailing, 87*(1), 90-100.

Noussair, C., Robin, S., & Ruffieux, B. (2001). Comportement des consommateurs face aux aliments «avec OGM» et «sans OGM» : Une étude expérimentale. *Économie rurale, 266*(1), 30-44.

Oberholtzer, L., Greene, C., & Lopez, E. (2006). *Organic Poultry and Eggs Capture High Price Premiums and Growing Share of Specialty Markets* (Outlook Report from the Economic Research Service LDP-M-150-01; p. 18). www.ers.usda.gov

Ochs, D., Wolf, C. A., Widmar, N. O., Bir, C., & Lai, J. (2019). Hen housing system information effects on U.S. egg demand. *Food Policy, 87*, 101743.

Olbrich, R., & Christian Jansen, H. (2014). Price-quality relationship in pricing strategies for private labels. *Journal of Product & Brand Management, 23*(6), 429-438.

O'Sullivan, D., & Abela, A. V. (2007). Marketing performance measurement ability and firm performance. *Journal of Marketing, 71*(2), 79-93.

Padel, S., Röcklinsberg, H., & Schmid, O. (2009). The implementation of organic principles and values in the European Regulation for organic food. *Food Policy, 34*(3), 245-251.

Parker, M. (2010). French Label Rouge goes from strength to strength. *Poultry World, 164*(6), 24.

Paul, J., & Rana, J. (2012). Consumer behavior and purchase intention for organic food. *Journal of Consumer Marketing, 29*(6), 412-422.

Peloza, J., & Shang, J. (2011). How can corporate social responsibility activities create value for stakeholders? A systematic review. *Journal of the Academy of Marketing Science, 39*(1), 117-135.

Perrot, C., Chatellier, V., Gouin, D.-M., Richard, M., & You, G. (2018). Le secteur laitier français est-il compétitif face à la concurrence européenne et mondiale ? *Économie rurale. Agricultures, alimentations, territoires, 364*, 109-127.

Petersen, J. A., McAlister, L., Reibstein, D. J., Winer, R. S., Kumar, V., & Atkinson, G. (2009). Choosing the Right Metrics to Maximize Profitability and Shareholder Value. *Journal of Retailing, 85*(1), 95-111.

Phillips, L. W., Chang, D. R., & Buzzell, R. D. (1983). Product Quality, Cost Position and Business Performance : A Test of Some Key Hypotheses. *Journal of Marketing, 47*(2), 26-43.

Pieniak, Z., Vanhonacker, F., & Verbeke, W. (2013). Consumer knowledge and use of information about fish and aquaculture. *Food policy, 40*, 25–30.

Pivato, S., Misani, N., & Tencati, A. (2008). The impact of corporate social responsibility on consumer trust : The case of organic food. *Business Ethics: A European Review, 17*(1), 3-12.

Pokhrel, D. M., & Thapa, G. B. (2007). Are marketing intermediaries exploiting mountain farmers in Nepal? A study based on market price, marketing margin and income distribution analyses. *Agricultural Systems, 94*(2), 151-164.

Principles of Organic Agriculture | IFOAM. (s. d.). Consulté 16 mars 2018, à l'adresse https://www.ifoam.bio/en/organic-landmarks/principles-organic-agriculture

Rao, A. R., & Monroe, K. B. (1989). The Effect of Price, Brand Name, and Store Name on Buyers' Perceptions of Product Quality : An Integrative Review. *Journal of Marketing Research, 26*(3), 351-357.

Rao, A. R., Qu, L., & Ruekert, R. W. (1999). Signaling Unobservable Product Quality through a Brand Ally. *Journal of Marketing Research, 36*(2), 258-268.

Roe, B., Levy, A. S., & Derby, B. M. (1999). The Impact of Health Claims on Consumer Search and Product Evaluation Outcomes : Results from FDA Experimental Data. *Journal of Public Policy & Marketing, 18*(1), 89-105.

Roeck, K. D., Akremi, A. E., & Swaen, V. (2016). Consistency Matters! How and When Does Corporate Social Responsibility Affect Employees' Organizational Identification? *Journal of Management Studies, 53*(7), 1141-1168.

