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Mathilde Poulain

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Mathilde Poulain

**The Political Economy of Financial
Regulation**

Sous la direction de **Gunther Capelle-Blancard**

Jury

Christian de Boissieu	Professor, Université Paris 1	Examineur
Jeffry Frieden	Professor, Harvard University	Rapporteur
Stéphane Saussier	Professor, IAE Paris 1	Examineur
Laurence Scialom	Professor, Université Paris X Nanterre	Rapporteur
Anne Yvrande-Billon	Vice President, Arafer	Examineur

A mes grands-parents, Amélie et Jean.

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Résumé

En 2011, le congrès américain crée la *Financial Crisis Inquiry Commission* (FCIC) et lui confie le mandat d'identifier les causes de la crise financière et économique de 2007-08. Les conclusions de la FCIC dévoilent une défaillance du système de supervision dans sa globalité. Le rapport se montre particulièrement critique à l'égard du travail mené par les régulateurs du secteur financier, décrit comme plus de trente années de dérégulation et de confiance excessive dans la capacité des acteurs du marché, dans le secteur financier, à s'auto-réguler. Selon le rapport, deux principales observations peuvent être faites pour expliquer ce constat.

Tout d'abord, la FCIC n'accepte pas l'idée selon laquelle les régulateurs n'étaient donc pas en mesure de protéger le système financier. Ceux-ci bénéficiaient en effet d'amples pouvoirs et de ressources budgétaires suffisantes mais ont cependant choisi de ne pas en faire usage. Les régulateurs auraient ainsi pu renforcer la protection du secteur financier, en augmentant l'exigence de fonds propres par exemple, ou endiguer le développement des pratiques à risque, comme la titrisation des prêts hypothécaires, et pourtant ils ne l'ont pas fait. Pire encore, selon la FCIC, les régulateurs se sont attelés à supprimer des mesures clés alors même que celles-ci auraient pu permettre d'éviter la catastrophe. Le rapport ajoute que si les raisons de leur inaction résidaient dans un manque de pouvoir réglementaire ou de ressources budgétaires, les régulateurs auraient pu s'en émouvoir et en réclamer davantage. L'inertie des régulateurs proviendrait donc d'ailleurs : ce n'est pas que les régulateurs ne pouvaient pas agir, mais bien que ceux-ci ne voulaient pas. La FCIC montre que

les régulateurs n'ont tout simplement pas eu le courage d'exercer leur esprit critique à l'égard des institutions financières et du système qu'ils étaient chargés de réguler. Ils étaient dépourvu de la volonté politique de protéger le secteur financier. La FCIC toutefois relativise cette conclusion en mentionnant la contrainte politique et doctrinale issue de l'environnement réglementaire des régulateurs. Pour la première fois, un rapport officiel fait état d'une possible contrainte idéologique du régulateur.

Une deuxième conclusion de la FCIC est que l'échec des régulateurs à protéger l'industrie financière provient aussi de leur incompetence. Le rapport montre que les régulateurs n'ont pas immédiatement mesuré les implications de l'éclatement de la bulle immobilières. Alors que les signes avant-coureurs d'une défaillance grave se faisaient sentir, ils sont restés très optimistes quant à la résilience de l'industrie financière et la santé des grandes banques d'investissement. Un mois avant la faillite de Lehman Brothers, la Federal Reserve Bank de New-York était encore en train de recueillir des informations sur les risques liés aux 900,000 contrats de produits dérivés de la banque d'investissement. L'opacité et la complexité croissante des marchés financiers ont pris les régulateurs au dépourvu. Ces derniers ne bénéficiaient pas d'une bonne compréhension des risques et des interconnexions inhérents aux marchés financiers. Ces évolutions avaient pourtant débuté plusieurs années avant la crise. Certains d'entre-eux en étaient conscients et ont avoué avoir laissé le système devancer leur capacité à le protéger. La gestion de la crise, et plus largement la régulation financière de ces dernières décennies, se sont en conséquence avérées inadaptées voire toxiques. Ces incohérences se sont révélées source d'instabilité financière et n'ont pas permis d'endiguer les effets de la crise.

Bien que la Commission parvienne à identifier les causes de la crise financière, les raisons sous-jacentes qui ont plongées le système dans un tel désastre semblent rester obscures. Traditionnellement, les commissaires mettent en avant des facteurs exogènes et expliquent notamment la façon dont les lobbyistes de l'industrie financière, aux ressources immenses et aux réseaux tentaculaires, ont exercé une

pression exponentielle sur les instances de régulation. Rien n'indique cependant ce qui a amené les régulateurs à se laisser duper. Pourquoi ces derniers se sont aveuglément fiés à la doctrine de l'industrie financière. Était-ce en raison d'une absence de volonté de protéger le secteur financier ou bien parce que les régulateurs étaient convaincus des mérites de la dérégulation globalisée ?

Revue de Littérature

L'école des choix publics est le premier courant de pensée économique à questionner la nature altruiste des gouvernements. Cette littérature émane directement du débat sur la légitimité de l'intervention de l'état en tant qu'instrument de correction des défaillances de marché. Elle analyse le comportement des gouvernements en prenant pour hypothèse que les décideurs publics, comme tout agent économique, sont rationnels et donc concernés en tout premier lieu par leurs propres intérêts. La capture du régulateur fait partie de l'économie de la régulation, une branche de l'école des choix publics. Cette théorie suggère que les régulateurs favorisent parfois les intérêts de l'industrie régulée, aux dépens de l'intérêt général, en raison de leur caractère intéressé.

Les travaux précurseurs sur la capture du régulateur se concentrent sur la capture collusoire provenant du terme collusion. La collusion désigne une entente secrète entre deux parties pour agir de manière frauduleuse. L'approche standard pour définir la capture du régulateur est donc fondée sur une relation principal-agent prenant l'hypothèse de la rationalité économique des agents. Les régulateurs ont pour objectif la maximisation de leur utilité, grâce à des gains monétaires ou non-monétaires. Leurs actions sont ainsi motivés par la cupidité et l'ambition (comme par exemple l'enrichissement personnel ou les considérations professionnelles). En conséquence, l'industrie est, quant à elle, incitée à la collusion afin d'influencer le processus réglementaire.

Stigler (1971) analyse la régulation du secteur du camionnage aux Etats-Unis. Dans son modèle, l'industrie achète les votes et finance les campagnes des partis politiques afin d'obtenir une législation qui lui soit favorable. Tirole (1986) et Laffont et Tirole (1991, 1993) présentent un modèle à trois niveaux hiérarchiques avec un dirigeant politique (le congrès américain), un régulateur et un agent (l'entreprise). L'entreprise dispose d'informations confidentielles concernant les coûts qu'elle supporte et l'agence de l'expertise et des ressources suffisantes pour analyser l'information pertinente et produire un rapport au congrès. Cette asymétrie d'information incite l'industrie à corrompre le régulateur afin que celui-ci dissimule l'information relative à ses coûts. Martimort (1999) étend le modèle précédent en introduisant la possibilité pour le congrès de répondre à cette menace de corruption. L'agence dispose de moins en moins de pouvoirs discrétionnaires et ceci tend à augmenter la lourdeur bureaucratique. Ces procédures additionnelles décroissent progressivement l'efficacité du régulateur. Boot et Thakor (1993) examinent la possibilité pour le régulateur de n'être motivé que par la satisfaction de son propre intérêt, sous l'angle de ses considérations professionnelles, au lieu de se porter garant du bien-être social. Ils introduisent une incertitude quant aux compétences du régulateur en matière de surveillance de l'industrie. Afin de protéger sa réputation, le régulateur est incité à infléchir sa politique. Albino, Hu, et Bar-Yam (2013) formalisent l'interaction entre une entreprise et des régulateurs en prenant en compte explicitement leur influence mutuelle. Leur résultat montre qu'il y a une incitation à la collusion lorsque le bénéfice retiré par l'industrie est supérieur au coût engendré pour le régulateur. L'entreprise peut alors compenser la perte du régulateur avec des transferts monétaires, rendant ainsi la collusion profitable pour les deux parties. Agrell et Gautier (2015) construisent un modèle semblable au précédent et considèrent un transfert direct d'informations pertinentes de l'entreprise à l'agence de régulation dans le but d'influencer la réglementation. Ces transferts peuvent prendre la forme d'une participation directe de l'industrie, de consultations des parties prenantes ou bien de projets coopératifs relatifs à la régulation. Leur

conclusion supporte l'idée selon laquelle l'industrie et le régulateur ont une incitation à la collusion. Le régulateur économise les coûts liés à la surveillance de l'industrie en transmettant les signaux produits par l'entreprise au législateur et l'entreprise profite d'une plus grande rente informationnelle.

Un autre volet de la littérature sur la capture collusoire est consacré aux *revolving-doors*¹ et recouvre donc la problématique des *career concerns*². Deux hypothèses contradictoires font l'objet d'études empiriques et théoriques : l'hypothèse *quid-pro-quo* repose sur l'idée que les opportunités de carrière augmentent la clémence du régulateur à l'égard de l'industrie et l'hypothèse de *regulatory schooling* suppose que les régulateurs vont favoriser une régulation sévère afin de signaler leur expertise auprès de l'industrie. Che (1995) introduit un modèle où la collusion augmente le bien-être social. Afin de signaler leur expertise et leur connaissance, les régulateurs augmentent leur surveillance de l'industrie et maximise leur chance d'obtenir un futur emploi dans l'industrie régulée. Salant (1995) construit un modèle dépendant du temps où les revolving-doors peuvent augmenter la performance de l'industrie régulée. Les revolving-doors favorisent la coopération entre le régulateur et le manager de l'entreprise puisque les possibilités d'emploi dans l'industrie dépendent de leur capacité à collaborer. Agarwal, Lucca, Seru, et Trebbi (2012) étudient les décisions des régulateurs du secteur bancaire américain et comparent les notations des régulateurs fédéraux à celles des régulateurs nationaux. Leurs résultats démontrent que les régulateurs fédéraux sont systématiquement plus sévères que les régulateurs nationaux. Ils ne trouvent aucun élément à l'appui de l'hypothèse *quid-pro-quo* dans l'explication de la clémence des régulateurs nationaux. Ils démontrent au contraire que le nombre de régulateurs nationaux embauchés par le secteur privé augmente lorsque ceux-ci prennent des décisions sévères à l'encontre des banques qu'ils régulent. Lucca, Seru, et Trebbi (2014) étudient les flux de travailleurs entre les instances

¹Flux de travailleurs entre les instances de régulation et le secteur privé.

²Les préoccupations des régulateurs en matière de carrière.

de régulations américaines et le secteur privé. Leurs résultats supportent l'hypothèse *regulatory schooling* : les régulateurs adoptent des réglementations strictes pour signaler leur expertise et augmenter leur chance d'accéder au secteur privé. Enfin, Shive et Forster (2015) analysent le curriculum vitae des cadres supérieurs de l'une des six agences fédérales en charge de la régulation de l'industrie financière. Ils concluent que leurs résultats concordent avec l'hypothèse *regulatory schooling* : les anciens régulateurs contribuent à abaisser le niveau de risque des institutions financières qu'ils rejoignent.

La littérature sur la capture du régulateur a pris un tournant radical à la suite de la crise financière de 2007-08. Les faiblesses de l'Homme, qui étaient auparavant largement ignorées, ont été replacées au centre de cette problématique. La seule hypothèse sur le caractère cupide et ambitieux des régulateurs ne suffit plus à expliquer les dérives du système de régulation et de supervision financière. Une approche alternative à la capture collusoire a vu le jour et assouplit l'hypothèse de rationalité parfaite des comportements humains. La capture non-collusoire introduit les concepts de capture cognitive et capture informationnelle. Buitter (2008), Davidoff (2010), Baxter (2011) et Kwak (2013) fournissent une première définition de la capture cognitive³ comme étant l'éducation, les expériences, les connaissances, les réseaux ou tout autre interaction sociale que le régulateur peut avoir avec son environnement et qui tendent à créer un paradigme pro-industrie. Mishra et Reshef (2015) sont les premiers à tenter de mesurer empiriquement l'impact de la capture cognitive. Ils analysent le curriculum vitae de tous les gouverneurs de banques centrales qui ont été nommés entre 1970 et 2011 et essaient de lier leurs caractéristiques à des données relatives à la régulation financière. Ils montrent qu'un gouverneur ayant une expérience passée dans l'industrie financière tend à déréguler trois fois plus qu'un gouverneur n'ayant jamais exercé dans le secteur privé. Bagley

³Bien qu'utilisant tous un champ lexical différent : capture culturel (Kwak 2013), capture profonde (Baxter, 2011), capture sociale (Davidoff, 2010) et capture cognitive (Buitter, 2008).

(2010) et Barkow (2010) définissent quant à eux la capture informationnelle : l'utilisation de l'information comme outil d'influence du processus réglementaire. Cette théorie est très imbriquée dans celle développée par Olson (1965) sur le problème de l'action collective⁴. Cette forme de capture fait principalement référence à la capacité qu'à l'industrie de noyer le processus réglementaire d'information pro-industrie⁵ (via les réponses aux consultations, les comités scientifiques, les auditions, etc.). McCarty (2013) construit un modèle dans lequel les régulateurs n'ont pas facilement accès à une information et une expertise indépendante. Pour réduire l'asymétrie d'information, l'agence peut surveiller l'entreprise mais la qualité de l'information obtenue décroît à mesure que la complexité de l'industrie augmente. En conséquence, plus le domaine de régulation est sophistiqué, plus fort est le risque de capture informationnelle. Pour les domaines les plus complexes, le législateur peut préférer ne pas déléguer la régulation à une agence. Enfin, Hakenes et Schnabel (2014) construisent un modèle fondé sur le constat de Hellwig (2010). L'industrie financière aurait réussi à capturer le Comité de Bâles grâce à des mesures de risques sophistiquées. Leur modèle explique ainsi comment l'industrie tente de capturer le régulateur grâce à des approches réglementaires toujours plus complexes. Ils montrent que la complexité croissante des activités financières facilite la capture du régulateur car celui-ci n'a pas les compétences nécessaires à la compréhension des arguments produits par l'industrie. Les considérations professionnelles (i.e. *career concerns*) et le risque de réputation du régulateur l'empêchent d'admettre ses faiblesses et ceci donne lieu à des décisions réglementaires inadaptées.

⁴Le problème de l'action collective fait référence à un paradoxe : un groupe d'individus rationnels ayant tous un intérêt commun - par exemple les consommateurs de services financiers - ne tentera aucune action pour faire valoir cet intérêt commun en raison de leur manque d'organisation et de ressource. Les intérêts de petits groupes organisés et puissants gagneront généralement la bataille.

⁵Ceci est notamment le cas aux Etats-Unis où le congrès est dans l'obligation d'instruire toutes les réponses aux consultations.

Contribution

L'approche traditionnelle de capture collusoire présente d'importantes lacunes. En premier lieu, l'hypothèse de rationalité parfaite du régulateur apparaît pour le moins partielle si ce n'est simpliste. La littérature suppose que les régulateurs, motivés par la cupidité et l'ambition, n'ont pour seul objectif que la satisfaction de leurs propres intérêts. Cet intérêt peut prendre la forme de gains monétaires ou bien celle d'une offre professionnelle lucrative. L'industrie est alors incitée à corrompre le régulateur, en échange de quoi ce dernier s'engage à produire une régulation clémente envers l'industrie. Le régulateur protégerait donc délibérément les intérêts de l'industrie pour servir les siens. Pourtant dans son rapport, la FCIC mentionne l'existence d'une contrainte idéologique et politique, subie par les régulateurs durant les années précédents la crise financière de 2007-08. Ceci suggère donc que la capture du régulateur est plus complexe qu'un simple problème collusion.

En second lieu, les connaissances et compétences du régulateur sont supposées implicitement dans les modèles théoriques mais leur source n'est jamais discutée. Mis à part Boot et Thakor (1993), la littérature repose sur l'hypothèse selon laquelle les régulateurs, de part leur position, sont toujours experts de l'industrie qu'ils régulent. Ils auraient ainsi parfaitement accès à l'information nécessaire dans l'exercice de leur fonction et seraient tout à fait capable de la comprendre. Cette hypothèse semble pour le moins en contradiction avec les conclusions du rapport de la FCIC faisant état du rôle joué par la sophistication croissante des activités financières dans l'échec de la protection du système financier. Les régulateurs ne sont pas parvenus à apprécier la complexité des instruments financiers et n'ont donc pas anticipé la difficulté que ceci poserait dans la mesure des risques. Par ailleurs, la création d'agence de régulation n'a pas résolu complètement la problématique d'asymétrie d'information.

La littérature sur la capture non-collusoire tente de pallier ces problèmes. Elle relâche l'hypothèse de rationalité économique parfaite du régulateur et place au

coeur de son approche d'autres canaux d'influence lié aux faiblesses de l'Homme : la capture cognitive et la capture informationnelle. Une sérieuse limite demeure cependant dans cette approche. En effet, cette théorie, qui tente d'expliquer les comportements humains et autres normes sociales, reste centrée sur le niveau individuel. Pourtant, la généralisation de la capture du régulateur démontre que ce phénomène doit être considéré globalement, au niveau institutionnel. Cette théorie envisagée à l'échelle du régulateur est donc en l'état incomplète et nécessite une analyse à la lumière de son environnement. Plus précisément, il conviendrait de prendre un compte : i) le design des institutions via la législation et les procédures s'appliquant aux régulateurs; ii) le niveau de technicité de la réglementation et la complexité de l'industrie régulée; et iii) l'environnement politique du régulateur, notamment les questions relatives aux enjeux de la régulation pour les parties prenantes. En effet, à la lumière du rapport de la FCIC, ces trois facteurs ont une influence non négligeable sur les canaux de transmission de la capture du régulateur.

Enfin, la littérature sur la capture du régulateur, que celle-ci soit collusoire ou non, demeure majoritairement théorique. Il n'existe encore que très peu d'articles consacrés à une mesure empirique de la capture et il s'agit pour l'essentiel des travaux traitant des revolving-doors⁶. Une étude empirique de ce phénomène serait cependant cruciale. Notre incapacité à réformer le système financier démontre l'intérêt, tant positif que normatif, d'apprécier dans quelle mesure la théorie identifie véritablement les canaux d'influence de l'industrie et évalue son impact sur la régulation. Cette analyse renforcerait la crédibilité de la littérature sur la capture du régulateur, souvent questionnée voire contestée, et permettrait de mettre en lumière les défaillances de nos instances de régulation qui sont elles-mêmes à l'origine de la crise financière de 2007-08. Ceci permettrait en dernier lieu de déterminer des mesures précises à mettre en oeuvre pour se prémunir de la capture.

⁶ Il s'agit principalement des études suivantes : Agarwal et al. (2012), Lucca et al (2014), Shive et Forster (2015) et Mishra et Reshef (2015).

Cette thèse contribue à la littérature florissante sur la capture du régulateur en approfondissant notre compréhension des phénomènes de capture cognitive et informationnelle sous de multiples angles. Le manuscrit est partitionné en trois chapitres. Dans un premier chapitre, je développe un modèle théorique afin d'étudier le difficile arbitrage auquel est confronté un dirigeant politique lorsque celui-ci délègue la régulation du système financier. Le choix opéré par le dirigeant politique dépend de son environnement politique et des caractéristiques du domaine réglementé. Dans un second chapitre, je définis des indicateurs de capture du régulateur et les applique à une base de données construite en rassemblant les pratiques de gouvernances et procédures de 42 agences indépendantes. Ce travail a pour but d'évaluer les prévisions du modèle théorique présenté en chapitre 1. Le troisième chapitre a pour objectif d'expliquer les disparités constatées entre agences indépendantes. Des hypothèses concurrentes sont ainsi testées : les explications politiques versus les explications culturelles et historiques. Les sections suivantes détaillent le contenu de chaque chapitre.

Présentation de la thèse

Chapter 1. Expertise Monopoly and Cognitive Capture

Le premier chapitre développe un modèle théorique fondé sur la relation d'agence entre un dirigeant politique en charge de la réglementation du secteur financier et l'agence de régulation. Ce modèle analyse les choix opérés par les législateurs de déléguer la régulation d'un secteur à une agence de régulation composée principalement d'experts financiers issus de l'industrie régulée plutôt que de fonctionnaires au niveau d'expertise moindre. Le législateur, en charge de réguler l'industrie financière, est confronté à un problème d'information. L'industrie bénéficie d'une rente informationnelle car elle connaît son niveau de risque. Cette rente informationnelle est coûteuse pour le législateur. Afin de limiter cette rente, ce dernier peut déléguer la

réglementation du secteur à une agence de régulation composée d'experts financiers, bénéficiant de connaissances techniques mais possédant un biais réglementaire, ou de bureaucrates, ne disposant d'aucune formation en Finance. Le législateur est donc soumis à un difficile compromis entre expertise et indépendance.

Le modèle démontre que le choix du législateur, entre la connaissance élevée des experts financiers et leur biais réglementaire en faveur de l'industrie, est déterminé par deux critères : la complexité du domaine réglementé et les enjeux de la politique de régulation. Ainsi, plus le domaine régulé est sophistiqué, plus le législateur est dépendant de l'expertise de l'industrie. A contrario, lorsque les enjeux de la réglementation sont forts, il apparaît préférable de nommer des fonctionnaires. La composition de l'agence de régulation et les pouvoirs qui lui sont conférés déterminent donc les groupes au sein de la société auxquels le législateur est le plus réceptif. Le modèle révèle par ailleurs l'incitation pour l'industrie régulée à augmenter la complexité de ses activités et à faire du lobbying auprès du législateur afin d'augmenter la probabilité de délégation à des experts financiers. La sophistication et le travail de plaidoyer sont des instruments de capture indirects. La sensibilisation des citoyens à l'importance de la régulation financière est nécessaire pour canaliser l'influence de l'industrie et rétablir un bon équilibre entre les différents intérêts.