Roguet, C., Marion, C., Magdelaine, P., & Dockès, A.-C. (2018). *Les démarches mises en œuvre par les filières animales en France en réponse aux attentes sociétales en termes de bien-être animal : Typologie et perspectives.*

Rondán Cataluña, F. J., Sánchez Franco, M. J., & Villarejo Ramos, A. F. (2005). Are hypermarket prices different from discount store prices? *Journal of Product & Brand Management, 14*(5), 330–337.

Roosen, J., Lusk, J. L., & Fox, J. A. (2003). Consumer demand for and attitudes toward alternative beef labeling strategies in France, Germany, and the UK. *Agribusiness, 19*(1), 77–90.

Rosen, S. (1974). Hedonic prices and implicit markets : Product differentiation in pure competition. *Journal of political economy, 82*(1), 34–55.

Rust, R. T., Ambler, T., Carpenter, G. S., Kumar, V., & Srivastava, R. K. (2004). Measuring Marketing Productivity : Current Knowledge and Future Directions. *Journal of Marketing, 68*(4), 76-89.

Schott, L., & Bernard, J. (2015). Comparing Consumer's WIllingness to Pay for Conventional, Non-Certified Organic and Organic Milk from Small and Large Farms. *Journal of Food Distribution Research, 46*(3).

Schulze, C., Skiera, B., & Wiesel, T. (2012). Linking Customer and Financial Metrics to Shareholder Value : The Leverage Effect in Customer-Based Valuation. *Journal of Marketing, 76*(2), 17-32.

Schwartz, M. (2007). The « business ethics » of management theory. *Journal of Management History, 13*(1), 43-54.

Schwartz, S. H., & Huismans, S. (1995). Value Priorities and Religiosity in Four Western Religions. *Social Psychology Quarterly, 58*(2), 88-107. JSTOR.

Serra, D. (2012). Principes méthodologiques et pratiques de l'économie expérimentale : Une vue d'ensemble. *Revue de philosophie economique, Vol. 13*(1), 21-78.

Shadish, W. R., Cook, T. D., & Campbell, D. T. (2002). *Experimental and quasi-experimental designs for generalized causal inference.* Houghton, Mifflin and Company.

Shapiro, C. (1983). Premiums for high quality products as returns to reputations. *The quarterly journal of economics, 98*(4), 659–679.

Shapiro, S. (1990). Book review of Marketing Performance Assessment. *Journal of Marketing, 54*, 135-140.

Shepherd, R., Magnusson, M., & Sjödén, P.-O. (2005). Determinants of consumer behavior related to organic foods. *AMBIO: A Journal of the Human Environment, 34*(4), 352–359.

Sheth, J. N., Newman, B. I., & Gross, B. L. (1991). Why we buy what we buy : A theory of consumption values. *Journal of business research, 22*(2), 159–170.

Simon, H., Bandilla, K., Jacquet, F., & El Fassi, H. (2006). Processus de prix : Un nouveau levier de rentabilité des entreprises. *Décisions Marketing, 42*, 33-41. JSTOR.

Sirieix, L., & Dubois, P.-L. (1999). Vers un modele qualite-satisfaction integrant la confiance? *Recherche et Applications En Marketing, 14*(3), 1-22.

Sirieix, Lucie, Delanchy, M., Remaud, H., Zepeda, L., & Gurviez, P. (2013). Consumers' perceptions of individual and combined sustainable food labels: A UK pilot investigation. *International Journal of Consumer Studies, 37*(2), 143-151.

Skitka, L. J. (2010). The Psychology of Moral Conviction. *Social and Personality Psychology Compass, 4*(4), 267-281.

Skitka, L. J., & Wisneski, D. C. (2011). Moral Conviction and Emotion. *Emotion Review, 3*(3), 328-330.

Spence, M. (1974). Competitive and optimal responses to signals: An analysis of efficiency and distribution. *Journal of Economic theory, 7*(3), 296–332.

Srivastava, R. K., McInish, T. H., Wood, R. A., & Capraro, A. J. (1997). Part IV: How Do Reputations Affect Corporate Performance?: The Value of Corporate Reputation: Evidence from the Equity Markets. *Corporate Reputation Review, 1*(1), 61-68.

Srivastava, R. K., Shervani, T. A., & Fahey, L. (1998). Market-Based Assets and Shareholder Value: A Framework for Analysis. *Journal of Marketing, 62*(1), 2-18.