Chapter 2. Financial Regulators and Regulatory Capture

Le deuxième chapitre propose un cadre théorique pour la capture cognitive et informationnelle au niveau institutionnel et tente d'expliquer la normalisation de la capture au sein des agences de régulation. Ce chapitre s'inspire de trois processus issus de Ashforth et Anand (2003) qui se renforcent mutuellement : l'institutionnalisation, la rationalisation et la socialisation. L'institutionnalisation désigne le processus par lequel des comportements personnels et des pratiques particulières deviennent des normes et procédures partagées et reconnues. La rationalisation permet aux régu-

lateurs de réconcilier leurs actes avec leur morale ou norme sociale. Enfin la socialisation, étape ultime de la normalisation de la capture, vise à empêcher toute remise en question de ces pratiques pourtant contestables par les nouveaux arrivants.

A partir de ce cadre théorique, un ensemble d'indicateurs de capture sont définis et classés par "type" de capture. Ceux-ci visent spécifiquement à mesurer la capacité des agences de régulation à se prémunir de la capture du régulateur. Ils permettent ainsi de tester les résultats issus du modèle théorique présenté en chapitre 1. Ces indicateurs sont ensuite appliqués à une base de données comprenant 49 agences indépendantes en charge de la régulation de différents domaines de régulation⁷ dans des pays variés⁸. Les données sont collectées pour l'année 2015 à partir du site internet et de la législation des agences.

Les résultats montrent que les régulateurs en Finance ont une meilleure prévention de la capture informationnelle que de la capture cognitive. Les agences sont pour la plupart dotées de comités consultatifs et de conseils scientifiques, proposent des consultations publiques durant le processus décisionnel et peuvent mener des opérations de visite et saisies. En revanche, on constate un manque d'encadrement de la composition des différents comités consultatifs et scientifiques ainsi qu'une absence de règles concernant la trajectoire professionnelle antérieure des régulateurs. Alors que l'accès à l'expertise et l'information est assuré, la représentation équitable des parties prenantes lors du processus de décision n'est pas toujours garantie. Ces résultats ont deux principales implications. Tout d'abord, le dilemme du régulateur semble avoir conduit les décideurs publics à favoriser l'accès aux compétences techniques aux dépens de l'indépendance des régulateurs vis à vis de l'industrie. L'expertise étant associée au recrutement d'anciens employés de l'industrie, les

⁷Les domaines sont les suivant : Concurrence, Energie, Finance, Pharmaceutiques, Santé Publique et Télécommunications.

⁸Les pays sont les suivant : Allemagne, Danemark, Etats-Unis, France, Italie, Pays-Bas, Royaume-Uni et Suède.

revolving-doors ont été normalisées et ont engendrés des flux importants de travailleurs entre les instances de régulation et le secteur régulé (Shive et Forster, 2015; Lucca et al., 2014; Mishra et Reshef, 2015). En second lieu, l'absence de principes éthiques clairs et applicables atteste de la difficulté de l'arbitrage auquel font face les décideurs publics, tout particulièrement lorsque ceux-ci évoluent dans un environnement techniquement et politiquement complexe. Les résultats de ce chapitre confortent les prévisions du modèle présenté en chapitre 1. Ils attestent que la course à la sophistication et la puissance des lobbies de l'industrie financière ont une influence notable sur les procédures et la conception des agences de régulation.

Chapter 3. Exploring Agency Design

Le dernier chapitre, mobilisant le cadre théorique de la littérature Administration Publique, est consacré au design des agences de régulation. La création des agences a été une réponse à l'expansion de l'Etat Régulateur lui-même étant en partie la conséquence de la libéralisation des services publics. La solution institutionnelle de l'agence reflète le besoin pour certaines décisions publiques d'apparaître formellement séparées des politiques. Cette délégation a été justifiée de multiples manières par des considérations en termes de technicité, de légitimité, de lutte contre l'incohérence temporelle et/ou d'insularisation des groupes de pression. Alors que le degré d'indépendance de ces agences a souvent été mesuré et expliqué, la littérature ne s'est pas intéressée à leur niveau d'intégrité, pourtant central à la question de la capture du régulateur. L'objet de ce chapitre est donc d'expliquer le niveau d'intégrité, d'indépendance et de responsabilité⁹ des agences indépendantes en utilisant le cadre théorique développé par la littérature en Administration Publique. Deux hypothèses concurrentes sont testées pour expliquer les disparités constatées dans le design des agences : les explications politiques versus les explications cul-

⁹Responsabilité est ici la traduction de *accountability* en anglais.

turelles et historiques. Les indicateurs d'indépendance et de responsabilité proviennent de Masciandaro et al. (2011). Ceux-ci sont légèrement modifiés pour tenir compte de critères manquants. Les indicateurs d'intégrité sont issus de OECD (2015). Ceux-ci recouvrent 4 dimensions : 1) la gestion des conflits d'intérêt; 2) les déclarations d'intérêt; 3) la transparence et l'intégrité dans le lobbying; 4) la protection des lanceurs d'alerte. Une base de données rassemblant 49 agences de régulation réparties dans 8 pays et 6 domaines de régulations est constituée pour tester les hypothèses.

Les résultats indiquent que le niveau d'indépendance et de responsabilité des agences est expliqué par des facteurs politiques et plus précisément par l'hypothèse d'engagement crédible. Cette hypothèse reflète la nécessité pour les décideurs publics d'asseoir la crédibilité de leur décision et de les protéger des problèmes liés à l'incohérence temporelle ou à l'influence des lobbies. Cette hypothèse d'engagement crédible ne parvient pas cependant à expliquer le faible niveau d'intégrité constaté chez toutes les agences de régulation. Ceci laisse entendre que le design des agences serait fondé sur l'idée selon laquelle l'indépendance vis à vis des hommes politiques suffit à assurer un engagement crédible. Pourtant, les agences peuvent elles aussi être soumises à l'influence des lobbies. Ainsi, garantir l'indépendance de l'agence vis à vis des politiques est une condition nécessaire mais insuffisante pour assurer un engagement crédible.

Introduction

"The sentries were not at their posts, in no small part due to the widely accepted faith in the self-correcting nature of the markets and the ability of financial institutions to effectively police themselves." (FCIC, 2011)

In 2011, the Financial Crisis Inquiry Commission (FCIC) is mandated to shed lights on the causes of the financial system's collapse in 2007-08¹⁰. Their report is highly critical of the work carried out by financial regulators described as "more than 30 years of deregulation and reliance on self-regulation by financial institutions". Two main observations are put forward.

The commissioners first believe that regulators had sufficient power to protect the financial system but choosed not to use their authority. They could have required more safeguards, like capital requirements, or stopped risky practices, such as mortgage securitization, but they did not. If authority or resources were the issue, the Commission claims regulators could have sought them. What regulators actually lacked was "the political will - in a political and ideological environment that constrained it - as well as the fortitude to critically challenge the institutions and the entire system they were entrusted to oversee" (FCIC, 2011). For the first time,

¹⁰This work was achieved through the Laboratory of Excellence on Financial Regulation (Labex ReFi) supported by PRES heSam under the reference ANR10LABX0095. It benefited from a French government support managed by the National Research Agency (ANR) within the project Investissements d'Avenir Paris Nouveaux Mondes (investments for the future Paris New Worlds) under the reference ANR11IDEX000602.

an official report introduces the possibility for a regulator to be *ideologically* constrained.

The Commission also argues that regulators did not have "a full understanding of the risks and interconnections in the financial markets". For a long time, they did not grasp the implications of the collapse of the housing bubble and remained confident about the financial conditions of the big investment banks. The report shows that "a month before Lehman's collapse, the Federal Reserve Bank of New York was still seeking information on the exposures created by Lehman's more than 900,000 derivatives contracts". The financial markets opacity and race to sophistication caught them off guard and some of them were aware of it: "we had allowed the system to race head of our ability to protect it". Consequently, regulators handled the crisis "on an ad hoc basis with specific programs to put fingers in the dike" and their inconsistent actions increased the uncertainty in the market.

While the causes of the financial crisis are fairly obvious, the Commission does not fully appreciate how we got there nor the dynamic that was in place. Surely the report mentions how financial lobbyists, with enormous amount of money and an extensive access to power, exerted tremendous pressures on the regulatory framework. Yet nothing explains the reason why regulators would fall for it. Why they blindly relied on the doctrine promoted by the financial industry. Is it because they were deprived from the will to safeguard the financial industry or because they were convinced by the merits of globalized deregulation?

Literature Review

The Public Choice School is the first economic literature to question the altruistic nature of the governments. This literature finds its roots in the debate on the legitimacy of state intervention as an instrument to correct market failures. It analyses the behavior of governments under the assumption that all relevant agents are rational and pursue self-interested goals. Regulatory capture is a core focus of

the economics of regulation, a branch of the Public Choice School. This theory suggests that regulators sometimes favor the interests of the industry they oversee at the expense of the general interests.

Seminal works on regulatory capture focus on collusive capture derived from the term *collusion*. Hence, the standard approach to developing a theory of regulatory capture is to think of it as a principal-agent relationship, under the assumption of economic rationality. Regulators attempt to maximize their utility for both monetary and non monetary gains. Their actions are motivated by *greed and hubris* (personal enrichment or career concerns).

Stigler (1971) analyses the regulation of trucks in the United-States where the industry pays for the votes and resources the political party needs to obtain a lenient legislation. Tirole (1986), Laffont and Tirole (1991) and Laffont and Tirole (1993) introduce a three-tier hierarchy model with a political principal (the congress), a regulator and an agent (a firm). The firm has private information regarding its costs and the agency has the sufficient expertise and resources to learn about the industry and report to the congress. The asymmetry of information incentivizes the industry to bribe the regulator in order to hide its costs. Martimort (1999) adds to the previous model the congress' response to the threat of capture. Less and less discretionary power is left at the agency but increasing bureaucratization tends to decrease its efficiency. Boot and Thakor (1993) examine the possibility for regulators to pursue self-interest rather than social welfare by introducing uncertainty about the regulator's ability to monitor the bank. To protect his reputation, the regulator has incentives to distort his policy. Albino, Hu, and Bar-Yam (2013) formalize the interaction between firms and regulators and explicitly account for their mutual influence. There is an incentive for collusion when the benefit of capture to the firm is larger than the cost of capture to the regulator. The firm may compensate the regulator's loss with monetary transfers, making collusion profitable for both parties. Similar to the previous model, Agrell and Gautier (2015) consider a direct

transmission of relevant information from the firm to the agency in order to influence the rule-making. These transfers may be in the form of industry input, sector consultation or cooperative development of regulatory projects. They find that both the regulator and the industry have an incentive in colluding as the regulator saves the monitoring costs by directly transmitting the firm-produced signal and the firm enjoys higher information rents.

Another strand of the literature is devoted to the revolving-doors (worker flows between the regulatory framework and the private industry) and therefore covers the issue of career concerns. Two competing theories exist: the *quid-pro-quo* hypothesis which states that future employment opportunities should increase the regulator's leniency toward the regulated industry while the *regulatory schooling* hypothesis expects regulators to favor harsh regulation in order to signal their expertise. Che (1995) introduces a model where collusion increases welfare. To signal their expertise and knowledge, the regulators increase their monitoring effort in order to maximize their chance of achieving a profitable side contract with the industry they oversee. Salant (1995) constructs a time-dependent model where revolving doors can increase the performance of the regulated industry. The revolving-doors enhance the cooperation between regulators and managers as their possibility of future opportunities on the other side of the fence depends on their incentive to collaborate. Agarwal, Lucca, Seru, and Trebbi (2012) study supervisory decisions of American banking regulators and compare federal and state regulator supervisory ratings. They find that federal regulators are systematically tougher than state regulators. They find no support for the *qui-pro-quo* hypothesis in the explanation for state regulator's leniency as their results show "higher turnover of state regulators into private sector if these regulators give harsher supervisory ratings to banks under their supervision" (Agarwal et al., 2012). Lucca, Seru, and Trebbi (2014) trace the worker flows between the U.S. regulatory and private sectors. Their results are consistent with the *regulatory schooling* hypothesis: regulators implement tight regulations to signal

their expertise and access to the private sector. Finally, Shive and Forster (2015) explore executives employment histories of one of six U.S. federal financial regulators and find their results to be "consistent with ex-regulators contributing to decrease risk at financial firms", therefore supporting the regulatory schooling hypothesis.

Research in regulatory capture has seen a dramatic shift in the aftermaths of the financial crisis and has placed human weaknesses at the epicenter of the issue. This alternative approach relaxes the assumption of rational behavior and introduces the concept of cognitive and information capture. Buitter (2008), Davidoff (2010), Baxter (2011) and Kwak (2013) provide a definition of cognitive capture as the regulator's education, backgrounds, experience, networks and other social interactions that tend to create an overall pro-industry paradigm. Mishra and Reshef (2015) are the first to empirically measure the impact of cognitive capture. They analyse the curriculum vitae of all central governor between 1970 and 2011 and link their characteristics to data on financial regulation. They show that a governor with experience in finance deregulates three times more than a governor without industry background. Bagley (2010) and Barkow (2010) define information capture as the excessive use of information to influence regulatory decision-making, relating it to the collective action problem (Olson, 1965). It mostly refers to the industry's ability to flood the regulatory process with industry-oriented information. McCarty (2013) constructs a model where regulators cannot easily find autonomous sources of information and expertise. To reduce the asymmetry of information, the agency can monitor the firm but the obtained information declines in the complexity of the policy environment. Consequently, the more complex the regulatory domain, the higher the risk of capture. Hence, the legislator may prefer not to delegate the regulation to the agency. Finally, based on the premise that the financial industry captured the Basel Committee through the use of highly sophisticated risk measure (Hellwig, 2010), Hakenes and Schnabel (2014) construct a model to explain how the industry intends to capture the regulator through the increase of the regulatory

approaches sophistication. They show that the increasing complexity of financial activities makes easier for the industry to produce an argument that the regulator does not understand. Career concerns prevent regulators from admitting their weaknesses and ultimately lead to worse regulatory decision.

Contribution

The standard approach on collusive capture faces at least two major shortcomings. First, the assumption of rational behavior appears, at the very least, incomplete if not simplistic. The literature assumes that the regulators, driven by greed and hubris, pursue selfish goals and deliberately favor the industry's interests. Yet, FCIC (2011) mentions the political and ideological constraint faced by regulators in the years prior to the financial crisis, suggesting that regulatory capture can be more complex than a mere collusion. Second, the source of regulators expertise is never discussed. Apart from Boot and Thakor (1993), regulators are always assumed to have a complete access to information and are perfectly able to process it. The report of the Commission however highlights the key role played by the increasing sophistication of the financial industry: "regulators failed to appreciate the complexity of the new financial instruments and the difficulties that complexity posed in assessing risk" (FCIC, 2011).

The literature on non-collusive capture relaxes the assumption of economic rationality and introduces other channels of influence. However, a serious limitation of this approach is that it ignores valuable keys to understanding regulatory capture. This literature, that intends to explain social behaviors and norms, remains focused on the individual level. Yet, the pervasiveness of regulatory capture demonstrates that a microfounded theory is incomplete and suggests the need to take into account the design of regulatory institutions (agency procedures) as well as the technical features of the policy (the complexity of the regulated industry) and the political environment (the stakes of regulation).

Finally, the literature on regulatory capture, whether collusive or not, remains mainly theoretical. To my knowledge, only few articles on the revolving doors tests its hypotheses (Agarwal et al., 2012; Lucca et al., 2014; Shive & Forster, 2015; Mishra & Reshef, 2015). Though, an empirical study of regulatory capture is crucial. Our inability to reform the financial system proves the desirability, both positive and normative, of establishing the extent to which theory correctly identifies and explains the channels of industry influence and its impact on regulation. Such analysis would foster the credibility of a theory often challenged and would allow for a better understanding of the causes that led to the financial crisis of 2007-08.

In this dissertation, I contribute to the thriving literature in regulatory capture deepening our understanding of both cognitive and information capture along multiple lines. In Chapter 1, acknowledging the importance of the features of the policy and the political environment, I develop a theoretical model to analyse the difficult trade-off faced by politicians when delegating the regulation of the financial service industry. In Chapter 2, I define precise indicators of regulatory capture and construct a data set of 42 agencies that allow me to evaluate the expectations of the model. In Chapter 3, I test two competing hypotheses to explain the disparities in agencies design: political explanations versus historical and cultural explanations. I will now turn to the content of each chapter in detail.

This dissertation

A first chapter analyses under what conditions a political principal prefers to give formal decision rights to a regulatory agency composed with former industry workers rather than bureaucrats. I develop a model in which a political principal, in charge of regulating the financial industry, faces an informational problem and a central trade-off. To limit costly information rent, the principal can delegate the regulatory task to an agency composed with financial experts, who have technical knowledge but are biased, or bureaucrats, who do not have the background to understand Finance. The model shows that the principal's trade-off between financial experts' superior

knowledge and their regulatory bias depends on the features of the policy (whether it is complex or not) and on the political environment (the stakes of regulation). So the probability of delegation to financial experts is increasing in the complexity of the policy issue, and decreasing in the industry's stakes. The composition of the board and the powers of the agency therefore indicate which groups in society the legislator is most responsive to. It implies that the industry has an incentive to increase the complexity of its activity and to lobby the legislator in order to increase the probability of delegation to financial experts. Public awareness of the importance of financial regulation is necessary to channel industry influence and to restore the balance of interests.

In a second chapter, I develop a theoretical framework for cognitive and information capture that intends to explain their normalization inside the agency. I rely on three processes derived from the literature in Organizational Behaviors: the institutionalization, the rationalization and the socialization (Ashforth & Anand, 2003). Based on this framework, I define a set of indicators that specifically target the resilience of agency procedure to regulatory capture (Appendix 5.). These indicators intend to evaluate the predictions of the model. I then apply them to a dataset of 49 agencies that are in charge of the regulation of different regulatory domains in various countries. My results show that financial regulators better prevent information capture than cognitive capture. Agencies are mostly granted with advisory committees and scientific councils, provide hearings during the decision-making process and are able to do on-site and off-site inspections. However, there is a lack of policies regarding pre-employment and the composition of advisory and scientific councils. While expertise and information seems to be ensured, a fair representation of the stakeholders in the decision-making process is not always guaranteed. These results have two implications. First, the regulator's dilemma seems to have led politicians to favor the access to knowledge at the expense of regulator's independence from the industry. As expertise is associated with the employment of former industry

workers, the revolving-doors have been normalized and leads to major worker flows between the industry and the regulatory framework (Shive & Forster, 2015; Lucca et al., 2014; Mishra & Reshef, 2015). Second, the absence of clear and enforceable ethical policies attests that politicians are facing a very difficult problem in an informationally, technically and politically complex environment. These results support the expectations of the model presented in Chapter 1. The race to sophistication and the powers of financial lobbies seem to have influenced agency procedures and design.

The last chapter is dedicated to the design of regulatory agencies. While, agencies' degree of independence is often measured and explained, the literature rarely considers their level of integrity, central to the issue of regulatory capture. The purpose of this chapter is therefore to explain agencies' degree of integrity, as well as the degree of independence and accountability, using the theoretical framework of the literature in Public Administration. I test two competing hypotheses to explain the disparities in agencies design - political explanations versus historical and cultural explanations - on a dataset of 42 agencies across 8 countries and 6 regulatory domains. My results indicate that agencies' level of independence and accountability is explained by political factors: the credible commitment hypothesis. This hypothesis reflects the need for politicians to establish the credibility of public decision-making and to protect them from time inconsistency or from intense advocacy work. Credible commitment however fails to explain agencies level of integrity, appearing commonly low. This result implies that agency design may be based on the assumption that independence from politics ensures on its own a credible commitment. Yet, agencies are also subject to the detrimental influence of interest groups. Thus, being independent from the politicians is a necessary, but not a sufficient condition to guarantee a credible commitment.

The content of this thesis has been presented to several seminars and conferences as contributed papers:

- the *CIG conference* in IAE Montpellier (may 2016)
- the *Political Economy of Financial Regulation* conference at the Chinese University of Hong-Kong (june 2016)
- the *33rd International Symposium on Money, Banking and Finance* at the Université d'Auvergne in Clermont-Ferrand (july 2016)
- the *World Finance conference* at St. John's University New-York (july 2016)
- the *VSVR-colloquium* at Harvard University (april 2017)
- the *Positive Political Economy workshop* at Harvard University (june 2017)
- the *Research Seminar* at Arafer, French Rail and Road Regulatory Body (October 2017)

Chapter 1.

Expertise Monopoly and Cognitive Capture

1. Introduction

The financial industry has long been perceived as a knowledge intensive and complex industry that attracts highly educated workers (Philippon & Reshef, 2012; Goldin & Katz, 2008; Oyer, 2008; Shu, 2013). This supposedly "brain gain" into finance¹, associated with the increasing complexity of the sector and related regulation, granted the financial industry an expertise monopoly position (Pagliari, 2012; Kwak, 2013). Ultimately, the debate has been left to experts, mostly representatives of the financial sector itself (Mulcahy, 2015). It is then hardly surprising to notice a significant increase of the worker flows between the financial industry and the regulatory framework (Barth, Caprio, & Levine, 2012; Lucca et al., 2014; Shive & Forster, 2015)².

¹Böhm, Metzger, and Stromberg (2015) find no evidence that the selection of talent into finance increased or improved. This result alleviates concerns about a "brain drain" into finance at the expense of other sectors, and shows that brain gain hypothesis cannot explain the surge in the finance wage premium.

²Mishra and Reshef (2015) show that "the proportion of governors that had past experience in finance increases from 10 percent in 1980 to 30 percent in 2010". Shive and Forster (2015) find that

The revolving-doors have become common practice, especially for senior regulatory positions (Miller & Dinan, 2009).

Hiring former bankers to fill regulatory positions is not without a cost. Although financial regulation has a strong public interest dimension, this very dimension has been slowly left to oblivion (Mulcahy, 2015). The revolving-doors facilitate the incorporation of the industry's strong social norms into the regulators' self definition (Veltrop & de Haan, 2014; Nicholson, Kiel, & Kiel-Chisholm, 2011; Gormley Jr, 1979; Cohen, 1986). Former bankers are then more supportive of the financial sector and its value because they identify with the regulated industry (Kwak, 2013; Pagliari, 2012; Poulain, 2016a). It ultimately negatively affects regulators performance (McPhilemy, 2013; Veltrop & de Haan, 2014; Mishra & Reshef, 2015). Mishra and Reshef (2015) show that in central banking the effect is important: a governor with experience in finance deregulates three times more than a governor without industry background.