Starbird, S. A. (2005). Moral hazard, inspection policy, and food safety. *American Journal of Agricultural Economics, 87*(1), 15–27.

Stigler, G. J. (1961). The economics of information. *Journal of political economy, 69*(3), 213–225.

Sweeney, J. C., & Soutar, G. N. (2001). Consumer perceived value: The development of a multiple item scale. *Journal of retailing, 77*(2), 203–220.

Sylvander, B., Lagrange, L., & Monticelli, C. (2007). Les signes officiels de qualité et d'origine européens. Quelle insertion dans une économie globalisée. *Économie rurale. Agricultures, alimentations, territoires, 299,* 07-23.

Tahri, N. (2014). Chapitre IV. Validation des instruments de mesure. *These et memoire,* 159-187.

Taj, S. A. (2016). Application of signaling theory in management research: Addressing major gaps in theory. *European Management Journal, 34*(4), 338-348.

Taylor, D. A. (1958). Certification marks: Success or failure? *The Journal of Marketing,* 39-46.

Tellis, G. J. (1988). Advertising exposure, loyalty, and brand purchase: A two-stage model of choice. *Journal of marketing research, 25*(2), 134–144.

Tellis, G. J., & Wernerfelt, B. (1987). Competitive price and quality under asymmetric information. *Marketing science, 6*(3), 240–253.

Teng, C.-C., & Wang, Y.-M. (2015). Decisional factors driving organic food consumption: Generation of consumer purchase intentions. *British Food Journal, 117*(3), 1066–1081.

Thomas, M., & Menon, G. (2007). When internal reference prices and price expectations diverge: The role of confidence. *Journal of Marketing Research, 44*(3), 401–409.

Thompson, G. D., & Kidwell, J. (1998). Explaining the choice of organic produce: Cosmetic defects, prices, and consumer preferences. *American journal of agricultural economics, 80*(2), 277–287.

Timmer, C. P. (2012). Behavioral dimensions of food security. *Proceedings of the National Academy of Sciences, 109*(31), 12315-12320. https://doi.org/10.1073/pnas.0913213107

Tirole, J. (1996). A Theory of Collective Reputations (with Applications to the Persistence of Corruption and to Firm Quality). *The Review of Economic Studies, 63*(1), 1.

Trigui, I. T., Giraud, G., & Lebecque, A. (2012). Effet du label d'origine sur les préférences des consommateurs: Une étude expérimentale. *Revue française du marketing, 236,* 37.

Tsakiridou, E., Boutsouki, C., Zotos, Y., & Mattas, K. (2008). Attitudes and behaviour towards organic products: An exploratory study. *International Journal of Retail & Distribution Management, 36*(2), 158–175.

Turker, D. (2008). How Corporate Social Responsibility Influences Organizational Commitment. *Journal of Business Ethics, 89*(2), 189.

United Nations. (1987). *1987: Brundtland Report.* https://www.are.admin.ch/are/en/home/nachhaltige-entwicklung/internationale-zusammenarbeit/agenda-2030-fuer-nachhaltige-entwicklung/uno-_-meilensteine-zur-nachhaltigen-entwicklung/1987--brundtland-bericht.html

Urbany, J. E. (1986). An experimental examination of the economics of information. *Journal of Consumer Research, 13*(2), 257–271.

Van Doorn, J., & Verhoef, P. C. (2011). Willingness to pay for organic products: Differences between virtue and vice foods. *International Journal of Research in Marketing, 28*(3), 167–180.

Veldstra, M. D., Alexander, C. E., & Marshall, M. I. (2014). To certify or not to certify? Separating the organic production and certification decisions. *Food Policy, 49,* 429-436.

Vickrey, W. (1961). Counterspeculation, auctions, and competitive sealed tenders. *The Journal of finance, 16*(1), 8–37.

Voelckner, F. (2006). An empirical comparison of methods for measuring consumers' willingness to pay. *Marketing Letters, 17*(2), 137-149.

Vogel, D. J. (2005). Is there a market for virtue?: The business case for corporate social responsibility. *California management review, 47*(4), 19–45.