Then, at a time when the European Union is reforming its regulatory framework and establishes new regulators, it appears essential to first understand under what conditions a legislator may prefer to give formal decision rights to a regulatory agency composed with former industry workers rather than bureaucrats; and second, to analyse the impact of the board composition on the agency's discretionary power. To answer these questions, we develop a model in which a legislator, in charge of regulating the financial industry, faces an informational problem and a central trade-off. To limit costly information rent, she can delegate the regulatory task to an agency composed with financial experts, who have superior expertise but are biased in favor of the regulatory preferences of the financial sector, or bureaucrats, who do not have the background to understand Finance.

"the practice among public financial firms of hiring former employees of one of six U.S. regulatory agencies increased 18-55% from 2001 to 2013".

The model shows that a principal has to trade off the superior knowledge of financial experts against their regulatory bias. Where the principal comes down on this trade off depends on the features of the policy (whether it is complex or not) and on the political environment (the stakes of regulation). Namely, the probability of delegation to financial experts is increasing in the complexity of the policy issue, and decreasing in the industry's stakes. As in Bawn (1995), the composition of the board and the powers of the agency therefore indicate which groups in society the legislator is most responsive to. It implies that the industry has an incentive to increase the complexity of its activity and to lobby the legislator in order to increase the probability of delegation to financial experts. Public awareness of the importance of financial regulation is necessary to channel industry influence and to restore the balance of interests.

2. Literature Review

Research in regulatory capture has seen a dramatic shift in the aftermaths of the financial crisis and has placed human weaknesses at the epicenter of the issue. The literature relaxes the assumption of rational behavior, central to the theory on collusive capture, and introduces the concept of cognitive and information capture. Based on Giammarino, Lewis, and Sappington (1993), McCarty (2013) constructs a model where regulators cannot easily find autonomous sources of information and expertise. To reduce the asymmetry of information, the agency can monitor the firm but the obtained information declines in the complexity of the policy environment. Consequently, the more complex the regulatory domain, the higher the risk of industry capture. Hence, the legislator may prefer not to delegate the regulation to the agency. Based on the premise that the financial industry captured the Basel Committee through the use of highly sophisticated risk measure Hellwig (2010), Hakenes and Schnabel (2014) constructs a model to explain how "increasing sophistication of

regulatory approaches" can capture the regulator. Associated to regulator's career concerns, it leads to worse regulatory decisions.

This article is also related to the literature on strategic communication. Crawford and Sobel (1982) introduces a model in which a better-informed sender sends a possibly noisy signal to a receiver who then takes an action that affects both pay-offs. The sender's objective systematically differs from the receivers. In addition, the higher the bias, the more noisy the communication between the two players. They show that when the preferences of agents are close, the role played by communication is important. But, if divergences are too strong, communication is not consistent with rational behaviors. Dessein (2002) investigates the trade-off between delegation that induces a loss of control and communication that produces a loss of information. His model is similar to Crawford and Sobel (1982): a principal has to screen among different projects or actions that differ in one dimension. The agent has superior information on which project is the best for the principal but his objective differs in a systematic way. This bias introduces noise in the communication with the principal that faces choice between fully delegating a task to the agent or to instruct the latter what to do after having consulted him. The trade-off depends on the size of the preference divergence relative to the principal's uncertainty about the environment. If the incentive conflict is not too large, the principal prefers to delegate control to the better informed agent rather than to communicate with him. He further explores cases in which the principal may delegate control to an intermediary and shows that keeping a veto-right typically reduces the expected utility of the principal unless the preference divergence is extreme. Blume, Board, and Kawamura (2007) investigates strategic information transmission introducing noise in the uniform quadratic version of Crawford and Sobel (1982). Their main finding is that welfare can be improved for almost every bias level by introducing a sufficiently small amount of noise. This result implies that the possibility of misunderstandings can help to partially overcome the limitations induced by the preference divergence

between the principal and the agent. Alonso and Matouschek (2008) study how decision rules are shaped by a principal who faces an informed but biased agent. They show that delegation is optimal when the agent's preferences are sufficiently aligned. Goltsman, Hörner, Pavlov, and Squintani (2009) investigate optimal delegation mechanism in the context of the uniform-quadratic version of the Crawford and Sobel (1982) model. Their main contribution is to allow for stochastic arbitration mechanisms. They prove that if the receiver is able to commit to using an arbitrator to make decisions for him and if the decision are made on the basis of messages received from the sender, he can obtain a strictly higher expected payoff.

This chapter makes two distinct contributions to the previous literature: to account for the possibility of a regulator being sophisticatedly *and* intellectually captured by the regulated industry and then to explore the implication of the trade-off between expertise and bias. Based on the literature in strategic communication, we develop a delegation model in which a regulator is subject to both cognitive capture and capture through sophistication.

3. Model

Players. Drawing on Goltsman et al. (2009), we investigate an agency relationship between a political principal - the legislator - in charge of regulating the financial industry and a regulatory agency. The legislator has the capacity to implement a regulation but faces an informational problem. She may decide to delegate the regulatory task to an intermediary, the agency, and if so, she determines the agency's statutory discretion and appoints its board members. The board may be composed with financial experts and/or bureaucrats.

Preferences. Regulations differ from each other on one dimension that represent the regulatory intensity (from soft to tight regulation). This dimension can be

represented by a real number $a \in A = \mathbb{R}$. With each regulation a is associated a utility $U(a, \theta)$ for the legislator, $V_{fe}(a, \theta, b)$ and $V_b(a, \theta)$ for respectively the financial experts and the bureaucrats, where $b \in [0, 1]$ is a bias and $\theta \in \Theta = [0, 1]$ is a random variable representing the financial industry's state of nature. We assume that the industry's state of nature is its level of risk (from safe, θ tends to 0 to risky, θ tends to 1). The utility of each player in state θ decreases in the distance from the preferred action given θ to the regulation a that is implemented.

The legislator does not want to stifle the financial industry with unnecessary regulation but always takes on the ultimate burden of a financial crisis through electoral pressure. Hence, her utility reaches a unique maximum for $a = \theta$ and can be written as:

$$U(a, \theta) = -(a - \theta)^2.$$

Similarly, bureaucrats' utility function is maximized for $a = \theta$. They are assumed to be (and to always have been) civil servants whose preference do not diverge from the one of the legislator. Then:

$$V_b(a, \theta) = U(a, \theta).$$

Finally, financial experts, who benefit from a long experience in the financial industry, have internalized the industry's interests. These experts are therefore biased in favor of the regulatory preferences of the supervised industry. Hence, financial experts' utility is maximized for $a = \theta - b$ where b represents the financial expert's identification or sensitivity to the industry. Financial experts' utility is thus:

$$V_{fe}(a, \theta, b) = -(a - (\theta - b))^2.$$

Expertise. The legislator does not know θ but has a prior on its domain Θ ³. The financial industry knows θ and enjoys information rents that are costly for the legislator. The agency - whether composed with financial experts or bureaucrats - has a complete access to industry related information. However, we posit that they are not equally able to process it, paving the way for a sophistication gap. Financial experts have superior technical knowledge because of their past experience in the financial industry: they observe θ perfectly. Bureaucrats, who always have been civil servants, lack the background to understand Finance in order to regulate it optimally. They cannot perfectly observe the industry's level of risk θ but only a partition S_i of Θ with N steps $S_1 \cup S_2 \cup \dots \cup S_N = \Theta$ where:

$$S_i = \left[\frac{i-1}{N}, \frac{i}{N} \right] \quad \text{for } i \in 1, 2, \dots, N.$$

And for a given $\theta \in \Theta$, let $\theta \in S_i$, the bureaucrats observe:

$$\theta \sim \mathcal{U} \left[\frac{i-1}{N}, \frac{i}{N} \right] \quad \text{for } N \in 1, 2, \dots, N.$$

The latest financial crisis has emphasized the increasing role of complexity and expertise in establishing industry's authority over regulatory framework. The FCIC (2011) showed that regulators did not have "a full understanding of the risks and interconnections in the financial markets". As sophistication rises, agencies become more and more reliable on the industry's expertise to understand its practices and activities. Consequently, the number of partition steps N can be interpreted as the extent to which financial regulation is a complex policy issue⁴.

Arbitrage. The legislator faces a trade-off. Finance is technically complex, and bureaucrats are not sophisticated enough to properly regulate it. Financial experts

³We assume that θ is drawn from a common knowledge distribution F with an everywhere positive density f on Θ .

⁴For sophisticated tasks, N tends to 1 while for simple tasks, N tends to ∞ .

benefit from this knowledge but are biased in favor of the regulatory preferences of the financial industry. Hence, delegating to bureaucrats raises the uncertainty about policy consequences (sophistication capture) but delegating to financial experts increases the uncertainty about agency behavior (cognitive capture).

Definition 1. A delegation rule $(\alpha : \Theta \rightarrow A)$ selects an action $a \in A$ for any $\theta \in \Theta$.

Definition 1 states that the agency picks its preferred action, based on the information provided by the industry, within the limits established by the legislator's delegation rule α . The delegation rule may therefore limit the agency's freedom of action by imposing a minimum (resp. maximum) level of regulation.

Definition 2. We can represent the Optimal Delegation Rule α^* as:

$$\alpha^* \in \arg \max_{\alpha \in A^\Theta} \mathbf{E} [U(\alpha(\theta), \theta)]$$

Subject to

$$\theta \in \arg \max_{\tilde{\theta} \in \Theta} V(\alpha(\tilde{\theta}), \theta, N, b, \pi), \tag{IC}$$

where π (resp. $1 - \pi$) is the share of financial experts (resp. bureaucrats) in the agency's board⁵.

The Optimal Delegation Rule maximises the legislator's expected utility under the constraint V that depends on the industry's level of risk θ , the composition of the agency's board π and its decisions $\alpha(\tilde{\theta})$, the complexity of the industry N , and the regulatory bias b .

⁵An Incentive Compatible (IC) delegation rule reflects the fact that the agency should find it optimal to tell the truth. While the bureaucrats and the legislator share the same preferred action, problem may arise from financial experts' bias. As the latter are more sophisticated than the legislator, they may have an incentive to use that knowledge at the expense of the legislator. This model does not rely on the assumption that financial experts are ill-intentioned but rather that they confuse the industry's interest for the general interest. Consequently, to best describe the mechanism behind cognitive capture, the optimal delegation rule must be incentive compatible.

Timing. The legislator decides whether or not to delegate the agency authority over the decision-rights. She picks the composition accordingly to the expected bias b and the expected complexity of the industry N and further contracts on the agency's discretionary power α . θ is realized. The financial experts observe $\theta \in \Theta$, the bureaucrats observe $\theta \in S_i$. The agents (whether financial experts or bureaucrats) initiate their preferred action accordingly to α .

3.1. Financial Experts

In this section, we assume that the legislator can only appoints financial experts. The legislator has to choose whether or not to delegate decision rights to an agency composed with financial experts. These experts have technical knowledge but may be biased. The bias is not directly observable by the legislator who only knows the expected bias, b , that is the intensity of the industry's preferences (*i.e.* the stakes of regulation).

Proposition 1. If $\pi = 1$, the Optimal Delegation Rule $\alpha_{\pi=1}^*(\theta)$ selects the preferred action of the financial experts in the interval $[\min\{b, \frac{1}{2}\}, 1]$. Formally, it satisfies:

$$\alpha^*(\theta) = \begin{cases} \min\{b, \frac{1}{2}\}, & \text{if } \theta \in [0, \min\{2b, 1\}], \\ \theta - b, & \text{if } \theta \in [\min\{2b, 1\}, 1], \end{cases}$$

$$V_{fe}(\alpha^*, 1, b) = \begin{cases} 0, & \text{if } b \leq \frac{1}{2}, \\ -(b - \frac{1}{2})^2, & \text{if } b > \frac{1}{2}. \end{cases}$$

*Proof. See Appendix 5.4.*⁶

⁶It is straightforward to verify that this delegation rule is incentive compatible. It follows from the fact that $V(a, 1, b) = 0$. Financial experts have no incentives to deviate from an action because they get their preferred action for high state of the world.

From Proposition 1, the legislator gains from delegating to financial experts if: i) the intensity of the industry’s preferences are relatively small ($b \leq \frac{1}{2}$); ii) the agency’s freedom of action decreases steadily as the expected bias rises. The optimal delegation rule is described in Figures 1.1(a) and 1.1(b).

For low bias ($b \leq \frac{1}{2}$), the legislator appoints financial experts but their discretion is limited (Figure 1.1(a)). As financial experts tend to underestimate the industry’s level of risk, it is beneficial to impose a floor regulation. However, as the level of risk increases, the best way to make use of their knowledge is to grant them full independence. Hence, the regulation is constant at b for low-risk environment and equals the preferred action of the financial experts for high-risk environment.

For high bias ($b > \frac{1}{2}$), the same decision is enforced disregarding the industry’s level of risk (Figure 1.1(b)). The legislator does not delegate the decision rights to financial experts and impose an average level of regulation for all θ . The uncertainty about agency’s preference is too high to gain anything from delegating.

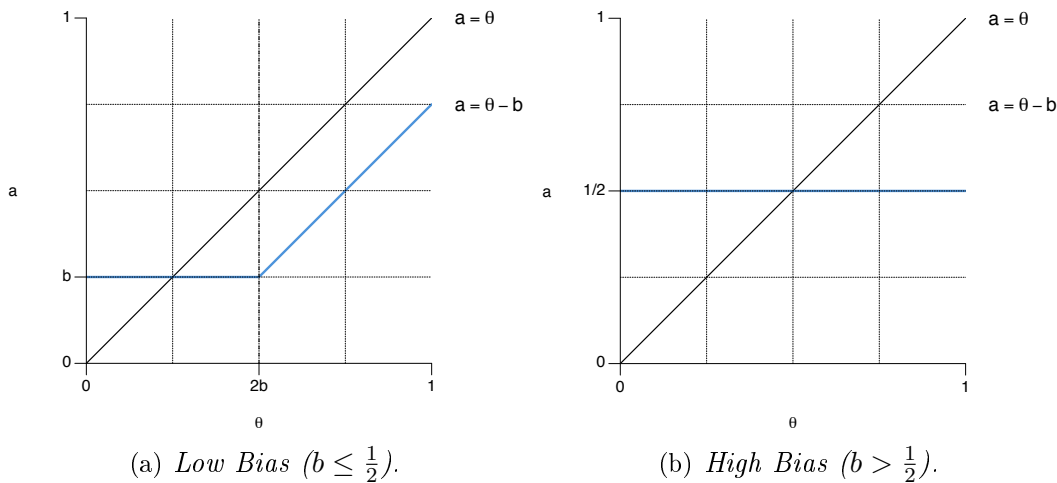


Figure 1.1: *Optimal Delegation Rule.*

Proposition 1 has two implications. First, when industry’s preferences are weak but existent (low bias), the legislator appoints financial experts but limits their freedom of action by imposing a floor regulation. This floor regulation takes the value of

the bias to account for the fact that financial expert may not be equally exposed to cognitive capture. Second, when industry's preferences are intense (high bias), the legislator prefers not to delegate the decision rights and imposes the same level of regulation regardless of the industry's inherent riskiness.

3.2. Bureaucrats

Lets now suppose that the legislator can only appoint bureaucrats. Bureaucrats have the same preference as the legislator. They cannot perfectly observe θ but only a partition S_i of Θ with N steps. The number of partition steps is not directly observable by the legislator. She only knows the expected partition N that may be interpreted as the extent to which Finance is complex. The more sophisticated the industry, the lower the number of partition steps and the less sophisticated the bureaucrats.

Proposition 2. If $\pi = 0$, the optimal delegation rule $\alpha_{\pi=0}^*(\theta_i, \theta_{i+1})$ selects the preferred action of the bureaucrats for all $N > 1$. Formally, it satisfies:

$$\begin{aligned} \theta_0 &= 0, & \theta_{i+1} - \theta_i &= \frac{1}{N}, \\ \alpha^*(\theta_i, \theta_{i+1}) &= \frac{1}{2} (\theta_i + \theta_{i+1}) & \forall \theta &\in [0, 1], \\ \tilde{V}_b(\alpha^*, 0, N) &= -\frac{1}{12N^2} & \forall N &\geq 1. \end{aligned}$$

Proof. See Appendix 5.1.

From Proposition 2, the legislator gains from appointing bureaucrats if delegation decreases the uncertainty about the policy consequences ($N > 1$). As long as bureaucrats bring knowledge, the legislator has an incentive to delegate the decision rights. The optimal delegation rule is described in Figures 1..2(a) and 1..2(b).

When the industry is relatively unsophisticated ($N > 1$), delegation is informative

(despite the high level of noise when N tends to 1). As bureaucrats are unbiased, there is no need for political control. Hence, the optimal delegation rule selects the preferred action of the bureaucrats for every θ (Figure 1..2(a)).

When the industry is highly sophisticated ($N = 1$), delegation does not provide more information to the legislator. She enforces the average level of regulation for all state of the world. The optimal delegation rule becomes a flat one (Figure 1..2(b)).

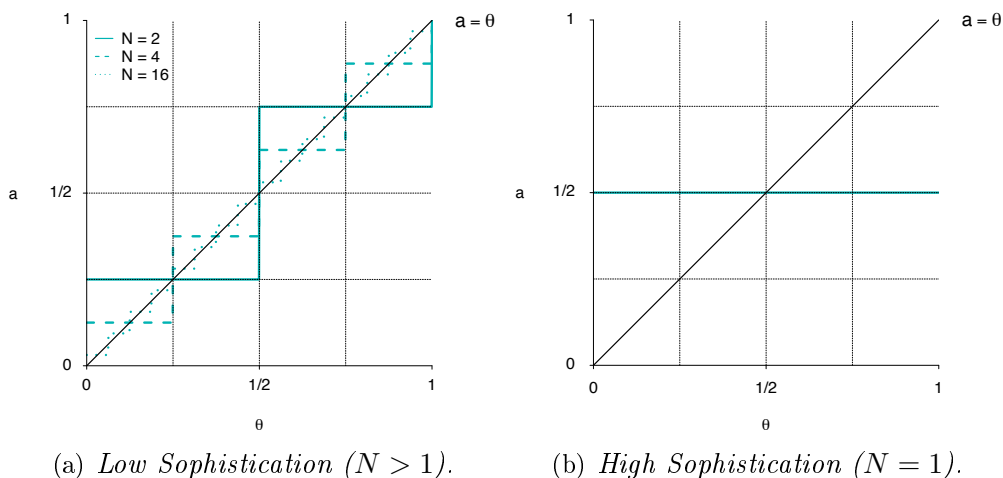


Figure 1..2: *Optimal Delegation Rule.*

The implication of Proposition 2 is that, as long as delegation brings information and decreases the uncertainty about policy consequences, it is beneficial to appoint bureaucrats and to give them complete independence.

3.3. Equilibrium

In this section, we examine the conditions leading a legislator to appoint financial experts rather than bureaucrats. We assume that the legislator favors the appointment of more incentive-aligned agents to maximize her payoff function. We restrict attentions to values of bias $b \leq \frac{1}{2}$ and of partition steps $N > 1$, since, from Proposition 1 and Proposition 2, no delegation is possible for larger b and lower N .

Theorem 1 *Let $b \leq \frac{1}{2}$ and $N > 1$, the legislator appoints financial experts if and only if $N < N^* = \frac{1}{2\sqrt{3b^2 - 4b^3}}$, that is if her expected utility for $\pi = 1$ is higher than her expected utility for $\pi = 0$. The optimal delegation rule is the one described in Proposition 1.*

Proof. See Appendix 5.2.

Theorem 1 formalizes the principal’s trade-off between expertise and bias and states the conditions for which the appointment of financial experts (and conversely bureaucrats) is preferred. When $N < N^*$, financial experts improved technical knowledge dominates the negative impact of the regulatory bias. This condition is true when the policy domain is complex ($N \rightarrow 1$) and/or the industry’s preferences are not intense ($b \rightarrow 0$), meaning that less social welfare is at stake. When $N > N^*$, bureaucrats independence from the industry dominates the negative impact of their low expertise. This condition is true when the industry’s interest in influencing the regulation is high ($b \rightarrow \frac{1}{2}$), and/or the policy domain is not complex ($N \rightarrow \infty$).

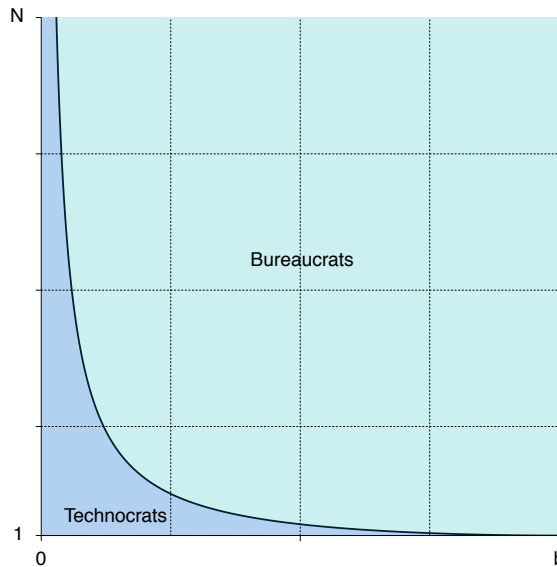


Figure 1.3: Board Composition.

Theorem 1 has two main implications. It first shows that the probability of delegation to bureaucrats is decreasing in the complexity of the issue area, and increasing

in the industry’s stakes. It implies that the composition of the board and its independence actually reflects the legislator’s willingness to trade uncertainty about policy consequences for uncertainty about agency’s preference⁷. This arbitrage varies depending on the features of the policy and on the political environment. Theorem 1 also demonstrates the incentive for the industry to increase the complexity of its activity. Indeed, by increasing the sophistication of their activities, they increase agency’s reliance on expertise and therefore the likelihood of appointing financial experts. These experts pursue similar interests and will likely favor deregulation or at the very least underestimate the real situation of their risks. Thus, sophistication is particularly strategic for risky banks for which regulation may be very costly.

In Figure 1.4, the thick black curve is N^* , a threshold representing the range of situations for which the legislator is indifferent between appointing financial experts or bureaucrats. For any combination of b and N below the indifference curve N^* , the legislator prefers to appoint financial experts. And, for any combination of b and N above the indifference curve, bureaucrats appointment is preferred.

		Sophisticated Task		Unsophisticated Task	
		$N = 1$		$N > 1$	
High Stakes	No Delegation	Bureaucrats			
	$b > \frac{1}{2}$	$\alpha^* = \frac{1}{2}$	Complete discretion		
				$\alpha^* \in [0, 1]$	
		$N < N^*$		$N > N^*$	
Low Stakes	Financial Experts	Financial Experts	Financial Experts	Bureaucrats	
	Limited discretion	Limited discretion	Limited discretion	Complete discretion	
	$b \leq \frac{1}{2}$	$\alpha^* \in [\min\{b, \frac{1}{2}\}, 1]$	$\alpha^* \in [\min\{b, \frac{1}{2}\}, 1]$	$\alpha^* \in [0, 1]$	

Table 1.1: *Optimal Delegation Rule.*

⁷As shown by Bawn (1995) with agency procedures.

Table 1.1 summarizes the legislator's compromises regarding agency expertise and independence with respect to different policy features (sophisticated or not) and political environments (stakes of regulation).

4. Advocacy Work

Financial lobbyists are among the most powerful lobbies in the world. In Brussels, 120 million of euros are spent each year on lobbying and the industry employs more than 1,700 lobbyists (Observatory, 2014; Mulcahy, 2015). Their effect on regulation is important. Rajan and Zingales (2003) show how interest group politics have slowed financial development because it breeds competition. This section therefore takes into account the possibility for the industry to lobby the legislator in order to favor deregulation. Igan and Mishra (2014) show that the financial industry's lobbying expenditures are positively associated with the probability of a legislator changing her stance in favor of deregulation. The evidence suggests that "a one standard deviation increase in spending on lobbying is associated with a 3.7 percentage-point increase in the probability of switching" (Igan & Mishra, 2014). Igan, Mishra, and Tressel (2012) examine how the mortgage industry may have influenced the U.S rule making towards subprime mortgage credit expansion in the years prior to the financial crisis. Their findings indicate that "mortgage industry campaign contributions increasingly predicted congressional voting behavior on housing related legislation".

Let $l \in L = [0, 1]$ be the lobbying effort exerted by the industry. Advocacy work increases the probability of a legislator changing her stance in favor of deregulation. Hence, the legislator's preferred action becomes $a = \theta - lb$ and her utility can be written as:

$$U(a, \theta, b, l) = -(a - (\theta - lb))^2.$$

To derive this new equilibrium, we first generalize Proposition 1 to introduce the effect of industry's advocacy work. Proposition 2 remains unchanged as the bureaucrats and the legislator share the same utility.

Proposition 3 *If $\pi = 1$, the optimal delegation rule selects the preferred action of the financial experts in the interval $[\min\{b(1 - 2l), \frac{1}{2} - lb\}, 1]$. Formally, it satisfies*

$$\alpha^*(\theta) = \begin{cases} \min\{b(1 - 2l), \frac{1}{2} - lb\}, & \text{if } \theta \in [0, \min\{2b(1 - l), 1\}], \\ \theta - b, & \text{if } \theta \in [\min\{2b(1 - l), 1\}, 1], \end{cases}$$

Proof. See Appendix 5.4.

Proposition 3 demonstrates that advocacy work expands the conditions under which the legislator has to gain from appointing financial experts. Industry lobbying induces externalities of two types: i) appointing financial experts is preferred for higher bias ($b > 1/2$)⁸ and, ii) all other things being equal, they are provided with more discretionary power over the decision-making⁹.

This representation allows us to prove the following theorem.

Theorem 2 *For all $l \in L = [0, 1]$, the legislator appoints financial experts if and only if $N < N^* = \frac{1}{2\sqrt{3b^2(1-l)^2 - 4b^3(1-l)^3}}$ that is if her expected utility for $\pi = 1$ is*

⁸The legislator appoints financial experts if $b < 1/2(1 - l)$ where $1/2(1 - l) > 1/2$ for all $l > 0$. As l increases, so does the threshold $1/2(1 - l)$.

⁹The delegation rule selects financial experts preferred action in the interval $[\min\{b(1 - 2l), \frac{1}{2} - lb\}, 1]$. As l increases, the interval in which financial experts choose their preferred action increases and the imposed floor regulation decreases.

higher than her expected utility for $\pi = 0$.

Proof. See Appendix 5.3.

Theorem 2 demonstrates that advocacy work expands the conditions under which the legislator prefers to appoint financial experts over bureaucrats¹⁰. Figure 1.4 shows that advocacy work shifts the indifference curve up ($N^{*'} > N^*$ for $l > 0$) and reduces the range of combinations of b and N for which the legislator prefers to pick bureaucrats. Hence, industry lobbying shapes the legislator's utility toward the industry's interests and makes her more sensitive to the industry's need.

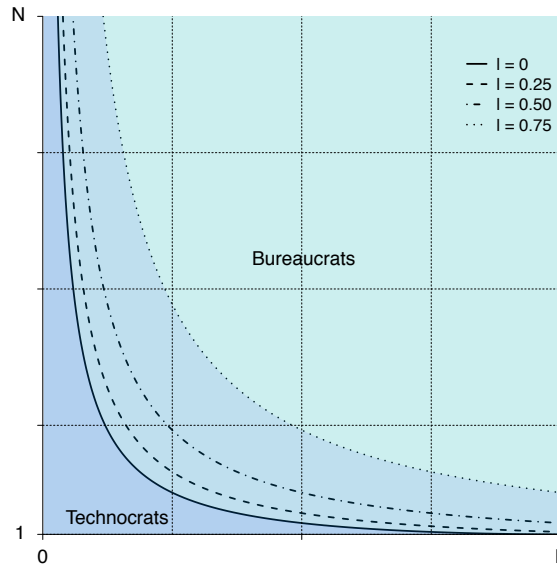


Figure 1.4: *Board Composition with Lobbying.*

The main implication of Theorem 2 is that advocacy work influences the trade-off between bias and expertise by giving more weight to expertise. It makes the legislator more inclined to favor the provision of technical knowledge at the expense of the agency's independence from the industry. Industry lobbying therefore expands the conditions under which financial experts are preferred over bureaucrats. By changing the legislator's willingness to trade bias for expertise, advocacy work influences

¹⁰Theorem 2 states that financial experts are optimal when $N < N^{*'}$ where $N^{*' > N^*$ for $l > 0$.

the composition of the board and its freedom of action and increases the likelihood of deregulation.

Table 1..2 summarizes the legislator's compromises regarding agency expertise and bias with respect to different policy features and political environment in presence of the industry's influence.

	Sophisticated Task		Unsophisticated Task	
	$N = 1$		$N > 1$	
High Stakes	No Delegation		Bureaucrats	
	$\alpha^* = \frac{1}{2} - lb$		Complete Discretion	
$b > \frac{1}{2(1-l)}$			$\alpha^* \in [-lb, 1 - lb]$	
			$N < N^{*'}$	$N > N^{*'}$
Low Stakes	Financial Experts	Financial Experts	Bureaucrats	
	Limited discretion	Limited discretion	Complete discretion	
$b \leq \frac{1}{2(1-l)}$	$\alpha^* \in [\min\{b(1 - 2l), \frac{1-2lb}{2}\}, 1]$		$\alpha^* \in [-lb, 1 - lb]$	

Table 1..2: *Optimal Delegation Rule with Lobbying.*

5. Public Scrutiny

"As a nation, we must also accept responsibility for what we permitted to occur. Collectively, but certainly not unanimously, we acquiesced to or embraced a system, a set of policies and actions, that gave rise to our present predicament." (FCIC, 2011)

During the years prior to the financial crisis of 2007-08, the topic of financial regulation was hardly covered by the mainstream press. Considered "technical" and "boring", this subject was concealed from voters (Tett, 2015) and consequently never

became an area of concerns. Such disinterest is highly detrimental for democracy. Quiring and Weber (2012) find evidence that economic news acted as an influential factor in legitimating economic policy during the financial crisis. They further demonstrate that "the effects of the media coverage were partially moderated by subjects' involvement". Mian, Sufi, and Trebbi (2014) show that the chances of reform after a financial crisis are reduced by the increased ideological fragmentation of voters. Higher political polarization weakens the government coalition and leads to legislative gridlock. Finally, Rajan and Zingales (2003) argue that public awareness of the hidden costs of policies can mitigate the influence of interests groups. Hence, if voters are not sensitive to the issue of financial regulation, it is unlikely they take it into consideration while deciding who to vote for. Politics have therefore no incentives to depart from their preferred action and reforms are unlikely to obtain any support.

In this section, we argue that voters can act as a corrective action for cognitive capture. Public scrutiny is defined as a guarantor of the general interests that can limit the adverse impact of the industry's advocacy work.

Let $w \in W = [0, 1]$ be public scrutiny parameter. If w equals its lower bound, 0, the results of section 4 apply. But for all $w \in]0, 1]$, financial regulation becomes a concern for voters and thus a topic of importance for the legislator. The latter therefore internalizes voters' will into her own utility function. The legislator's preferred action becomes $a = \theta - lb + w$ and her utility can be written as:

$$U(a, \theta, b, l) = -(a - (\theta - lb + w))^2.$$

As in the previous section, to derive the new equilibrium, we further generalize Proposition 1 to introduce the effect of voters' involvement. Theorem 2 remains unchanged as the bureaucrats and the legislator share the same utility.

Proposition 4 *If $\pi = 1$, the optimal delegation rule selects the preferred action of the financial experts in the interval $[\min\{b - 2(lb - w), \frac{1}{2} - lb + w\}, 1]$. Formally, it satisfies:*

$$\alpha^*(\theta) = \begin{cases} \min\{\min\{b - 2(lb - w), \frac{1}{2} - lb + w\}, & \text{if } \theta \in [0, \min\{2(b(1 - l) + w), 1\}], \\ \theta - b, & \text{if } \theta \in [\min\{2(b(1 - l) + w), 1\}, 1]. \end{cases}$$

Proof. See Appendix 5.4.

Proposition 4 shows that public scrutiny limits the conditions under which the legislator prefers to appoint financial experts and their discretion over the decision-making.

This representation allows us to prove the following theorem.

Theorem 3 *Let $0 > w > 1$, the legislator appoints financial experts if $N < N^{*''} = \frac{1}{2\sqrt{3(b(1-l)+w)^2 - 4(b(1-l)+w)^3}}$ that is if her expected utility for $\pi = 1$ is higher than her expected utility for $\pi = 0$.*

Proof. See Appendix 5.4.

Theorem 3 demonstrates that citizen involvement restores the balance of interests and limits the externalities produced by excessive industry influence. It forces the legislator to give more weight to the bias in the trade-off between expertise and independence from the industry. Besides, the effect of public scrutiny is important even for low w , indicating that financial regulation does not need to be of prime concern for voters to have an impact on the legislator's behavior. Figure 1.5 shows that, for a given level of lobbying intensity (here $l = 0.75$), citizen involvement shifts the indifference curve down ($N^{*''} < N^{*'}$ for $w > 0$) and reduces the range of combinations of b and N for which the legislator prefers to pick financial experts.

Following Bawn (1995), Theorem 3 implies that the composition of the board and the independence of the agency shows which groups in society the legislator is most responsive to. Legislators often are the primary parties involved in industry’s advocacy work. Public awareness of the importance of financial regulation is necessary to channel industry influence and to prevent as a consequence the legislator from neglecting cognitive capture to prevent sophistication capture.

If we consider a situation in which public scrutiny is highly intense, but advocacy work non existent, the externalities produced by citizen involvement are as detrimental as the ones produced by industry lobbying. Indeed, public scrutiny would expand the necessary conditions for bureaucrats appointment and with it increase the risk of capture by sophistication. For the situation in which no delegation is desirable, it would induce excessive regulation and thus create social cost of regulation.

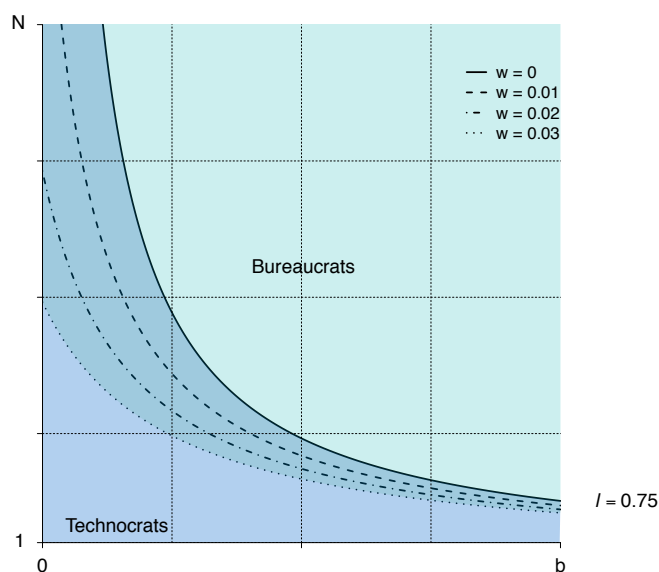


Figure 1.5: *Board Composition with Citizen Involvement.*

Table 1.3 summarizes the legislator’s compromises regarding agency expertise and independence with respect to different policy features and political environment in presence of the industry’s influence and citizen involvement.

Sophisticated Task		Unsophisticated Task	
$N = 1$		$N > 1$	
High Stakes	No Delegation	Bureaucrats	
	$b > \frac{1-2w}{2(1-l)}$	$\alpha^* = \frac{1}{2} - lb + w$	Complete discretion $\alpha^* \in [-lb + w, 1 - lb + w]$
		$N < N^{*''}$	$N > N^{*''}$
Low Stakes	Financial Experts	Financial Experts	Bureaucrats
	Limited discretion	Limited discretion	Complete discretion
	$b \leq \frac{1-2w}{2(1-l)}$	$\alpha^* \in$ $[\min\{b - 2(lb - w),$ $\frac{1-2(lb-w)}{2}\}, 1]$	$\alpha^* \in$ $[\min\{b - 2(lb - w),$ $\frac{1-2(lb-w)}{2}\}, 1]$

Table 1..3: *Optimal Delegation Rule with Citizen Involvement.*

6. Conclusion

Our model provides a well-motivated reason to believe that financial regulation confronts serious problem of agency and, in particular, of bias in favor of the financial services industry. Finance is technically complex and highly opaque. The FCIC (2011) showed that the financial system became an increasingly sophisticated machinery in the last decades. In addition, public scrutiny regarding financial regulation is almost non existent and the power of financial lobbies has reached alarming levels. For instance in 2015, to lobby in the European Union, the financial sector spends 120 million of euros and employs around 1700 lobbyists gathered into 700 organizations (Observatory, 2014; Mulcahy, 2015). It is 5 times more than the NGOs, trade unions and consumer organizations. As a consequence, the proportion of regulators that have past experience in finance keeps increasing, in central banking, from 10% in 1980 to 30% in 2010 (Mishra & Reshef, 2015) and in American regulatory

agencies from 18% in 2001 to 55% in 2013 (Shive & Forster, 2015). Establishing the extent to which regulation is in fact biased for these reasons would be highly desirable in order to understand the channels through which capture does indeed reach regulatory agencies.

Chapter 2.

Financial Regulators and Regulatory Capture

1. Introduction

Industry influence is pervasive and reaches all the levels of public decision: from the legislative process till the enforcement actions. It concerns the government, the parliament, and even sometimes the scientific expertise that advises them. During the last decades, some fields of public decision, that are especially prone to lobbying, were therefore delegated to regulatory agencies that are supposedly designed to be independent from politics and from the interest groups. Nevertheless, Chapter 1 provides a well-motivated reason to believe that financial regulation confronts serious problem of agency and, in particular, of bias in favor of the financial services industry. It indicates that regulators may not be much more insulated from special interests' influence than the politics or the legislators. Then, are regulatory agencies insulated from regulatory capture?

Seminal works on regulatory capture focus on collusive capture, that consists in assuming that regulators are driven by greeds and hubis. Stigler (1971) analyses

the regulation of trucks in the United-States where the industry pays for the votes and resources the political party needs to obtain a lenient legislation. Tirole (1986), Laffont and Tirole (1991) and Laffont and Tirole (1993) introduce a model where the asymmetry of information incentivizes the industry to bribe the regulator in order to hide its costs (Dal Bó, 2006). Martimort (1999) adds to the previous model the congress' response to the threat of capture. Less and less discretionary power is left at the agency but the resulting increase in bureaucratization tends to decrease the agency's efficiency. Albino et al. (2013) formalize the interaction between firms and regulators and explicitly account for their mutual influence, and prove the incentive for collusion. Finally, on the *revolving-doors* issue, Che (1995) introduces a model where colluding is beneficial because the regulator increases the monitoring effort in order to "increase the chance of achieving a profitable side contract with the firm". Salant (1995) constructs a time-dependent model where revolving doors can increase the performance of the regulated industry. Lucca et al. (2014) trace the worker flows between the U.S. regulatory and private sectors. Their results are consistent with the regulatory schooling hypothesis: regulators implement tight regulations to signal their expertise and access to the private sector. Finally, Shive and Forster (2015) explore executives employment histories of one of six U.S. federal financial regulators and find their results to be "consistent with ex-regulators contributing to decrease risk at financial firms". The first serious limitation of this literature is that regulators are always assumed to be ill-intentioned. They pursue selfish goals and deliberately favor the industry's interests. This approach does not address intermediate situations where regulators have little awareness of special interests' influence. In addition, apart from Boot and Thakor (1993), the source of regulators expertise is never discussed. They are always assumed to have a complete access to information and to be perfectly able to process it (McCarty, 2013). Another approach, developed in the aftermaths of the financial crisis, introduces alternative forms of capture: information and cognitive captures. Kwak (2013), Davidoff (2010), Buiters (2008) and Baxter (2011) provide a definition of cognitive capture. The concept

mostly refers to the regulator's education, backgrounds, experience, networks and other social interactions that tend to create an overall pro-industry paradigm. Described as a process of "colonization of ideas", it ultimately leads a regulator to share the views of the regulated industry (Engstrom, 2013). Mishra and Reshef (2015) are the first to empirically measure the impact of cognitive capture. They analyse the curriculum vitae of all central governor between 1970 and 2011 and link their characteristics to data on financial regulation. They show that a governor with experience in finance deregulates three times more than a governor without industry background. Bagley (2010) and Barkow (2010) define information capture as the excessive use of information to influence regulatory decision-making. Based on Giammarino et al. (1993), McCarty (2013) constructs a model where regulators cannot easily find autonomous sources of information and expertise. To reduce the asymmetry of information, the agency can monitor the firm but the obtained information declines in the complexity of the policy environment. Consequently, the more complex the regulatory domain, the higher the risk of industry capture. Hence, the legislator may prefer not to delegate the regulation to the agency. Hakenes and Schnabel (2014) construct a model to explain capture through sophistication. They show that the increasing complexity of financial activities makes easier for the industry to produce an argument that the regulator does not understand. Career concerns prevent regulators from admitting their weaknesses and ultimately lead to worse regulatory decision. This literature, that intends to explain social behaviors and norms, remains focused on the individual level. Yet, the pervasiveness of regulatory capture demonstrates that a microfounded theory is incomplete, suggesting the desirability of taking account of the institutional level. In addition, it focuses on theoretical approaches. Only few articles related to the issue of the revolving doors, to our knowledge, intend to measure the impact of industry's influence. (Agarwal et al., 2012; Lucca et al., 2014; Shive & Forster, 2015; Mishra & Reshef, 2015). The assessment of regulatory agencies procedures and design is usually related to the public administration literature (Gilardi, 2002, 2005; Christensen & Nielsen, 2010;

Wonka & Rittberger, 2010; Yesilkagit & Christensen, 2010). Therefore, it primarily lies on the measurement of regulators independence from politics.

In this chapter, we contribute to the literature on non-collusive capture by first providing a theoretical framework for information and cognitive capture at the institutional level. We rely on three processes derived from the research in organizational behaviors: the institutionalization, the rationalization and the socialization (Ashforth & Anand, 2003). Based on this framework, we define a set of indicators that specifically target the resilience of agency procedure to regulatory capture (Appendix 5.). These indicators intend to evaluate the predictions of the model. We apply them to a dataset of 49 agencies that are in charge of the regulation of different regulatory domains (Competition, Energy, Finance, Healthcare, Medicines, Media or Telecommunication) in various countries (the United-States, the United-Kingdom, Germany, the Netherlands, Denmark, Sweden, Italy or France)¹. The information collection is based on the english version of their website and on their legislation during the year 2015.

Our results show that financial regulators better prevent information capture than cognitive capture. Agencies are mostly granted with advisory committees and scientific councils, provide hearings during the decision-making process and are able to do on-site and off-site inspections. However, there is a lack of policies regarding pre-employment and the composition of advisory and scientific councils. While expertise and information seems to be ensured, a fair representation of the stakeholders in the decision-making process is not always guaranteed. These results have two implications. First, the regulator's dilemma seems to have led politicians to favor the access to knowledge at the expense of regulator's independence from the industry. As expertise is associated with the employment of former industry workers, the revolving-doors have been normalized and leads to major worker flows between the

¹The aim is to cover a broad range of agencies current governance practices and to compare the prescriptions of regulators in Finance with their sectoral counterparts.

industry and the regulatory framework (Shive & Forster, 2015; Lucca et al., 2014; Mishra & Reshef, 2015). Second, the absence of clear and enforceable ethical policies attests that politicians are facing a very difficult problem in a informationally, technically and politically complex environment. These results support the expectations of the model presented in Chapter 1. The race to sophistication and the powers of financial lobbies seem to have influenced agency procedures and design.