Volaille française. (2018). *La filière avicole française en 2018—Chiffres clés 2018.* https://www.volaille-francaise.fr/la-filiere-avicole/chiffres-cles/

Von Freymann, J. (2002). Grocery store pricing and its effect on initial and ongoing store choice. *Marketing Management Journal, 12*(1).

Waddock, S. A., Bodwell, C., & B. Graves, S. (2002). Responsibility: The new business imperative. *Academy of Management Executive, 16*(2), 132-148.

Waddock, S., & Graves, S. (1997). The Corporate Social Performance-Financial Performance Link. *Strategic Management Journal, 18,* 303-319.

Wartick, S. L., & Cochran, P. L. (1985). The Evolution of the Corporate Social Performance Model. *Academy of Management Review, 10*(4), 758-769.

Waugh, F. V. (1929). *Quality as a Determinant of Vegetable Prices: A Statistical Study of Quality Factors Influencing Vegetable Prices in the Boston Wholesale Market.* Columbia University Press.

Webster, F. E. (1975). Determining the Characteristics of the Socially Conscious Consumer. *Journal of Consumer Research, 2*(3), 188-196.

Welsh, M. P., & Poe, G. L. (1998). Elicitation Effects in Contingent Valuation: Comparisons to a Multiple Bounded Discrete Choice Approach. *Journal of Environmental Economics and Management, 36*(2), 170-185. https://doi.org/10.1006/jeem.1998.1043

Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal, 5*(2), 171-180.

Wertenbroch, K., & Skiera, B. (2002). Measuring consumers' willingness to pay at the point of purchase. *Journal of marketing research, 39*(2), 228–241.

Westgren, R. E. (1999). Delivering Food Safety, Food Quality, and Sustainable Production Practices: The Label Rouge Poultry System in France. *American Journal of Agricultural Economics, 81*(5), 1107.

Wilburn, K., & Wilburn, R. (2014). Demonstrating a Commitment to Corporate Social Responsibility Not Simply Shared Value—ABI/INFORM Collection—ProQuest. *Business & Professional Ethics Journal, 33*(1), 1-15.

Winer, R. S. (1986). A reference price model of brand choice for frequently purchased products. *Journal of consumer research, 13*(2), 250–256.

Wohlgenant, M. K. (2001). Chapter 16 Marketing margins : Empirical analysis. In *Handbook of Agricultural Economics* (Vol. 1, p. 933-970). Elsevier.

Yang, D. (2012). The Strategic Management of Store Brand Perceived Quality. *Physics Procedia*, 1114-1119.

Yim, S., Bae, Y. H., Lim, H., & Kwon, J. (2019). The role of marketing capability in linking CSR to corporate financial performance : When CSR gives positive signals to stakeholders. *European Journal of Marketing, 53*(7), 1333-1354.

Yuchtman, E., & Seashore, S. E. (1967). A System Resource Approach to Organizational Effectiveness. *American Sociological Review, 32*(6), 891-903. JSTOR.

Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value : A means-end model and synthesis of evidence. *The Journal of marketing*, 2–22.

Zheng, L., Plaisent, M., Zuccaro, C., & Bernard, P. (2017). *Introduction à la modélisation d'équations structurelles.* https://www.puq.ca/catalogue/livres/introduction-modelisation-equations-structurelles-3206.html

Zielke, S., & Dobbelstein, T. (2007). Customers' willingness to purchase new store brands. *Journal of Product & Brand Management, 16*(2), 112-121.

Zingg, A., & Siegrist, M. (2012). People's willingness to eat meat from animals vaccinated against epidemics. *Food Policy, 37*(3), 226-231.