2. Theoretical Framework

The concept of capture lies upon the idea that an industry sometimes acquires a persistent and immoderate influence that disturbs the original balance of interests (Baxter, 2011) and consequently succeeds in using the state for its purposes (Stigler, 1971). Two polar assumptions can be made on the regulators' rationality: either they knowingly and intentionally serves the industry's interests to maximize their utility or exogeneous factors act as a veil clouding their vision and make them deviate from general interest (Poulain, 2016b). Thus, capture may be of two types: collusive or non-collusive.

In the case of collusive capture, regulators are aware that they are departing from the general interest to favor the industry's interest. They are driven by self-interested goals such as personal enrichment or career concerns and have therefore an incentive to shape the regulation toward special interests (Poulain, 2016b). The collective action problem creates an asymmetry of stakes among interest groups and leads special interests to systematically win over the general interests (Olson, 1965; Engstrom, 2013). However non-collusive capture is often defined as a *process of colonization of ideas* (Engstrom, 2013). This form of capture is more insidious precisely because the regulator ends up sharing the views of the industry and loses sight of the ultimate goal of the regulation (Veltrop & de Haan, 2014; Tai, 2015; Benink & Schmidt, 2004). Hence, as even the most well intentioned regulator would be captured, this

concept does not derive from the government failure theory. Non-collusive capture mostly arise from two channels that are defined below.

2.1. Non-collusive Capture

2.1.1. Information Capture

Information capture is defined as the excessive use of sophisticated information as a means of gaining control over regulatory decision-making. Any regulated industry benefits from an information advantage over the regulatory body. Regulators have to understand the industry they are entrusted to oversee, but the industry has often the exclusive control of this information. The latter benefits from an information monopoly (Barkow, 2010; Poulain, 2016b) that creates an asymmetry of information.

Problems may arise when the industry exploits the asymmetry of information to serve its interests. Financial regulation experiences an increase in the complexity of regulatory approaches. Such sophisticated regulatory domain creates a sophistication gap between the industry and the regulators (Poulain, 2016b). The most striking example is certainly the model-based approach to capital regulation thought out by the Basel Committee in the Basel II Accord (Hellwig, 2010). These newly developed regulations are so sophisticated that regulators may not have "the means or ability to review that information skeptically" (Bagley, 2010). Regulators are prevented from admitting their own shortcomings for at least two reasons (Hakenes & Schnabel, 2014). First, they may not want to signal their lack of expertise, and second, they may be so impressed with the sophistication that they are more easily convinced by the scientific arguments of the financial industry. Hence, by increasing the provision of sophisticated information, the industry is more likely to convince a regulator to proud to admit his own weaknesses. The risk of information capture is therefore higher in complex regulatory domain because information and expertise asymmetries between the regulators and the industry are greater.

2.1.2. Cognitive Capture

Cognitive capture gathers under the same denomination the concepts of cultural capture (Kwak, 2013), deep capture (Baxter, 2011), social capture (Davidoff, 2010) and cognitive capture (Buiters, 2008). It is achieved through the internalization by the regulators of "the objectives, interests and perception of reality of the vested interest they are meant to regulate and supervise" (Buiters, 2008). The regulators' perceptions are driven by backgrounds and culture shared with the industry that ultimately create a pro-industry paradigm (Baxter, 2011; Poulain, 2016b).

Kwak (2013) defines three mechanisms to explain how cognitive capture occurs. As any other individual, regulators are more easily convinced by whoever they perceive as being (1) part of their in-group, (2) of a higher social, economic, intellectual, etc. and (3) part of their network. Thus, the regulators' own identity, perception of status or social environment are key determinants for cognitive capture. It results in the regulator's identification with the industry. The regulator is familiar with the industry's concerns, has internalized the goals and interests and understands the norms and values (Poulain, 2016b). Consequently, the industry's arguments appear to him more legitimate and trustworthy.

Mishra and Reshef (2015) are the first to empirically measure the impact of cognitive capture. They analyse the curriculum vitae of all central governor between 1970 and 2011 and link their characteristics to data on financial regulation. They show that a governor with experience in finance deregulates three times more than a governor without industry background and conclude that "past work experiences of central bankers shape their beliefs and preferences". Although this result seems appealing, drawing causal inferences from empirical measures of connections is quite complex. A political principal oriented toward financial is likely to appoint regulators biased in favor of the industry's preferences (*i.e.* with past experience in the financial services industry). Hence, endogeneity issues make impossible to dissociate the effect of the

principal from the effect of the regulator.

2.2. The Regulator's Dilemma

The particularity of non-collusive capture is the trade-off linking information and cognitive captures. Both are the pillars of an arbitrage named the regulator's dilemma. The implications of this trade-off have been discussed in Chapter 1.

Finance is technically complex and civil servants do not have the background to understand it in order to regulate it optimally. From Chapter 1, we know that information capture is increasing in the complexity of the regulatory domain. Sophisticated regulatory issues increase policymakers' reliance on industry knowledge. To supplement the missing in-house expertise, the agency may i) hire former industry workers to occupy senior management position in agencies; ii) set up advisory groups and scientific committees; iii) conduct hearings and consultations to collect the views of the regulated sector.

However, agency's attempts to reduce information capture increases the risk of cognitive capture. The recruitment of former industry workers facilitate the incorporation of the industry's strong social norms into the regulatory framework (Veltrop & de Haan, 2014; Nicholson et al., 2011; Gormley Jr, 1979; Cohen, 1986). The industry's motives are often predominant among the consultation responses (Pagliari, 2012)². In complex regulatory domain such as Finance, the issue is even more pervasive as consumer groups do not benefit from the "resources required to compete with the financial industry groups in the marketplace for influencing regulation" (Pagliari, 2012). From Chapter 1, we expect the regulatory bias to depend on how intense the industry's preferences are. If the regulated industry does not have strong pref-

²Pagliari (2012) shows that "less than 10% of the stakeholders who respond to financial regulatory consultations belong to trade unions, consumer protection groups, non-governmental organizations, or research institutions".

erences regarding regulation - presumably because less social welfare is at stakes - regulators are less likely to confront serious problem of cognitive capture. Financial lobbying expenses indicate that the industry has strong preferences regarding financial regulation.

We argued in Chapter 1 that the agency procedure and composition actually reflect the legislator's willingness to trade expertise for regulatory bias and that where the legislator comes down on this arbitrage depends on the features of the policy and on the political environment. These arrangements consequently show which groups in society the political principal is most responsive to. Finance is technically complex and enjoys powerful lobbies (Observatory, 2014; Mulcahy, 2015; FCIC, 2011). The industry's preferences over financial regulation are intense but, as demonstrated by the financial crisis of 2007-08, regulation never became collectively an area of concerns (Tett, 2015). Voters never questioned the system, the set of policies and actions, that gave the financial industry complete freedom of action (FCIC, 2011).

We therefore expect agency procedures and design to favor the provision of expertise at the expense of their independence from the industry. Sections 2.3. and 3.1. translates this general expectation into concrete implications through indicators of agency procedure and design.

2.3. The Normalization of Capture

"When senior New York Fed officials want their staff to go easy on Goldman Sachs they don't even need to lift a finger. The institutional culture takes care of it for them." (Kwak, 2013)³.

The concept of capture is usually defined at the regulator's level, but capture is considered as one of the cause leading to the financial crisis. This micro-founded

³Kwak, September, 30 2014, How not to regulate, The Atlantic.

phenomenon has therefore been normalized and spread within the whole regulatory framework (Poulain, 2016b). Ashforth and Anand (2003) have constructed a framework to explain the normalization of corruption in industries. We apply this theory to the concept of regulatory capture in agencies. The framework is based on three reinforcing processes (institutionalization, rationalization and socialization).

2.3.1. Institutionalization

Institutionalization is the process by which "personal behaviors become impersonal norms, emergent practices become tacit understandings and idiosyncratic acts become shared procedures" (Ashforth & Anand, 2003). The practices that tend to favor capture end up "seen as normative; adapted to; and enacted mindlessly" (Ashforth & Anand, 2003). Three phases lead to the institutionalization: the genesis, the integration in structures and processes and the banalization of capture.

The Genesis. The genesis of capture is directly linked to environmental, organizational and personal factors. The key factors that lead to the genesis of capture are a permissive ethical climate and a weak leadership. Permissive ethical climate refers to a *laissez-faire* approach indicating the agency's low level of concerns about ethics and integrity. *Laissez-faire* is especially pervasive when there is an emphasis on the achievement of agency's objectives rather than on the rigorous implementation of regulations: the goals justify the means. Ultimately, ethical issues come to be subordinated to business issues. For instance, the provision of information and expertise is essential to the regulator's activity and may thus justify the slightest concern about the respect of an equal representation of the stakeholders in the decision-making process. This lack of emphasis on ethical issue is particularly important in the case of a strong competition within the regulatory framework; as it is the case in the United-States where federal and states regulators are competing (Agarwal et al., 2012). A weak leadership reinforces the detrimental effects of a permissive ethical climate. Senior managers, as the legitimate agents in the institution, are usually role

models for other members. By ignoring, facilitating or even supporting inappropriate behaviors, they foster unethical climate and consequently authorize regulatory capture. Capture becomes institutionalized because regulator's normative duty is expected to take over personal preferences. This is particularly the case in rigidly hierarchical organizations, like agencies. Such process is emphasized when leaders benefit from legal immunity (implemented for board members in some agencies) or are considered as charismatic.

The Integration. While the genesis lays the foundations of a captured agency, the integration allows capture to fall into oblivion and thus decreases the awareness of the regulator. The integration of capture may be promoted by a selective collective memory and the presence of subcultures⁴. A selective collective memory remembers the regulator's successful decisions or acts but not the means to achieve them. Unlike the industry's activity, regulatory outcomes are extremely difficult to appreciate. Hence, the notion of success is highly subjective and easily distorted or confused with the industry's interests. Subcultures identities arise when "there is high within-group task interdependence [...], accountability for performance goals but not means, group-based versus individual-based rewards, member stability and cohesion, peer-based socialization, and physical proximity" (Ashforth & Anand, 2003). These subcultures may supplant the wider culture of the agency. Informal social controls of this subgroup become more constraining than the formal settings of the official authority. Sub-cultures may arise in highly segmented tasks.

The Banalization. The banalization is the last step to institutionalizing regulatory capture. This step completes the institutionalization of capture by preventing agents from questioning any of the agency's procedures and methods. An act is routinized when all reflective thoughts and hindsight are removed from discrete decisions (Ashforth & Anand, 2003). The process becomes mechanical and does

⁴Collective memory is "the process through which an organization acquires, stores and uses the knowledge that is applied to its activities" (Ashforth & Anand, 2003).

not involve reflection anymore. Hence, once regulators are caught up in the system, it is more difficult to discontinue acting accordingly than to continue. Routinizing unethical behaviors is even easier when the process is divided into specialized tasks where individuals do not gauge the purpose of their actions. The difficult appreciation of regulatory outcomes enhances the regulator's disconnection from reality. Especially, when his tasks are abstract or far from the final objective. Consequently, regulators perform their tasks ignoring the impact of their actions and contribute to the enactment of regulatory capture (Ashforth & Anand, 2003).

In conclusion, the institutionalization results in three mechanisms. The standardization process rises "the doubtful practice to the rank of norm", the adaptation process blurs "the regulator's awareness of the inappropriateness of his behavior" and the mindlessness erodes the perceived necessity to "reexamine the premises that gave rise to the practices" (Ashforth & Anand, 2003).

2.3.2. Rationalization

Individuals who engage in dishonest actions tend not to view themselves as criminals. It is not because they have lost their moral or ethical sensibility, but rather because they attempted to reconcile their questionable acts with social norms through the use of positive illusions that serve their interests. This concept is called biased ambiguity resolution or rationalization of ideologies (Ashforth & Anand, 2003). For instance, softer financial regulation is often justified by the fact that a tough regulation would weaken banks' profitability and thus hinder the financing of the real economy. By supporting this idea, financial regulators draw flattering inferences from ambiguous reasoning. Ashforth and Anand (2003) identify eight types of rationalization of corruption. Some of them are transposable to regulatory capture (Poulain, 2016b).

The *legality argument* is based on the assessment: "if it is not forbidden, it is not an issue". The absence of legislation acts as a proof of the benign nature of the regula-

tor's actions. In the case of capture, and especially the non-collusive type, it concerns pernicious (and institutionalized) practices that are thus difficult to regulate and therefore rarely forbidden. The *social weighting* is about "condemning condemners" to reject the legitimacy of the law or even the social norm itself (Ashforth & Anand, 2003). The revolving doors policies, that prevent worker flows between public and private entities, have often been characterized as vague, complex, inconsistent (because they only require cooling-off periods) and even rarely enforced. Hence, these policies are argued to be outdated or unfair. The *denial of injury* consists for the regulator in arguing that his act is not causing any harm and such argument is hard to question in regulation. Assessing the effectiveness of a regulator's action is complicated: "virtually any policy position can be framed as furthering the public interest" Engstrom (2013). In addition, denying acting against the general interest is easier than denying acting against the industry as the former better represents its interests. The *denial of responsibility* is used when a regulator hides his actions behind "circumstances beyond his control such as management orders, peer pressure, dire financial straits, being deceived, existing precedent, that everyone else does it" (Ashforth & Anand, 2003). For instance, the challenge of reaching broad international agreement is often used as an excuse not to regulate finance. The *Appeal to Higher Loyalties* sacrifices universalistic ethical norms to serve more important causes (Ashforth & Anand, 2003). Hiring former bankers to regulatory positions is often justified by the need for information and expertise within regulatory agencies. Thus, complying to ethical norms appears less important than providing what the agency needs to properly regulate. The *denial of victim* consists in refuting the status of victim either because the victim deserved it or volunteered to participate in it or through the depersonalization of the victim (Ashforth & Anand, 2003). Finally, *refocusing attention* consists in shifting attention away from the object of discord to another issue. Villeroy de Galhau, former banker recently named at the head of the Banque de France, attempted to prove his integrity by declaring all his financial interests. Hence, by refocusing the general public's attention on asset disclosure,

everyone forgot the original and real issue of his past experience and consequently his possible identification toward the industry.

2.3.3. Socialization

"White-collar criminals... should be viewed as conformists rather than as deviants."
(Cressey, 1986)

Socialization refers to the creation of a workforce that has internalized the practices at a micro-level, just as institutionalization occurs at the macro-level (Ashforth & Anand, 2003). It is about making newcomers learn how not to think outside the box and how to be receptive to the industry's interests (Poulain, 2016b). The *social cocoon* concept explains the impact of institutional social influence on newcomers values, norms and skills (Ashforth & Anand, 2003). In a social cocoon, senior regulators define the new rules to adopt and newcomers are encouraged to bond with and please them. Newcomers ultimately identify with senior regulators as they represent the hierarchy and with it career success. Consistent information and ideological statements are constantly provided to new workers in order to transform ambiguity in a clear dualistic world. Any doubts raised by them are attributed to their own shortcomings. Finally, they are incited to promote the new rules and the acceptance of them as well as discouraged from sharing doubts or having any attempt to go back to ethical actions. In the context of social cocoon, three paths explain the socialization of capture (Ashforth & Anand, 2003). *Cooptation* defines a situation where rewards induce newcomers to distort their beliefs and attitudes toward the new rules. *Incrementalism* is a step-by-step process that induces newcomers to engage in unethical practices, starting with small acts that are harmless but visible and explicit. To reconcile the misalignment between acts and beliefs, newcomers may invoke the rationalization of ideologies. Finally, *compromise* occurs when newcomers are encouraged to engage in unethical behaviors to solve "dilemmas and other intractable problems" (Ashforth & Anand, 2003) such as gaining access to sufficient

information and data while being independent from the regulated industry.

Socialization may be enhance by the recruitment of individuals that are: already sensitive to the practices and thus *pre-socialized* or conventional rather than rebellious. The shared networks between financial regulation and the industry may have been determinant in the pre-socialization of regulators.

3. Methodology

Section 2.3. demonstrated that the only way to insulate agencies from capture is to prevent from its institutionalization (through the improvement of policies) and its socialization (through the recruitment process, especially at senior positions). In the next section, we intend to assess agencies' degree of institutionalization and socialization in order to evaluate the implications of the regulator's dilemma. We therefore build a set of indicators for each channels of capture (collusive, cognitive and information) and apply them to 49 agencies.

3.1. Indicators

Collusive capture occurs when the regulator intends to reach selfish objectives such as personal enrichment or career concerns. The indicator of personal enrichment is the policy on the offer of gift and hospitality. Career concerns are controlled by the presence of post-employment policies. Information capture occurs when there is an asymmetry of information or expertise between the regulators and the regulated industry. Hence, to bring in-house knowledge and fieldworker information, the agency may set up advisory committees or a scientific councils. Regulators may also conduct hearings and consultations or carry out on and off-site inspections. Thus, to control for information capture, three indicators are created: one for the presence of advisory committees or hearings, another for the provision of a scientific committee

and finally, we control for the possibility for the agency to carry out on-site and off-site inspections. Cognitive capture occurs when there are excessive social interactions between the regulator and the regulated industry. Hence, the agency may set-up rules to prevent the regulated industry from being over-represented during the decision making process. The agency may require an equal representation of all the stakeholders in the advisory committee, create a consumer advisory committee or a scientific committee to be composed with independent experts. Meetings with interest groups may be recorded to ensure a fair allocation of time. Finally, pre-employment policy, the last indicator, refers to the rules governing the agency's recruitment process. An absence of pre-employment policies increases the risk of identification⁵.

The indicators are gathered in Appendix (Table 3.6). We associate to each of them three levels of regulation, from lax to coercive. A rating of 1 is given if the agency satisfies the policy, a 0.5 for partial compliance, and a 0 for non-compliance.

From Section 2.2., we expect agency procedures and design to favor the provision of expertise at the expense of their independence from the industry. It would therefore implies that agencies are granted with strong policies preventing information capture. Agencies would be provided with advisory and scientific committees and would have the power to perform on-site and off-site inspections. It would also imply that agencies do not prevent cognitive capture. Hence, agencies would not ensure a fair representation of all stakeholders in the decision-making process nor would they prevent former industry workers to join the regulatory framework.

⁵This index may measure agencies insulation from information capture because recruiting a former worker in the regulated industry reduces the asymmetry of expertise. We arbitrarily choose to associate this indicator to cognitive capture instead of information capture.

3.2. Dataset

Regulatory domains have different structure of interest groups and are not equally sophisticated (Engstrom, 2013). For instance, in the European Union, the more powerful lobbies are those of Finance, Medicine, Telecommunications and Energy (Mulcahy, 2015). However, with an expense of EUR 120 million for lobbying in the European Union, Finance is by far the biggest spender (against EUR 40 million for Medicine, the second largest spender). We therefore extend the analysis to other sectors than Finance to test whether capture is specific to financial regulation. We rely on a dataset constructed in a previous work that gathers a set of 49 agencies that are in charge of the regulation of one of these seven sectors: Competition, Energy, Finance, Healthcare, Medicines, Media and Telecommunication. These agencies belong to Denmark, France, Germany, Italy, Sweden, the Netherlands, the United-States, the United-Kingdom.

The information is collected on the English version of their website and legislation during the year 2015 (in Appendix, Table 5.6.). This convenient methodology faces shortcomings. The most serious limitation is that the evaluation is based entirely on the posted, presumably statutory, features of the agency. The dataset does not take account of informal norms or regularities, and may not be reflected in actual behavior. In addition, drawing causal inferences from empirical measures of connections is quite complex. For instance, as explained in section 2.1.2., a political principal oriented toward financial is likely to appoint regulators biased in favor of the industry's preferences. Third, we observe that on average agencies do not display a high level of transparency. Some institutions, especially in Sweden and Denmark, do not provide any information regarding ethical policies, while others release incomplete information. Two interpretations may be considered: either an issue is not covered by the agency's legislation or the provision exists but is not made public. For extreme cases such as Sweden and Denmark, the lack of information makes the results meaningless; otherwise the absence of information are interpreted

as an absence of provision. Finally, even when released the legislations may not be explicit. Policies often consist in a two-tier structure: the civil servant code of the government and agencies' supplemental standards. As there exists no general status for regulators, agencies may be composed with civil servant and/or employees and civil servant legislations do not always apply to all members. In the absence of clear prescriptions, navigating between these legislations is highly complex.

4. Results

Overall, our results show that financial regulators better prevent information capture than cognitive capture, supporting the expectations of the model presented in Chapter 1. The race to sophistication and the powers of financial lobbies seem to have influenced agency procedures and design. While aggregated indicators display heterogenous results, interesting trends emerge on a thinner scale.

Country	Collusive Capture	Information Capture	Cognitive Capture
United-Kingdom	0.34 (0.27)	0.76 (0.16)	0.10 (0.15)
United-States	0.44 (0.18)	0.90 (0.16)	0.32 (0.22)
Germany	0.07 (0.19)	0.67 (0.24)	0.02 (0.06)
The Netherlands	0.17 (0.26)	0.75 (0.17)	0.07 (0.11)
Italy	0.21 (0.33)	0.60 (0.37)	0.06 (0.14)
France	0.28 (0.25)	0.65 (0.30)	0.06 (0.12)

Table 2..1: *Descriptive Statistics for Countries.*
Mean and standard deviation in braces.

Sector	Collusive Capture	Information Capture	Cognitive Capture
Competition	0.25 (0.32)	0.78 (0.27)	0.00 (0.00)
Medicine	0.29 (0.33)	0.83 (0.18)	0.12 (0.14)
Healthcare	0.19 (0.38)	0.63 (0.08)	0.08 (0.17)
Energy	0.29 (0.25)	0.64 (0.07)	0.08 (0.14)
Telecom	0.17 (0.20)	0.56 (0.34)	0.18 (0.21)
Media	0.17 (0.20)	0.53 (0.34)	0.14 (0.22)
Finance	0.39 (0.22)	0.89 (0.17)	0.15 (0.21)

Table 2..2: *Descriptive Statistics for Sectors.*
Mean and standard deviation in braces.

4.1. Non-Collusive Capture

In the light of Chapter 1 and from Sections 2.2. and 3..6, we expect financial regulators to favor the provision of expertise at the expense of the regulatory bias. We therefore suppose that financial regulators have high score for the prevention of information capture and low score for the prevention of cognitive capture. The results for non-collusive capture partially validate these expectations defined in Sections 2.2. and 3..6.

Information capture displays the highest scores (Figure 2..1 and Tables 2..1 and 2..2). Whatever the country and the sector, the prevention of information capture always has the highest scores. As shown in Figure 2..1, the median for all countries and for all sector is equal or above 0.5. Most agencies are granted with advisory committees (and to a lesser extent scientific committees), make provision for public consultations and are able to carry out on-site and off-site inspections. Table 2..2 shows that Finance has the highest score for the prevention of information capture, 0.89, while the mean among sectors is around 0.59. Financial regulators are all

provided with advisory committees and scientific councils (apart from the Germanic countries) and are able to perform on-site and off-site inspections.

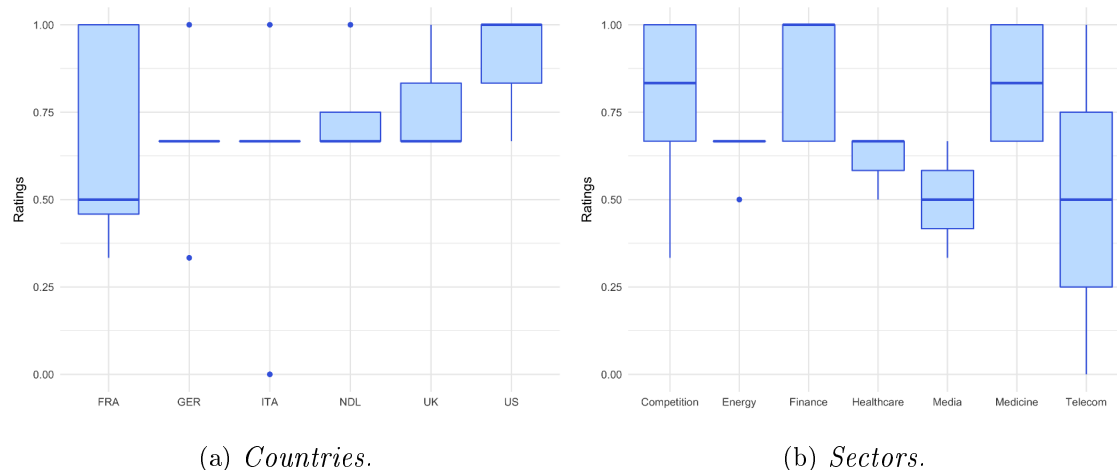


Figure 2.1: *Information Capture.*

The centerline of the box is the median, the top and bottom are 25th and 75th percentile. The dots represent outliers (*R* computing method follows the rule: outlier if $< Q1 - 1.5 * IQR$ or if $> Q3 + 1.5 * IQR$ where *IQR* stands for interquartile range). The upper whisker is defined as $\min(\max(\text{score}), Q3 + 1.5 * IQR)$ and the lower whisker as $\max(\min(\text{score}), Q1 - 1.5 * IQR)$.

Tables 2.1 and 2.2 show that the results are very heterogenous for cognitive capture. Standard deviations are relatively high and average scores very low. It is in no small part due to high differences among indicators. Before describing each indicators, Figure 2.2 allows us to draw some interesting trends. Whatever the country or the sector, all the regulators have a low score (*i.e.* below the threshold of partial compliance: 0.5) for the prevention of cognitive capture. Hence, a vast majority of agencies does not release any information regarding this issue. In the UK, France, Germany and Italy, half of the agencies have no provision regarding cognitive capture. The same result holds true for agencies regulating Competition, Energy, Finance, Healthcare and Media. Thus, even if the practices are quite heterogenous within a sector or a country, it indicates that a majority of agencies are lacking policies preventing cognitive capture.

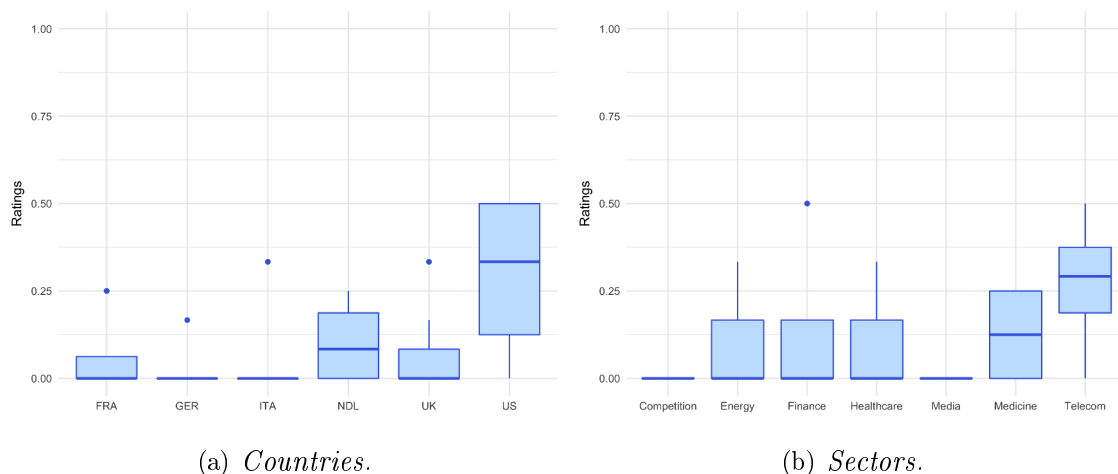


Figure 2..2: *Cognitive Capture.*

The centerline of the box is the median, the top and bottom are 25th and 75th percentile. The dots represent outliers (R computing method follows the rule: outlier if $< Q1 - 1.5 * IQR$ or if $> Q3 + 1.5 * IQR$ where IQR stands for interquartile range). The upper whisker is defined as $\min(\max(\text{score}), Q3 + 1.5 * IQR)$ and the lower whisker as $\max(\min(\text{score}), Q1 - 1.5 * IQR)$.

The results for the first indicator, controlling for recruitment policies, are striking: none of the agencies provide pre-employment restriction (Figure 2.3(a)). Hiring a former industry worker is never forbidden nor restrained. The only rule provided by most of the agencies, like for instance the US SEC, states that the agency shall recruit people based on their "qualification, competence, and experience". Others like the Defense Nuclear Facilities Safety Board, states that members must be "respected experts" in the regulated field (Barkow, 2010). No further definition of the term "expert" is provided and allows for all kinds of interpretations of this concept. As shown by Barkow (2010), "most [agency] statutes fail to specify qualifications for appointees". Nothing prevents the agency from recruiting former industry workers, and unsurprisingly the revolving doors between the regulatory framework and the industry is constantly increasing. For instance, Mishra and Reshef (2015) find that "the proportion of governors that had past experience in finance increases from 10 percent in 1980 to 30 percent in 2010". Finally, this result also highlights the absence of quotas. Consequently, most agencies could be, in theory, only composed

with industry workers. Most studies on the revolving doors are focusing on agency’s decision makers (*i.e.* the board). Future research could be devoted to the assessment of the permanent services composition. Even if the board is the only competent body to take a decision, this action is motivated by the information provided by the permanent service.

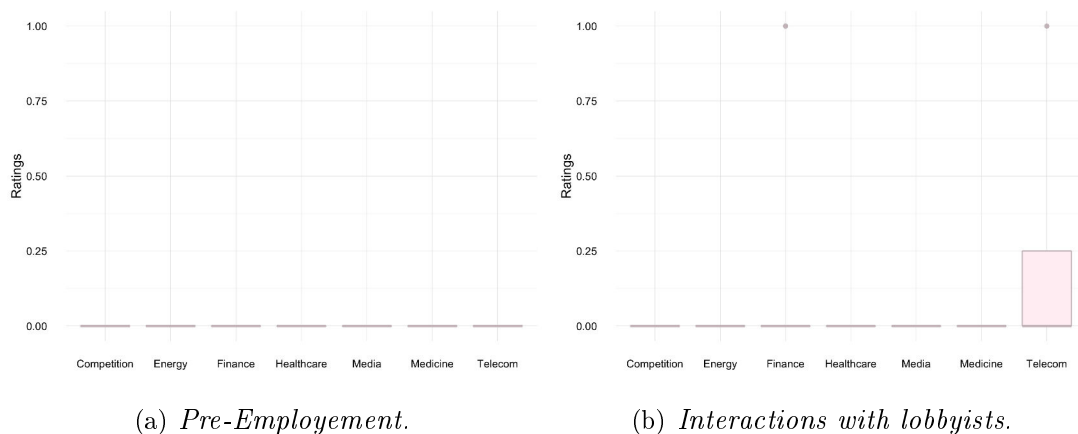


Figure 2.3: *Indicators of Cognitive Capture.*

The centerline of the box is the median, the top and bottom are 25th and 75th percentile. The dots represent outliers (*R* computing method follows the rule: outlier if $< Q1 - 1.5 * IQR$ or if $> Q3 + 1.5 * IQR$ where *IQR* stands for interquartile range). The upper whisker is defined as $\min(\max(\text{score}), Q3 + 1.5 * IQR)$ and the lower whisker as $\max(\min(\text{score}), Q1 - 1.5 * IQR)$.

The second and third indicators, measuring the equal representation of stakeholders in advisory and scientific committees, are quite heterogeneous (Figures 2.4(a) and 2.4(b)). It is however worth noting that the median of five sectors out of seven equals 0. Hence, even if the practices are quite heterogeneous within a sector, a majority of agencies are lacking policies guaranteeing a fair representation of interest groups during the decision making process. Regarding the composition of scientific committees 2.4(b), indicators display low scores. Apart from the FDA, none of the agencies is ensuring the independence of the scientific committee. Consequently, the composition of these councils is left at the discretion of the agency that may or may not appoint independent scientific expertise. For instance, the scientific committee

of the French Financial Market Authority (AMF) is composed with both academics and economists from the financial industry.

Policies regarding the representation of stakeholders in advisory committees differ a lot among sectors (Figure 2.4(a)). None of the regulators in Healthcare and Competition are provided with consumers representatives. This result holds true for half of the agencies in Energy.

In Finance, the American regulator is the only one providing policies that ensure a fair representation of the stakeholders. The Dutch and the German regulators have consumer representatives but their participation in the decision-making process is not mandatory. In France, Italy and the UK, financial regulators do not appear to be granted with these arrangements. The most restrictive policies are provided by the US Food and Drug Administration (FDA). The agency "uses 50 committees and panels to obtain independent expert advice on scientific, technical, and policy matters"⁶. Furthermore, the FDA provides open public hearings that encourage the "participation from all public stakeholders in its decision-making processes" with a guidance to enhance the general public to participate to the sessions⁷. The agency ensures the presence of consumer representatives within its advisory committees⁸.

In addition, there is sometimes a lack of control of these representatives. Barkow (2010) explains that the Federal Reserve Board of Directors and its public representatives are, in practice, "more representative of industry". The main reasons is that the financial industry participate in the selection process of the representatives. Besides, anyone can claim to be representative of the general public as we are all con-

⁶<http://www.fda.gov/AdvisoryCommittees/default.htm>

⁷FDA, May 15th, 2015, Guidance for the Public, FDA Advisory Committee Members, and FDA Staff: The Open Public Hearing at FDA Advisory Committee Meetings.

⁸"The role of the Consumer Representative is to represent the consumer perspective on issues and actions before the advisory committee; serve as a liaison between the committee and interested consumers, associations, coalitions, and consumer organizations; and facilitate dialogue with the advisory committees on scientific issues that affect consumers." (Source: www.fda.gov).

sumers of financial services. The FDA has tackled this issue by further ensuring that the consumer representative is able to "analyze scientific data, understand research design, discuss benefits and risks, and evaluate the safety and efficacy of products under review" and has to be part of consumer or community-based organizations.

Finally, a last indicator controls for the presence of a register to record meeting with the lobbyists (Figure 2.3(b)). Such policy seems to be applied only in the US in Telecommunication (at the FCC) and Finance (at the SEC and the CFTC).

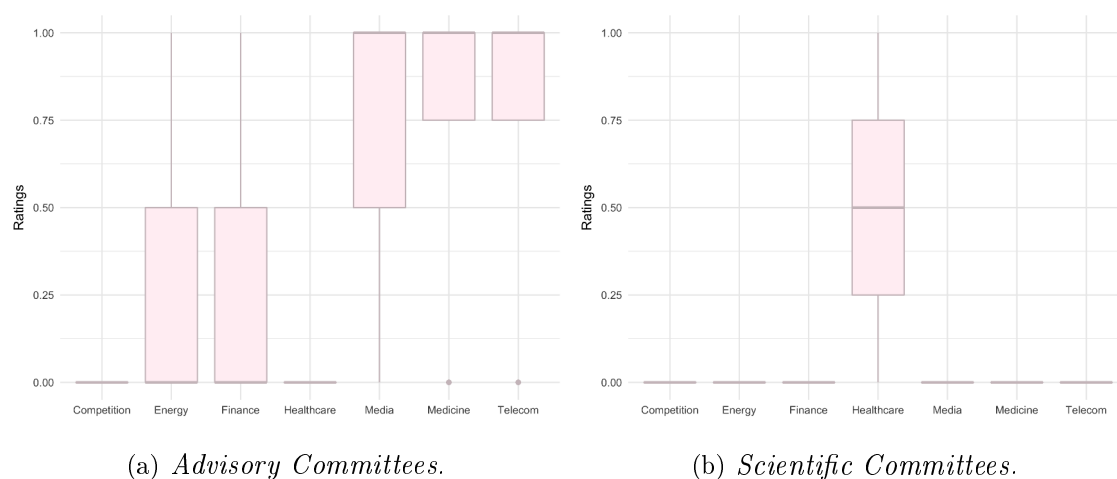


Figure 2.4: Representation of the Stakeholders.

The centerline of the box is the median, the top and bottom are 25th and 75th percentile. The dots represent outliers (R computing method follows the rule: outlier if $< Q1 - 1.5 * IQR$ or if $> Q3 + 1.5 * IQR$ where IQR stands for interquartile range). The upper whisker is defined as $\min(\max(\text{score}), Q3 + 1.5 * IQR)$ and the lower whisker as $\max(\min(\text{score}), Q1 - 1.5 * IQR)$.

In conclusion, although indicators tend to reveal mixed results when aggregated, at a thinner level, some trends are highlighted. Financial regulators better prevent information capture than cognitive capture. This results supports the expectations of the model presented in Chapter 1. The race to sophistication and the powers of financial lobbies seem to have influenced agency procedures and design. This trend may be the proof of the existence of the regulators dilemma. However, this difficult trade-off faced by political principals seems to have been solved by favoring

the access to information and expertise at the expense of regulator's independence from the industry.

4.2. Collusive Capture

Collusive capture refers to monetary transfers or industry recruitment, a tangible reality demonstrating industry's influence over the decision-making process. This form of capture is therefore expected to be the easiest to regulate, the results however indicate otherwise.

We focus on trends across countries that are more significant. The high standard deviations shown in Tables 2..1 and 2..2 indicate that aggregated indicators for collusive capture cannot be interpreted⁹. This heterogeneity is illustrated in Figure ?? where the US appears to be the only country displaying high and homogenous scores. The median for France and the Netherlands is below the threshold of partial compliance (0.5) and half of the German and Italian regulators do not release any information regarding the prevention of collusive capture. This form of capture must therefore be interpreted at the indicator scale.

The first indicator, the offer of gift and hospitality from interest groups, shows very mixed results. Some trend may be highlighted among countries, especially in Anglo-american countries. In the US, the very vast majority of regulators forbid or restrict the offer of gift and hospitality from the regulated industry (Figure 2..5(a)). The results holds true to a lesser extent in the UK where half of the agencies comply with the strictest policy (Figure 2..5(a)). This is not surprising at all: Anglo-american countries have a much longer lobbying tradition than the European Union. They have "struggled for more than half a century to develop an effective system of

⁹ Among sectors, apart from Finance and Energy, the mean is always below the standard deviation. The same conclusion can be drawn for country comparison where only France, the UK and the US have means above the standard deviation.

regulating the profession of lobbying" (Holman & Luneburg, 2012). As highlighted by Mulcahy (2015), only 7 European countries out of 19 assessed are granted with arrangements to control for the lobbying activities and the overall score of the 19 countries is about 0.31. The result of Mulcahy (2015) is confirmed by Figure 2.5(a) where fifty percent of the French, German and Italian regulators do not release any information regarding their lobbying policies. Finally, it is worth nothing that, with a mean of 0.78, financial regulators show the highest score for gift and hospitality restrictions. This results is mitigated by the heterogeneity of practices (the standard deviation is around 0.44).

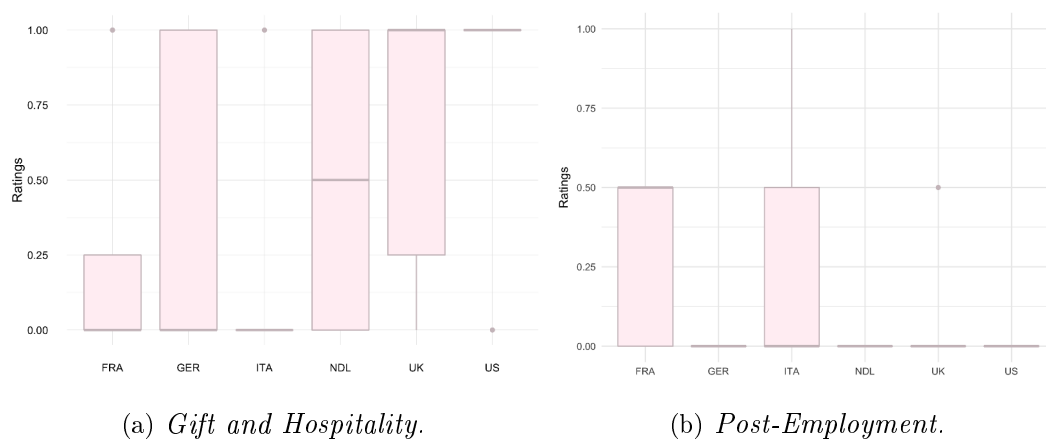


Figure 2.5: *Indicators of Collusive Capture.*

The centerline of the box is the median, the top and bottom are 25th and 75th percentile. The dots represent outliers (*R* computing method follows the rule: outlier if $< Q1 - 1.5 \cdot IQR$ or if $> Q3 + 1.5 \cdot IQR$ where *IQR* stands for interquartile range). The upper whisker is defined as $\min(\max(\text{score}), Q3 + 1.5 \cdot IQR)$ and the lower whisker as $\max(\min(\text{score}), Q1 - 1.5 \cdot IQR)$.

The second indicator, measuring post-employment policies, reveals strong trends (Figure 2.5(b)). None of the American, German or Dutch regulators provide restriction for future employment. Only part of the regulators from France, UK and Italy provide post-employment policies that usually take the form of a waiting period of 2 or 3 years before joining the industry. None of them are however in charge of financial regulation.

Miller and Dinan (2009) argues that the SEC has one of the best policies for managing the conflict of interest and the revolving doors. The SEC indeed prevents former employees from "representing certain clients on particular matters before their former agency" (Clowers, 2013). The *Revolving Door Ban* further prohibits former appointees to "lobby for any covered executive branch official or non-career Senior Executive Service appointee for the remainder of the Administration"¹⁰. These restrictions may be either permanent bans or a two years cooling-off period depending on the seniority of the SEC employees¹¹. The SEC policies therefore do not actually forbid former employees from "accepting employment with any particular private or public employer" but from "providing certain services to or on behalf of non-Federal employers or other persons" (5 CFR §2641.101). In addition, the report of the US SEC Office of Inspector General highlights some violation of these rules on post-employment¹². In conclusion, there are still some doubts about the potential for conflict of interests (Clowers, 2013).

There exists stricter policies in other sectors and in other countries. The more restrictive provisions are given by the Energy sector in Italy. The legislation prevents a former senior member to maintain, either directly or indirectly, relationships of collaboration, consultancy or employment with firms operating in their specific sector. This restriction applies for at least four years after senior members' termination of duties. The prescription is accompanied by a list of fines to impose if senior members fail to comply with the law.

¹⁰Barack Obama, January 21, 2009, Executive order on Ethics Commitments by Executive Branch Personnel, The White House.

¹¹The rule to be applied states that "more senior officials should have more stringent rules applied to their post-employment behaviour as capacity to wield influence with former colleagues is more significant" (Miller & Dinan, 2009).

¹²US SEC Office of Inspector General, 2010, Semiannual report to Congress, pp. 55; in (Bagley, 2010). This result is deeply in accordance with Shive and Forster (2015) who find that "the number of ex-regulators employed at financial firms increases" from 18% in 2001 to 55% in 2013. This trend tends to indicate that, in periods of intensive regulation, the financial industry is deeply in need for access to the regulatory framework in order to lobby for its interests.

4.3. Discussion

The revolving doors is a channel leading to both collusive and cognitive captures. While other indicators show mixed results, the revolving doors are characterized by generalized low score (Figures 2.3(a) and 2.5(b)). This lack of pre and post employment policies therefore increases the risk of collusive capture (through the offer of opportunities in the industry) and the risk of cognitive capture (through the regulator's identification with the industry). Thus, this practice appears to be at the very center of the issue of regulatory capture.

The revolving doors are particularly pervasive in the financial industry (Miller & Dinan, 2009; Shive & Forster, 2015; Mishra & Reshef, 2015), indicating that the practice may be normalized. The lack of policies regarding regulator's pre and post employment created a permissive ethical climate where the leadership is first involved (Shive & Forster, 2015). Besides, the appointment of senior regulators strengthens their credibility. Board members, whether industry experts or not, are approved of the executive power. The revolving doors have been *institutionalized*. The technocratic model of regulatory agencies relies on the need for a strong in-house expertise. Industry experts are perceived to be the best suited workers. The financial industry benefits from the reputation of a "brain gain", most of the highly educated worker would be attracted by this industry but also because the financial industry used to represent a successful career (Böhm et al., 2015; Kwak, 2013). The revolving-doors have been *rationalized*. Finally, new workers, especially the top management, are mostly industry experts (Miller & Dinan, 2009) that are familiar with the norms and values of the financial industry. The revolving-doors have been *socialized*.