APPENDIX

Appendix 1. Official quality signs - INAO

Signe de qualité	Logo	Commentaires
L'Appellation d'Origine Protégée (AOP)		Crée en 1992, l'appellation d'origine protégée (AOP) garantit un lien très fort du produit avec son terroir. La qualité résulte exclusivement du milieu naturel et du savoir-faire des hommes.
L'Indication Géographique Protégée (IGP)		L'appellation d'Origine Contrôlée (AOC) est un signe français qui désigne un produit qui tire son authenticité et sa typicité de son origine géographique. L'appellation d'Origine Contrôlée (AOC) désigne des produits répondants aux critères de l'AOP et protège la dénomination sur le territoire français. Elle constitue une étape vers l'AOP, signe européen.
Le Label Rouge		Le label rouge atteste qu'une denrée alimentaire ou un produit agricole non alimentaire et non transformé possède des caractéristiques spécifiques, préalablement fixées dans un cahier des charges établissant un niveau de qualité supérieure par rapport au produit courant. Il existe plus de 400 labels rouges homologués par les pouvoirs publics.
La Spécialité Traditionnelle Garantie (STG)		La STG (spécialité traditionnelle garantie) atteste qu'un produit alimentaire a été fabriqué selon une recette considérée comme traditionnelle. Un tel produit ne se réfère pas à une origine géographique particulière. Une STG consacre une recette. Depuis le 4 janvier 2016, le logo européen est obligatoire, accompagné de la dénomination enregistrée placée dans le même champ visuel.
L'Agriculture biologique		L'agriculture biologique vise à établir un système de gestion durable de l'agriculture, notamment au travers d'une amélioration de la qualité du sol, de l'eau, des végétaux et des animaux et d'un développement de la biodiversité. Le logo européen est obligatoire. Le logo AB est facultatif et ne se suffit pas à lui seul. Depuis la réforme du Code rural et de la pêche maritime intervenue en 2007, la certification de conformité de produits (CCP) est devenue un mode de valorisation de la qualité, dénommé «certification de conformité ».
La certification de conformité		La certification de conformité n'est pas censée garantir une qualité supérieure. Le logo CQ-Produit certifié peut être apposé de manière volontaire sur le produit. En ce cas les caractéristiques certifiées et le nom de l'organisme certificateur figurent sur l'étiquetage.
Le label écologique		Il atteste le respect de caractéristiques qui rendent les produits concernés plus respectueux de l'environnement tout au long de leur cycle de vie, depuis l'extraction des matières premières jusqu'à leur rejet sous forme de déchet.

Appendix 2. Community marketing standards for chicken breeding

Tableau 1 - Normes de commercialisation communautaires en poulet de chair

Mode de production du poulet	Standard	Certification de conformité (a)	Fermier Label rouge (b)	Biologique (c)
Race	Croissance rapide	Croissance intermédiaire	Rustique Croissance lente	
Âge d'abattage	35 à 40 jours	56 jours mini	81 jours mini	
Type d'élevage	En claustration		Fermier en plein air ou en liberté	
Surface maximum de bâtiments par site	Pas de limite		1 600 m² par site	
Taille maximum d'un bâtiment	Pas de limite		4 800 poulets 400 m²	4 800 poulets 480 m²
Densité dans le poulailler (poulets/m²)	20 à 25	18	12	10
Espace en plein air	Aucun		Fermier plein air : 2 m²/poulet Fermier en liberté : illimité	4 m²/poulet, sur un parcours conduit selon les principes de l'AB
Alimentation	100 % végétaux, minéraux et vitamines	100 % végétaux, minéraux et vitamines 65% de céréales	100 % végétaux, minéraux et vitamines 75% minimum de céréales	100 % végétaux, minéraux et vitamines 95% minimum issus de l'AB
Qualité organoleptique supérieure			Garantie par des analyses sensorielles régulières	
Contrôle par un tiers indépendant		Organisme certificateur		

*(a) Arrêté ministériel français, (b) notice technique, (c) règlement CE 834/2007 et CE 889/2008.*
La CCP est proche du « *Extensive indoor* » de la réglementation européenne, mais avec des densités un peu plus élevées ; le Label rouge fermier correspond au « *Traditional free range* » (plein air) ou « *Total freedom* » (*liberté*).
Source : http://www.volaillelabelrouge.com/fr/les-volailles-un-elevage-different/

Familles de produits biologiques consommés

Base Consommateurs bio au moins 1 fois par mois : 1420

Q28. Quels sont tous les produits biologiques que vous consommez ?