Considering the fact that a regulatory mandate is highly profitable to seek a job in the industry. The revolvers are likely to return to the very same industry after termination of their duty. It appears therefore to be the first channel through which

regulatory capture reaches the agency. One could argue that the solution is simply to shut the revolving doors between the industry and the regulatory framework. However, such highly rigid policy could hamper the agencies' recruitment process. Regulatory positions are always held for a specified period of time and "it might be difficult to attract people with the relevant expertise to join the agency in the first place if they are concerned that they will be foreclosing too many job prospects in the future" (Barkow, 2010).

5. Conclusion

This chapter aims at explaining how regulatory capture can reach regulatory agencies supposedly designed to protect the general interest. We first provide a theoretical framework for non-collusive capture, define indicators to measure agencies insulation from capture and apply them to a set of agencies.

The central thesis of this chapter is that financial regulators better prevent information capture than cognitive capture. This results supports the expectations of the model presented in Chapter 1. The race to sophistication and the powers of financial lobbies seem to have influenced agency procedures and design. Agencies are provided with arrangements to prevent information capture. However, their protection from cognitive capture is not ensured. The revolving-doors appear to be at the very center of this issue. The absence of clear and enforceable ethical policies attests that politicians are facing a very difficult problem in a informationally, technically and politically complex environment.

This chapter further highlights that a vast disparity of practices among regulators. The heterogeneity of agency procedures and design persists within countries and sectors. Such result is questioning the sources of regulator's disparities and more broadly agencies creation.

Chapter 3.

Exploring Agencies Design

1. Introduction

Agencies were mostly created at the end of the XXth century in response to two institutional and political dynamics: the expansion of the regulatory state and the agencification (Bianculli, Fernández-i Marín, & Jordana, 2013). The expansion of the regulatory states refers to the increase of the state intervention in a large number of sectors as a result of the liberalization of utilities (Bianculli et al., 2013). The agencification represents the need for certain public decisions to be formally separated from the politics. Politician can have an interest in delegating control of some public decisions because of informational, credibility or welfare reasons. This incentive can be interpreted as reflecting: the increasing technical complexity or the judicial nature of decision, the wish to eliminate a trade-off that public opinion would not find legitimate, the importance of time inconsistency and inter-temporal concerns or the increasing influence of interest groups (Bénassy-Quéré, 2010)¹. All of these reasons can explain the mushrooming of agencies.

¹Such as finding a compromise between public health and economic objectives.

In this article, we focus on one particular aspect of agencies' creation: their institutional and organizational design. Agencies have been established in different political contexts and for different regulatory purposes and they unsurprisingly show relevant institutional and organizational differences. In Chapter 2, we find that this heterogeneity is persistent across countries and sectors.

The literature in public administration attempted to explain the differences in their level of independence, interpreted as their autonomy from the politics. These articles provide both political and cultural-historical hypotheses. Political explanations is derived from the issues of both credible commitment and policy complexity. Gilardi (2005) studies agencies independence in Western Europe and shows that agencies are more independent in economic regulation than in social regulation, underwriting the political explanation hypothesis. Elgie and McMenamin (2005) demonstrate that agencies independence varies as a function political factors. Wonka and Rittberger (2010) analyze the level of independence of 29 EU-agencies and explain their variation with political factors. Cultural and historical explanations are related to the features of administrative traditions. Yesilkagit and Christensen (2010) study how political and historical-cultural factors affect the design of 293 Scandinavian agencies. Their results strongly support the historical-cultural explanations. Bianculli et al. (2013) analyses how administrative traditions have shaped agencies' institutional and organizational characteristics in more than 100 countries and 16 sectors. They show that historical and cultural features have a significant impact on agency independence. Van Thiel (2006) attempts to explain why similar tasks are performed by different agencies and identifies four sectoral styles of agencies creation. Another strand of the literature is devoted to the complex trade-off between political control and agency independence. T. Christensen and Lægreid (2007) studies the reform of regulatory agencies in Norway and find that an increase in agency autonomy leads to less political control. Christensen and Nielsen (2010) explore the creation of EU-agencies and their independence. They find an inverse relation-

ship between the powers granted to agencies (from informational tasks to binding decisions) and their formal independence from the politics. Masciandaro, Nieto, and Quintyn (2011) measure the independence and accountability of 47 financial regulators and show a lack of harmonization of practice among agencies.

While the literature offers rich and multiple explanations for agencies independence - with often contradictory conclusions - their level of integrity, defined as their independence from interest groups, is rarely considered. Yet, agency creation is also motivated by the need to insulate the decision-making process from the influence of interest groups (Bénassy-Quéré, 2010). The purpose of this article is therefore to explain agencies' degree of independence, accountability and integrity. Based on Yesilkagit and Christensen (2010), Wonka and Rittberger (2010) and Elgie and McMenamin (2005) we test the two traditional competing hypotheses to explain the disparities in agencies design: political explanations versus historical and cultural explanations. We then derive, for each explanation, hypotheses on agencies' expected level of independence, accountability and integrity and test them on a data set of 42 agencies across 8 countries and 6 regulatory domains.

Our results indicate that agencies' level of independence and accountability is explained by political factors and more precisely by the credible commitment hypothesis. This hypothesis reflects the need for politicians to establish the credibility of public decision-making and to protect them from time inconsistency or from intense advocacy work. Credible commitment does not however explain agencies level of integrity, appearing commonly low. This result implies that agency design may be based on the assumption that independence from politics ensures on its own a credible commitment. Yet, agencies are also subject to the detrimental influence of interest groups. Thus, being independent from the politicians is a necessary, but not a sufficient condition to guarantee a credible commitment.

The second section is devoted to the theoretical framework. The third section presents the methodology and the results are presented in a last section.

2. Theoretical Framework

Based on Elgie and McMenamin (2005), Yesilkagit and Christensen (2010) and Wonka and Rittberger (2010), we test two competing hypotheses to explain the disparities in agencies design: political explanations versus historical and cultural explanations. This theoretical framework allows us to derive hypotheses on agencies' expected levels of independence, accountability and integrity.

2.1. Political Explanations

The political explanations, derived from Elgie and McMenamin (2005) and Wonka and Rittberger (2010), analyse how political factors can shape an agency's procedure. Two hypotheses are tested : the credibility and the policy complexity problems.

Credibility. The credibility problem follows from two well-known issues: time-inconsistent preferences and interest groups pressure. Time inconsistency refers to the fact that policymakers' preferences can change over time. When policymakers are granted with a complete discretion, they may choose a policy independently at each point in time, leading ultimately to an overhaul of all previous regulatory decisions. For instance, policymakers may implement investor-friendly policies to attract private investment and revert them once the investments have been made to raise the revenues from taxes (Gilardi, 2005). If investors anticipate this behavior, they may not invest in the first place. The second issue is the impact of interest groups over the regulatory process. Interest groups pressure can be detrimental if policymakers are confronted to intense advocacy work that exert an excessive impact over the decision-making process. Public decision is then directed away from the general interest and is likely to favor the most powerful and organized interest groups.

The issues of time inconsistency and interest groups pressure show that making credible commitment is primordial for effective policymaking. Politicians have therefore an interest in delegating some public decisions, especially subject to time inconsistency or intense lobbying, to independent agencies that would better achieve their goals. The ultimate motive for agency creation may be then to provide stable regulatory regimes and predictable decisions. By creating independent agencies, politics voluntarily restrict their own possibilities for direct political interventions and send a strong signal of credible commitment to both the industry and the general public.

Lægreid and Verhoest (2010), Wonka and Rittberger (2010) and Elgie and McMenamin (2005) show that credible commitment affects particularly sectors that are internationally interdependent (such as Competition or Finance) or that have recently been subject to market opening (like Telecommunication or Energy). Bénassy-Quéré (2010) argues that, although credible commitment is of particular interest in monetary policy because its efficiency depends largely on expectations, unfulfilled promises hamper the effectiveness of economic policies in general²³. Besides, while the credibility problem can also be present in the field of social regulation, we expect interest group pressure to be the most direct and powerful primarily in economic policy (Lægreid & Verhoest, 2010).

If the credible commitment hypothesis holds true, agencies' independence and integrity should be greater for those dealing with economic policies than for those addressing social issues.

*H1: Agencies involved in economic policy-making show a higher level of independence, accountability and integrity than agencies dealing with social policies.*⁴.

²Economic regulation includes setting "prices or conditions on entry of firms into an industry" (Mankiw, 2014) as well as the regulation of the financial sector.

³Social regulation is about "environmental controls, health and safety regulations, and restrictions on labeling and advertising" (Mankiw, 2014).

⁴More independent, we expect these agencies to be also more accountable to ensure the agency legitimacy, to provide public oversight, to enhance agency governance and performance (Hüpkes,

Policy Complexity. The diversity of regulatory areas and their increasing technical complexity are also a condition for agencies creation. Politicians have few incentives to develop expertise for themselves, nor do they have the resources to do so. Hence, regulators are meant to gather information, to analyse complex policy issues and to adopt expertise-based decisions.

Wonka and Rittberger (2010) expects that the more complex the policy issue the more independent the agency: "the staff and administrative leadership of these agencies are likely to be selected on professional grounds rather than on political merit, thereby being more likely to produce adequate solutions to problems" (Wonka & Rittberger, 2010). However, they do not discuss the source of bureaucratic expertise. Technical knowledge and information is likely to come from the regulated industry itself. Hence, agencies in charge of regulating complex industries may be more independent from the politics but, following Chapter 1, we expect they have a lower level of integrity.

*H2: Agencies operating in technical and complex policy areas are expected to display higher levels of independence and accountability and lower level of integrity than agencies regulating less technical domain.*⁴

2.2. Historical and Cultural Explanations

One strand of the literature in public administration stresses the importance of national administrative culture or historical factors in the explanation of institutional variations across countries (Vogel, 1986; Knill, 2001; Pollitt & Bouckaert, 2004; Painter & Peters, 2010). Hence, agency design may follow distinct patterns in different countries. Extending the assumption of Yesilkagit and Christensen (2010), we

Quintyn, & Taylor, 2005). When an agency is granted with significant powers, a proper independence is hard to achieve without accountability. Accountability arrangements may avoid the hindrance of democratic rights and the creation of an illegitimate oligarchy.

expect the level of independence, accountability and integrity to significantly differ across countries.

To explore historical and cultural explanations to the variations in agencies architecture, we rely on the concept of administrative traditions highlighted by Painter and Peters (2010). An administration tradition is a country's historical and cultural features that tend to shape the structure and the governance of its bureaucracy. The observation of persistent organizational patterns enables the classification of nations into families. Based on this definition, we expect that within an administrative tradition the institutional and organizational design of agencies shows similar patterns.

H3: The level of independence, accountability and integrity of an agency significantly differs across administrative traditions.

3. Methodology

In the previous section, we derived hypotheses on agencies expected level of independence, accountability and integrity. To measure these three dimensions and test the assumptions, we use indicators that rely on Masciandaro et al. (2011) for independence and accountability and on OECD (2015) for integrity. Masciandaro et al. (2011) introduces "a framework for analyzing and rating independence and accountability arrangements for bank supervisors based on their legal frameworks". We slightly modify their framework to add missing criteria. These modifications are discussed in Appendix 5.7.. Based on OECD (2015), we introduce a measurement of agencies' integrity. Our framework is then composed with 11 criteria for integrity (Table 3..13), 17 criteria to measure agencies' independence (Table 3..15) and 16 criteria for the quality of their accountability procedures (Table 3..17).

3.1. Integrity Indicators

Integrity refers to agencies' independence from the stakeholders. To construct this dimension, we rely on the criteria of OECD (2015) that assesses public service integrity through four channels: *managing conflict of interest*, *asset disclosure*, *transparency and integrity in lobbying* and *whistleblower protection*. These criteria are briefly expounded below. We refer to OECD (2015) for a detailed discussion of the methodology.

Managing Conflict of Interest. To assess the degree of public sector integrity, OECD (2015) first controls for the presence of conflict of interest management. The first two criteria related to the conflict of interests management are pre-employment and post-employment policies. They account for the well-known Revolving Door phenomenon⁵. Indeed, some risks arise when allowing Revolving Doors. The regulator may fall into *clientelism* or may *identify* with the industry, either because he used to work there or because he wishes to keep the opportunity to do so⁶⁷. To these prescriptions, we add another criterion that deals with the additional activities pursued by the regulator during its regulatory mandate. Unlike the civil servants who must devote themselves fully to the public service tasks, agencies decision-makers (board members, commissioners, etc.) may be part-time regulators. However, allowing several activities at the same time may create a situation of conflict of interests, especially when the regulators hold a position in the regulated industry.

Asset Disclosure. Asset disclosure refers to the declaration of private interests that any public officials must fulfill before entering on duties. Asset disclosure may "greatly aid in preventing apparent and potential conflict of interest situations" (OECD, 2015). It is furthermore the first step to implement a procedure for manda-

⁵Revolving doors refer to the worker flows from private to public - or public to private - sectors.

⁶The regulator is tempted to favor the industry.

⁷The regulators' decisions are driven by common backgrounds and culture shared with the industry and it creates a pro-industry paradigm.

tory withdrawal. Mandatory withdrawal prevents the regulator from being part of the decision-making process when he has or had interest in the discussed matter. S/He is thus obliged to stay out of any deliberation dealing with the conflicting matters. In addition to the asset disclosure, we assess whether there exists any control for the accuracy of this declaration of interests.

Transparency and Integrity in Lobbying. OECD (2015) assesses public service integrity also through the control of transparency and integrity in lobbying. Indeed, "lobbying is often perceived as an opaque activity of dubious integrity, which may result in undue influence by special interests, unfair competition and regulatory capture at the expense of fair, impartial and effective policy making" (OECD, 2015). Three aspects of the regulation are considered. First, information about the practice of lobbyists can be disclosed in a register. To further enhance the public sector Accountability, this register may be publicly accessible. Second, "principles, rules, standards or procedures that regulate public officials' conduct" may be implemented. Regarding this matter, we assess whether agencies are granted with policies regarding the offer of gift and hospitality. Finally, "capture of advisory groups by private interests to exert undue influence" may be prevented. A criterion assesses whether a fair representation of the stakeholders is ensured during the decision-making process.

Whistleblower Protection. Whistleblowing protection refers to mechanisms ensuring the protection of employees who report misconduct, fraud and corruption, in the context of their workplace (OECD, 2015). Such whistleblowers policy is essential to promote ethical behavior and to enhance public sector Integrity.

3.2. Dataset

The dataset is composed with 42 agencies in charge of regulating 6 sectors (Competition, Energy, Finance, Healthcare, Medicine and Telecommunication) across 8 countries (Denmark, France, Germany, Italy, the Netherlands, Sweden, the United-

Kingdom and the United-States). A detailed list of the selected agencies is available in Table 3..19.

Country Selection. To explore historical and cultural variations in agencies design, we rely on the concept of administrative traditions. As the selection of factors to categorize public administration differs a lot among scholars, many administrative traditions have been highlighted without the achievement of a consensus (Bianculli et al., 2013; Painter & Peters, 2010; Yesilkagit & Christensen, 2010). To avoid this issue, we rely on the four major administrative traditions: *Anglo-american*, *Napoleonic*, *Scandinavian* and *Germanic* (Painter & Peters, 2010). We arbitrarily choose to select 2 countries per tradition, the set of countries is therefore composed with : Denmark, France, Germany, Italy, the Netherlands, Sweden, the United-Kingdom and the United-States (Table 3..1).

Country	Administrative Tradition
Denmark	Scandinavian
France	Napoleonic
Germany	Germanic
Italy	Napoleonic
The Netherlands	Germanic
Sweden	Scandinavian
The United-Kingdom	Anglo-american
The United-States	Anglo-american

Table 3..1: *Country Characteristics.*

Sector Selection: To explore political variations, we select both economic and social tasks (hypothesis 1) with different level of complexity (hypothesis 2). The classification of tasks between economic and social is based on (Gilardi, 2005). We select four sectors that perform economic tasks: Competition, Energy, Finance and Telecommunication and two sectors that are in charge of social tasks: Healthcare

and Medicine (Table 3..2). To assess whether the task is technical, we look at the Research and Development expenses per sectors (OECD, n.d.)⁸. The most R&D intense regulatory domain is by far Medicine followed by Telecommunication and Finance.

Sector	Task	R&D Expenses⁸
Competition	Economic Regulation	NA
Energy	Economic Regulation	0.091%
Finance	Economic Regulation	1.1%
Healthcare	Social Regulation	0.147%
Medicine	Social Regulation	16.62%
Telecommunication	Economic Regulation	1.2%

Table 3..2: *Sector Characteristics.*

3.3. Collection of Information and Ratings

The information collection is based on two sources : the english version of the agencies' website and their articles of association, rules of procedure or any legislation they shall comply with. This methodology ensures comparability and replicability of the results (the sources of information are displayed in Appendix 5.9.). Their score for independence, accountability and integrity are therefore interpreted from a *de jure* perspective. A rating of 1 is given if the agency satisfies the criteria, a 0.5 is given for partial compliance, and a 0 for non-compliance. Each agency ends up with a score representing its degree of independence, accountability and integrity.

The most serious limitation of this methodology is that the evaluation is based entirely on the posted, presumably statutory, features of the agency. As in Chapter 2, the dataset does not take account of informal norms or regularities, and may

⁸R&D expenses in industry in 2014 in the United-States (USD) by main activity of the enterprise, constant prices (OECD, n.d.). The percentages represent the share per sector.

not be reflected in actual behavior. In addition, while in some countries (such as the UK) regulators are civil servant, in others various statuses may be found. The state legislation does not always clearly mention to which extent regulators shall comply with civil service rules. Hence, we interpret the absence of a supplemental standard at the agency level as an absence of provision. Finally, agencies are not equally transparent. Most agencies established in Scandinavian countries (Denmark and Sweden) do not release english version of their website and legislation. These two countries and their 11 agencies can no longer be part of the sample.

4. Results

To display the results, we use descriptive statistics because of the relatively small numbers of observations. The results for *historical and cultural explanations* are displayed in Table 3..3 and the results for *political explanations* in Table 3..4 for the *credibility* hypothesis and in Table 3..5 for the *complexity* hypothesis.

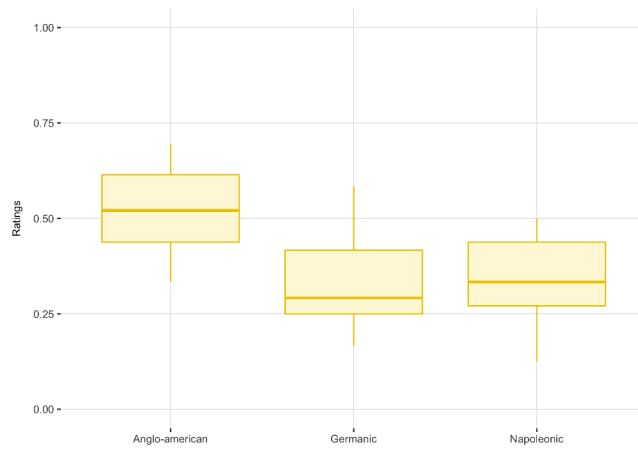
4.1. Historical and Cultural Explanations

The historical and cultural hypothesis fails to explain the disparities in agencies' design. The three administrative traditions share similarities: they all have the lowest score for integrity policies, and are all more accountable than independent (Table 3..3). The presence of outliers (Figure 3..1(b) and 3..1(c)) further questions the extent to which the administrative traditions constitute a relevant classifications of nations.

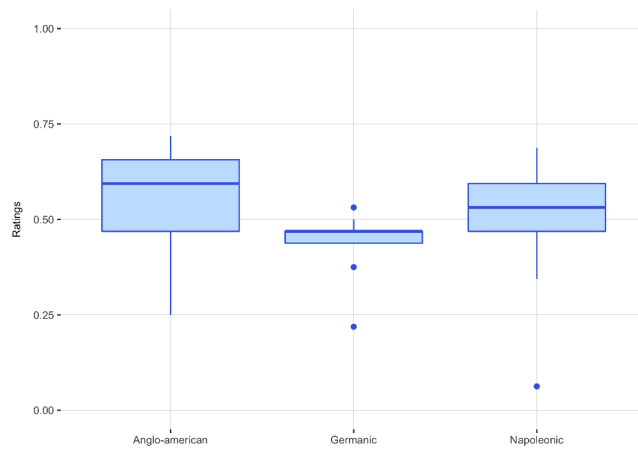
Agency design does not differ significantly across the Napoleonic and Germanic traditions 3..3. Germanic and Napoleonic traditions both have low levels of integrity (respectively 0.28 and 0.29) and similar level of independence (respectively 0.49 and 0.42). The reason may be twofold. The first explanation is that "each country has

its own specific types, but always more than one" Van Thiel (2006). Hence, the historical and cultural influences may not be captured by the sole classification by administrative tradition. In addition, the term *agency* encompasses various realities, even within countries. There exists an extensive range of organisations that operates at arms' length of the executive (Van Thiel, 2006). For instance, in the United Kingdom, Quangos (Quasi Autonomous Non Governmental Organizations) gathers three types of agencies. *Non-Departmental Public Bodies* are "a body which has a role in the processes of national Government, but is not a Government Department or part of one, and which accordingly operates to a greater or lesser extent at arm's length from Ministers". *Executive Agencies* are "parts of Government Departments but have distinct executive functions and are considered separate in managerial and budgetary terms". And, *Non-ministerial departments* answers "directly to Parliament on issues where it has been deemed appropriate to remove executive political interference". These various statutes blur the effect of administrative traditions on their design.