Produit	%	Base total Français : 2000
Fruits et légumes	80%	56%
Lait	44%	31%
Autres produits laitiers	39%	28%
Fromages	43%	31%
Oeufs	65%	46%
Pâtes, riz, autres céréales	37%	26%
Autres produits d'épicerie (Inclus l'item 'Petits pots pour bébé')	27%	19%
Huile	25%	18%
Jus de fruits	39%	28%
Vins	18%	13%
Autres boissons	5%	4%
Volaille	43%	23%
Boeuf	26%	17%
Porc, charcuterie	21%	14%
Veau	15%	11%
Agneau	10%	7%
Pain	32%	23%
Café, thé, infusion	27%	19%
Biscuits, produits pour le petit déjeuner	25%	18%
Produits à base de soja	21%	15%
Poissons, coquillages et crustacés	15% ↗	11%
Compléments alimentaires	10%	7%
Plats préparés / cuisinés (Nouveau produit)	7%	5%

Produits laitiers : 71% — 50%

Huile/Epicerie : 52% — 37%

Boissons : 47% — 34%

Viande : 43% — 30%

90 | AGENCE BIO - baromètre de consommation et de perception des produits biologiques en France - Edition 2020

327

Appendix 4. Sales volumes of organic products per store type (question: Where do you mainly buy these organic products?"(Agence Bio, 2018)

	Specialized stores	Local market	HSMKT	Artisan	Farm	Drive	Other	You do not consume this product
Food supplement (132)	42%	1%	25%	X	1%	X	29%	3%
Pasta, rice, other cereals (359)	27%	1%	62%	1%	1%	6%	1%	1%
Other grocery products (359)	27%	3%	57%	2%	3%	4%	3%	1%
Coffee, tea, herbal tea (384)	24%	1%	65%	1%	1%	3%	5%	1%
Oil (338)	21%	3%	63%	2%	2%	3%	5%	<1%
Soya-based products (290)	21%	2%	68%	X	X	3%	2%	3%
Biscuits, breakfast products (348)	20%	1%	70%	2%	2%	5%	1%	1%
Other drinks (71)	19%	0%	65%	4%	4%	1%	3%	8%
Wine (262)	15%	3%	54%	6%	6%	2%	13%	2%
Bread (474)	13%	4%	29%	42%	42%	2%	4%	4%
Cheese (603)	12%	17%	48%	8%	8%	3%	2%	1%
Fruits and vegetables (1112)	12%	28%	40%	4%	4%	2%	4%	2%
Fruit juice (550)	12%	2%	74%	2%	2%	4%	3%	1%
Other dairy products (537)	10%	4%	69%	3%	3%	4%	2%	<1%
Veal (211)	9%	10%	31%	24%	24%	1%	3%	2%
Pork, delicatessen (248)	9%	9%	38%	23%	23%	1%	2%	2%
Milk (623)	9%	3%	73%	1%	1%	6%	1%	1%
Lamb (150)	8%	9%	33%	22%	22%	X	3%	4%
Fish, sea-food (180)	8%	19%	51%	14%	14%	1%	4%	2%
Eggs (919)	7%	13%	51%	2%	2%	3%	5%	3%
Beaf (342)	7%	7%	37%	23%	23%	3%	3%	2%
Poultry (452)	6%	14%	39%	12%	12%	2%	2%	1%

Appendix 5. Semi-log hedonic models estimates for organic label

	Estimate	Std. Error	T value	Prob
Intercept	2.665	0.008	325.141	<2e-16 ***
Cage free breading	0.164	0.007	21.818	<2e-16 ***
Free-Range breading	0.330	0.007	43.948	<2e-16 ***
Official quality sign	0.278	0.007	37.012	<2e-16 ***
Organic	0.058	0.007	7.777	4.23e-14 ***
Label Rouge	- 0.058	0.007	- 7.777	4.23e-14 ***
2013	0.011	0.009	1.240	0.2156
2014	-0.019	0.009	- 2.026	0.0433 *
2015	-0.053	0.009	- 5.602	3.49e-08***
2016	-0.024	0.009	- 2.559	0.0108 *
2017	0.022	0.009	2.347	0.0193 *
2018	0.032	0.009	3.389	0.0008 ***
2019	0.024	0.010	2.506	0.0125 *
Residual standard error	0.05387			
Degree of Freedom	503			
Multiple R-squared	0.9743			
Adjusted R-square	0.9738			
F-statistic	1735 on 11			
p-value	<2.2e-16			

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

Appendix 6. Semi-log hedonic models estimates for store types and organic characteristic

	Estimate	Std. Error	T value	Prob
Constant	2.952	0.003	875.969	< 2e-16 ***
Discount	- 0.108	0.002	- 57.168	< 2e-16 ***
Specialized	0.114	0.002	45.754	< 2e-16 ***
Organic	0.506	0.002	268.008	< 2e-16 ***
Constant				
2008	0.085	0.004	19.639	< 2e-16 ***
2009	0.089	0.004	20.695	< 2e-16 ***
2010	0.066	0.004	15.283	< 2e-16 ***
2011	0.027	0.004	6.228	5.31e-10 ***
2012	0.026	0.004	6.035	1.76e-09 ***
2013	0.008	0.004	1.916	0.055447 .
2014	-0.018	0.004	-4.038	5.51e-05 ***
2015	-0.047	0.004	-10.973	< 2e-16 ***
2016	-0.038	0.004	-8.856	< 2e-16 ***
2017	-0.015	0.004	-3.525	0.000429 ***

2018	0.022	0.004	4.976	6.83e-07 ***
2019	0.042	0.004	9.747	< 2e-16 ***
2020	0.031	0.010	3.285	0.001 **
Residual standard error	0.04941			
Degree of Freedom	340 3			
Multiple R-squared	0.9718			
Adjusted R-square	0.9717			
F-statistic	7336 on 16			
p-value	<2.2e-16			

Appendix 7. Semi-log hedonic models estimates of store types for organic products

	Estimate	Std. Error	T value	Prob
Constant	2.898	0.003	1018.533	< 2e-16 ***
Conventional store	0.591	0.002	290.504	< 2e-16 ***
Discount store	0.421	0.002	207.076	< 2e-16 ***
Specialized store	0.675	0.002	331.511	< 2e-16 ***
Constant				
2008	0.085	0.004	22.328	< 2e-16 ***
2009	0.089	0.004	23.529	< 2e-16 ***
2010	0.066	0.004	17.376	< 2e-16 ***
2011	0.027	0.004	7.080	1.74e-12 ***
2012	0.026	0.004	6.862	8.06e-12 ***
2013	0.008	0.004	2.178	0.029 *
2014	-0.018	0.004	-4.591	4.57e-06 ***
2015	-0.047	0.004	-12.475	< 2e-16 ***
2016	-0.038	0.004	-10.069	< 2e-16 ***
2017	-0.015	0.004	-4.008	6.26e-05 ***
2018	0.022	0.004	5.657	1.67e-08 ***
2019	0.042	0.004	11.081	< 2e-16 ***
2020	0.031	0.008	3.735	0.0001 ***
Residual standard error	0.04346			
Degree of Freedom	640 3			
Multiple R-squared	0.9782			
Adjusted R-square	0.9781			
F-statistic	9545 on 16			
p-value	<2.2e-16			

		Battery		Barn		Free-range		Label Rouge		Organic	
		Estimate	Std.err	Estimate	Std.err	Estimate	Std.err	Estimate	Std.err	Estimate	Std.err
	Intercept	3.4782	1.9123	9.0960	5.8241	2.93	2.3755	3.5691	1.8208	1.9924	2.8591
		0.072 .		0.1216		0.2198		0.0585 .		0.4876	
Prices	Battery	1.7169	0.3489	- 2.0729	1.0626	- 2.4198	0.4334	- 0.4395	0.3322	- 2.9213	0.5216
		3.52e-06 ***		0.0540 .		2.15e-07 ***		0.18893		1.99e-07 ***	
	Barn	-0.3253	0.1230	- 1.8374	0.3747	0.7297	0.1528	0.8435	0.1171	0.9065	0.1839
		0.0095 **		3.77e-06***		6.37e-06 ***		1.28e-10 ***		3.41e-06 ***	
	Free-range	0.8856	0.2519	0.6340	0.7672	- 1.8956	0.3129	- 0.7323	0.2398	-0.4692	0.3766
		0.0006 ***		0.4106		2.62e-08 ***		0.00292 **		0.2158	
	Label Rouge	-0.3715	0.4185	- 1.9367	1.2745	1.1438	0.5198	0.1699	0.3984	1.3565	0.6256
		0.3768		0.1319		0.0302 *		0.67074		0.0326 *	
	Organic	-1.3588	0.3256	2.1017	0.9916	1.8666	0.4045	- 3403	0.3100	0.6509	0.4868
		6.55e-05 ***		0.0366 *		1.20e-05 ***		0.27499		0.1843	
	Residual st. error	0.8367		0.2548		0.1039		0.07967		0.1251	
	Adjusted R-squarred	0.6198		0.2177		0.7543		0.6083		0.6929	
	P-value	< 2.2e-16		2.199e-05		< 2.2e-16		< 2.2e-16		< 2.2e-16	

Appendix 8. Appendix 4.Price elasticity for eggs according to the categories (with heteroskedascity)

Note : 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

331

		Battery		Barn		Free-range		Label Rouge		Organic	
		Estimate	Std.err	Estimate	Std.err	Estimate	Std.err	Estimate	Std.err	Estimate	Std.err
	Intercept	3.4782	1.9123	9.0960	4.9355	2.9335	2.6016	3.5691	1.6873	1.9924	2.9032
		0.07808 .		0.0684 .		0.262292		0.03697 *		0.4942	
	Battery	1.7169	0.3766	- 2.0729	1.2935	- 2.4198	0.4786	- 0.4395	0.3976	- 2.9213	0.5104
		1.5e-05 ***		0.1123		2.02e-06 ***		0.27172		1.16e-07 ***	
	Barn	-0.3253	0.1341	- 1.8374	0.3823	0.7297	0.1899	0.8435	0.1534	0.9065	0.2165
		0.01714 *		5.62e-06 ***		0.000218 ***		3.09e-07 ***		6.22e-05 ***	
	Free-range	0.8856	0.1893	0.6340	0.7472	- 1.8956	0.2801	- 0.7323	0.2596	-0.4692	0.3217
		9.4e-06 ***		0.3983		9.99e-10 ***		0.00581 **		0.1479	
	Label Rouge	-0.3715	0.4434	- 1.9367	1.1586	1.1438	0.5629	0.1699	0.3837	1.3565	0.6803
		0.40422		0.0978 .		0.044875 *		0.65891		0.0489 *	
Prices	Organic	-1.3588	0.3584	2.1017	1.0898	1.8666	0.4528	- 0.3403	0.37436	0.6509	0.4825
		0.00026 ***		0.0567 .		7.92e-05 ***		0.37436		0.1805	
	Residual st. error	0.8367		0.2548		0.1039		0.07967		0.1251	
	Adjusted R-squarred	0.6198		0.2177		0.7543		0.6083		0.6929	
	P-value	< 2.2e-16		2.199e-05		< 2.2e-16		< 2.2e-16		< 2.2e-16	

Appendix 9. Price elasticity for eggs according to the categories (with heteroskedasticity-consistent standard error)

Note : 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Appendix 10 Bonferroni Tests – Pariwise comparisons using t-test with pooled SD - model 2, 5 and 6

Model	Independent variable	Group variable	P-value
2	Auction	OQS	0.0049
5	Quantity	OQS	0.41
6	RPA	OQS	0.53

Appendix 11 Model 5 and 6 - Tobit regression results on auctions - Model 5

Variables – MODEL 5	Group A - Organic	Group B - Non-organic
Intercept	2.559 **	3.021 ***
Auction	-0.253	-0.255 .
Brand	0.330	0.228
Gender	- 0.117	0.450 .
Age	0.007	0.010
Executive	-0.406	0.306
Children	0.448 .	0.634*
Education	-0.689 *	-0.143
Urban	0.418	-0.589 *
PShopper	-0.276	0.031
Spirituality	0.41	-0.377
Emotion	0.120	0.712 .
Quality	0.188	0.382
Log(scale)	0.830 ***	0.818 ***
Observations	379	372
P-Value	0.000 ***	4.4942e-05
Variables – MODEL6	Group A - Organic	Group B - Non-organic
Intercept	-0.889	0.093
Price difference	-0.173	-0.393 .
Brand	0.411	0.662 *
Gender	- 0.749 *	0.746 *
Age	0.034 *	0.048 ***
Executive	0.217	1.049 .
Children	0.927 *	0.743 *
Education	-1.003 *	-0.899 *
Urban	-1.179 **	-0.616
PShopper	-0.496	0.187
Spirituality	0.640	-0.621
Emotion	0.569	1.244 *
Quality	1.206 **	1.060 **
Log(scale)	1.209	1.112 ***
Observations	379	372
P-Value	4.4573e-12	1.8278e-12