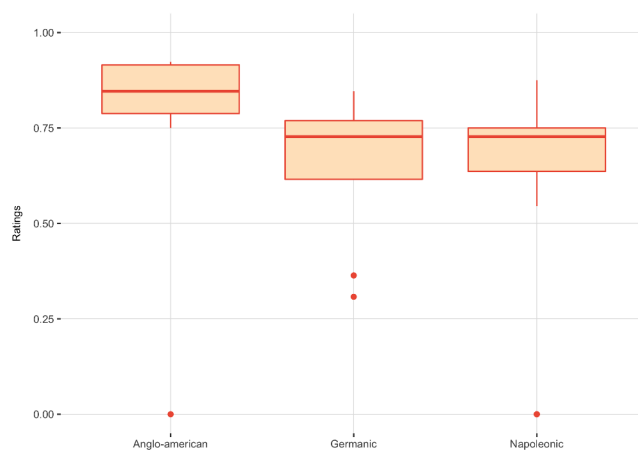
The Anglo-american tradition benefits from slightly higher standards (Table 3..3), especially for integrity scores as illustrated in Figure 3..1(a). This result may in part be due to the fact that the agencification process first started in the United-States. They have probably the longest history of creating agencies and may benefit from their past experience to improve agencies' institutional and organizational design. It is especially the case for integrity prescriptions: they benefit from a much longer tradition of lobbying and whistleblowing protection than the European Union (Holman & Luneburg, 2012). Mulcahy (2015) highlights great differences between European and American lobbying policies. Only 7 European countries out of 19 are granted with arrangements to control for the lobbying activities. The overall score of all european countries is about 0.31 (Mulcahy, 2015). As for whistleblower protection, these prescriptions emanate from the United States and have a difficult implementation in European Countries.



(a) *Integrity.*



(b) *Independence.*



(c) *Accountability.*

Figure 3..1: *Administrative Traditions.*

Boxplot representing the quartiles obtained from agencies accountability ratings. Bullet points represent outliers.

	Independence	Accountability	Integrity
Anglo-american	0,55 (0,14)	0,77 (0,23)	0,43 (0,14)
Germanic	0,42 (0,10)	0,68 (0,18)	0,29 (0,14)
Napoleonic	0,49 (0,17)	0,59 (0,28)	0,28 (0,16)

Table 3..3: *Historical and Cultural Explanations.*
Mean and standard deviations in parentheses.

4.2. Political Explanations

If agencies creation is motivated by credible commitment, we expect economic tasks to have a higher level of independence, accountability and integrity than the social tasks. From the policy complexity hypothesis, we expect agencies operating in complex policy areas to display higher levels of independence and accountability and lower levels of integrity than agencies regulating less technical domain.

The policy complexity explanation is not supported by our results. They indicate however that agencies' level of independence and accountability is explained by the credible commitment hypothesis (Figures 3..2(b) and 3..2(c)). None of the political explanations explain agencies level of integrity, appearing commonly low as illustrated in Figure 3..2(a).

The first result is that the level of integrity is commonly low and do not seem to differ among regulatory domains, whether complex or not, and dealing with economics or social tasks (Table 3..4 and Figure 3..2(a)). Second, the levels of independence and accountability differ a lot among sectors (Table 3..5 and Figures 3..2(b) and 3..2(c)). A first group composed with agencies in charge of economic tasks (Competition, Energy, Finance and Telecommunication) has higher independence and accountability standards than the second group composed with social tasks (Healthcare and Medicine). Economic policies have on average a score of 0.54 for

independence and of 0.76 for accountability while social tasks have respectively a mean of 0.36 for independence and of 0.52 for accountability (Table 3..5).

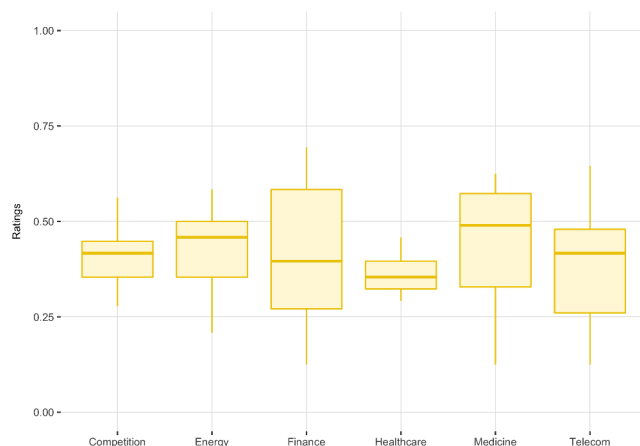
These results therefore partially support the credibility hypothesis: agencies involved in economic policy-making show a higher level of independence and accountability than agencies dealing with social policies. However, this explanation does not hold for integrity. Economic tasks do not have higher integrity standards than the social tasks. In addition, the classification of social task does not even seem to be relevant here. Despite the fact that Medicine and Healthcare both belong to social tasks, agencies regulating Healthcare shows on average the lowest level of integrity while agencies regulating Medicine benefit from the highest (Figure 3..2(a)) and their standard deviation for accountability scores is high (Table 3..5 and Figure 3..2(c)).

	Independence	Accountability	Integrity
Competition	0,48 (0,05)	0,76 (0,09)	0,32 (0,11)
Medicine	0,37 (0,09)	0,56 (0,32)	0,37 (0,11)
Health	0,36 (0,15)	0,44 (0,37)	0,29 (0,11)
Energy	0,55 (0,05)	0,79 (0,09)	0,35 (0,14)
Telecom	0,50 (0,23)	0,64 (0,32)	0,31 (0,19)
Finance	0,59 (0,13)	0,76 (0,10)	0,35 (0,20)

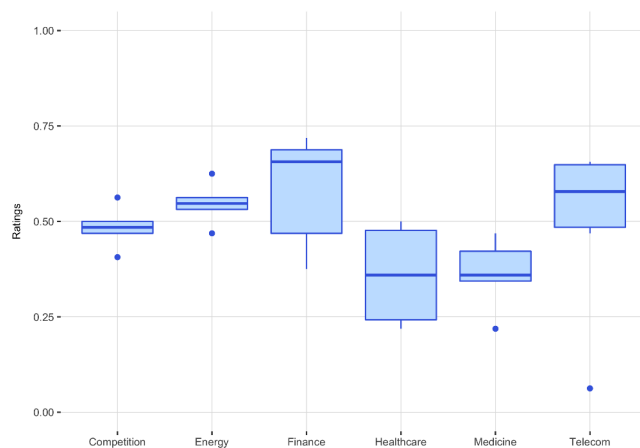
Table 3..4: *Policy Complexity.*

Mean and standard deviations in parentheses.

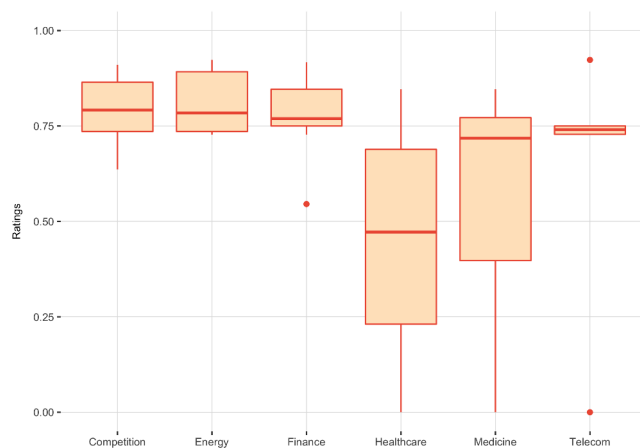
Finally, there is no support for the complexity hypotheses (Table 3..4). Medicine, the most complex task according to our proxy, do not display these features (Figures 3..2(a), 3..2(b) and 3..2(c)) and further experiences a high dispersion. Hence, the complexity hypothesis fails to explain the disparities in agencies' design, or our proxy for assessing the complexity of a regulatory domain is not appropriate.



(a) *Integrity.*



(b) *Independence.*



(c) *Accountability.*

Figure 3.2: *Regulatory Domains.*

Boxplot representing the quartiles obtained from agencies accountability ratings. Bullet points represent outliers.

Task	Independence	Accountability	Integrity
Economic	0,54 (0,13)	0,76 (0,18)	0,41 (0,16)
Social	0,36 (0,10)	0,52 (0,35)	0,41 (0,16)

Table 3..5: *Credible Commitment*.
Mean and standard deviations in parentheses.

4.3. Integrity

Whatever the regulatory domain or the administrative traditions, agencies do not benefit from strong integrity prescriptions (Figures 3..1(a) and 3..2(a)). Three of the four OECD dimensions are particularly concerning. First, agencies do not seem to manage well the conflict of interests (Figure 3..3(a)). Their prevention of the Revolving Doors is almost of no concerns. Pre-employment prescriptions are non-existent and post-employment rules hardly implemented⁹. Second, agencies do not ensure transparency and integrity in lobbying (Figure 3..3(c)). While half of the agencies provide prescriptions regarding corruption, the provision of a register to record the interactions with the lobbyists and the equal representations of the stakeholders are far from being systematic¹⁰. These regulatory loopholes are likely to lead to an overrepresentation of the industry's interests into the decision-making process of agencies. Finally, there exist neither general laws nor supplemental standards on the protection of whistleblowers in Italy, France and Germany (Figure 3..3(d)). The development of such laws are relatively recent (around 2009 according to the OECD) and seem to mainly emanate from the United-States.

⁹The strictest policies only prevent former regulators from using their knowledge at the expense of the general utility, or set cooling-off periods to postpone the flow from regulation to regulated industry or lobbyist firms.

¹⁰In the form of restriction on the offer of gift and hospitality, mainly in the US and France.

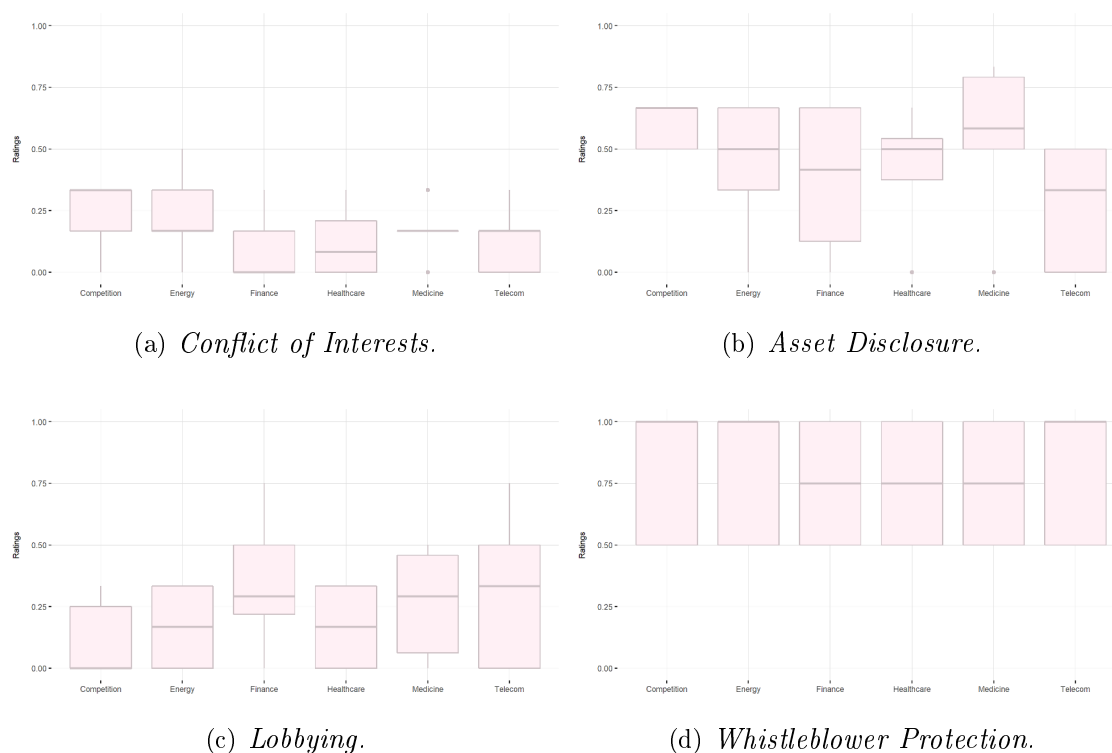


Figure 3.3: *Integrity Indicators.*

Boxplot representing the quartiles obtained from agencies accountability ratings. Bullet points represent outliers.

These results are not surprising at all in the light of the findings of OECD (2015). The report shows that at the state level "more can be done to avoid policy and regulatory capture by vested interests". The integrity efforts of the public sectors are growing, but some major loopholes still remain. Among the 32 OECD countries examined, none of them provide pre-employment prescriptions and only two third provide a cooling-off period to prevent direct industry post-employment. Regarding transparency and integrity in lobbying, 15 countries do have regulations on the acceptance of gift and hospitality but only 8 of them provide a lobbyist register. The disclosure of private interests has been developed but there still exists some loopholes. There is a complete unbalanced representation of the stakeholders in government advisory groups. Finally, whistleblower protections are not yet generalised and the effective implementation remains an issue. The weaknesses detected

at the state level are not any less severe at the agency level and the reason may stem from the fact that agencies legislation regarding integrity often consists in a two-tier structure: the civil servant code of the government and supplemental standards that are left at the discretion of agencies. Hence, the weaknesses identified at the state level are likely to remain at the agency level. Besides, as agencies may be composed with civil servant and/or employees, the civil servant code does not always apply to all members and thus additional rules (if any) are complementary to the federal legislation. Supplemental standards are not always provided and some loopholes may arise from a lack of federal laws enforcement in agencies.

5. Conclusion

In this article, we explain agencies degree of independence, accountability and integrity based on the theoretical framework provided by the literature in Public Administration. We test two competing hypotheses: political explanations versus historical and cultural explanations. The results show that the historical and cultural hypotheses fail to explain the disparities in agencies design. Their level of independence and accountability is explained by the credible commitment hypothesis: agencies with extensive powers are more independent and accountable. The ultimate motive for agency creation would be to provide stable regulatory regimes and predictable decisions. However, the story is different for their level of integrity, commonly low. Agencies design is therefore based on the assumption that independence from politics ensures credible commitment. Yet, these institutions are also subject to the detrimental influence of interest groups and being independent from the politics is a necessary, but not a sufficient condition to guarantee the independence from the stakeholders and thus a credible commitment.

Conclusion

In this dissertation, I employed theoretical and empirical approaches to shed light on important questions in the field of regulatory capture. In chapter 1, acknowledging the importance of the features of the policy and the political environment, I developed a theoretical model to analyse the difficult trade-off faced by politicians when delegating the regulation of the financial service industry. In chapter 2, I define precise indicators of regulatory capture and construct a data set of 42 agencies which allowed me to evaluate the expectations of the model. In chapter 3, I test two competing hypotheses to explain the disparities in agencies design: political explanations versus historical and cultural explanations. While these chapters constitute an important step forward, I believe there is a promising avenue for further research in that direction.

Research in regulatory capture has seen a dramatic shift from a classical approach of *greed and hubris* to a more ideological dimension with the consequences of the financial crisis of 2007-08. This shift of paradigm has placed the weaknesses of human and institutions at the epicenter of the issue of special interest influence. The analysis of agency procedures can provide a deeper understanding of the traits of non-collusive capture. In order to harness the full potential of this type of data, it is essential to perform investigation from within the regulatory framework, as it would account of informal norms and reflect actual behaviors. Matching institutional characteristics (agencies design, procedure and composition) with regulatory decisions (minutes of meeting, opinions or notification of the sanction commission),

we will be able to get a better picture of the impact of regulatory capture on the decision-making process. Building on chapter 1, one would like to go a step further and relate these dimensions to political environment (lobbying expenses and interactions) and policy features (proxy for the measurement of the complexity).

Another interesting topic to address concerns the permanent services of regulatory agencies. Most studies on the revolving doors, as well as studies on agency policies, are focusing on agency's decision makers or top management. While the board is indeed the only competent body to deliver an opinion on the behalf of an agency, this action is always taken in the light of the information provided and investigation performed by the permanent service. Members of the permanent services are usually not subject to the ethical requirements governing board members.

Finally, regarding chapter 1, the model is based on the assumption that the legislator favors the appointment of more incentive-aligned agents. We may alternatively discuss the possibility of introducing a strategic game for board decision. Bonner, Baumann, and Dalal (2002) and Koh (2008) find that, while working on a difficult task, groups adjust their decision-making process to the opinion of the identified expert members. Expert members, when recognized by the other group members, have a higher influence over the decision making process than non-experts. This effect is large, Bonner et al. (2002) shows that non-experts tend to adopt as twice as often the view of the identified expert. It would therefore be very promising to introduce the results of the literature in psychology. Finally, the model could account of the effect of financial crisis on public scrutiny, as financial crisis may foster citizen involvement and increase the chances of reform.

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Appendix A. Expertise Monopoly and Cognitive Capture

5.1. Bureaucrats

To solve for the optimal delegation rule, we first develop a tractable way to deal with the bureaucrats' utility.

Definition 3. Let \tilde{V}_b be the expected utility of bureaucrats for $\theta \in S_i = [\frac{i-1}{N}, \frac{i}{N}]$.

$$\tilde{V}_b(a, \theta, N) = \mathbf{E}_{\theta \sim \mathcal{U}[\frac{i-1}{N}, \frac{i}{N}]} [V_b(a, \theta)]$$

This allows us to prove the following proposition.

Proposition 2. *The optimal delegation rule selects the preferred action of the bureaucrats for all $N > 1$.*

The proof of Proposition 2 proceeds through Lemmas 1 and 2. Lemma 1 derives from Blume et al. (2007) and Crawford and Sobel (1982). We apply their proofs to our case where N is independent from b .

Lemma 1. *If $\pi = 0$, the utility of the legislator and the bureaucrat function becomes $U(a, \theta) = -\frac{1}{12N^2}$ and therefore increases with the number of partition steps N .*

Proof. Consider a partition $\{[0, \theta_1), \dots, [\theta_{N-1}, \theta_N]\}$. From Crawford and Sobel

(1982), we suppose that the bureaucrats' strategy is:

$$a_i = \frac{1}{2}(\theta_{i-1} + \theta_i). \quad (1)$$

The noise is not monotonic in $\theta \in S_i$. Rather, for each partition S_i , it is convex: the noise is equal to zero for $\theta = a_i$ and is maximised for the two extreme values of the partition $\theta = \{\theta_i, \theta_{i+1}\}$.

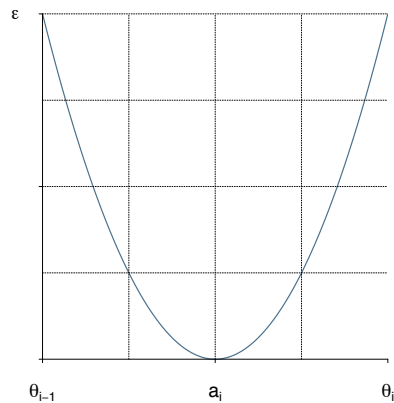


Figure 3.4: *Level of noise in a partition $S_i = [\frac{i-1}{N}, \frac{i}{N}]$.*

The arbitrage condition (A) requires that bureaucrats who understand a message that falls on the boundaries between steps are indifferent between the associated values of a .

$$\begin{aligned} 0 &= \tilde{V}_b(\bar{a}(\theta_{i+1}, \theta_i), \theta_i) - \tilde{V}_b(\bar{a}(\theta_i, \theta_{i-1}), \theta_i) \\ &= -\left(\frac{1}{2}(\theta_{i+1} + \theta_i) - \theta_i\right)^2 + \left(\frac{1}{2}(\theta_i + \theta_{i-1}) - \theta_i\right)^2. \end{aligned}$$

Then the arbitrage condition can only hold if $\theta_{i+1} = 2\theta_i - \theta_{i-1}$.

From Crawford and Sobel (1982) and given that $a_0 = 0$:

$$\theta_i = \theta_1 i \quad (2)$$

Using (2) and the fact that $\theta_N = 1$

$$\theta_i = \frac{i}{N} \quad (3)$$

From (3), we can rewrite:

$$\theta_i - \theta_{i-1} = \frac{i}{N} - \frac{i-1}{N} = \frac{1}{N}.$$

The expected payoff function of the legislator then becomes:

$$\begin{aligned} \mathbf{E}[U(a_i, \theta)] &= \sum_{i=1}^N \int_{\theta_{i-1}}^{\theta_i} -(a_i - \theta)^2 d\theta, \\ &= -\frac{1}{12} \sum_{i=1}^N (\theta_i - \theta_{i-1})^3, \\ &= -\frac{1}{12} \sum_{i=1}^N \left(\frac{1}{N}\right)^3, \\ &= -\frac{N}{12N^3}, \\ &= -\frac{1}{12N^2}. \quad \square, \end{aligned}$$

Lemma 2. *Let $N > 1$. Mechanism $(a(\theta_{i+1}, \theta_i), \tilde{V}(0))$ is optimal.*

Proof. Consider the following policy:

$$a_1(\theta) = \frac{1}{2},$$

$$U_1(a_1, \theta) = -\frac{1}{12},$$

Assume that the mechanism $(a_1(\theta_{i+1}, \theta_i), \tilde{V}_1(0))$ achieves a strictly higher welfare than the mechanism $(a(\theta_{i+1}, \theta_i), \tilde{V}(0))$ for $N > 1$. Then, by Lemma 1:

$$0 < U_1(a, \theta) - U(a, \theta),$$

$$0 < \frac{1}{12N^2} - \frac{1}{12},$$

$$0 < 1 - N^2.$$

However, this is not possible since $N > 1$. □

5.2. Equilibrium

In this section, we restrict attentions to values of bias $b \leq \frac{1}{2}$ and of partition steps $N > 1$ since no delegation is possible for larger b and lower N .

Theorem 1. *Let $b \leq \frac{1}{2}$ and $N > 1$, the board is composed with financial experts if and only if $N < \frac{1}{2\sqrt{3b^2-4b^3}}$.*

Proof. From Proposition 1, we know that the expected utility of the legislator when appointing financial experts is:

$$\begin{aligned} \mathbf{E}[U(a, \theta)] &= -\int_{2b}^1 (\theta - b - \theta)^2 d\theta - \int_0^{2b} (b - \theta)^2 d\theta, \\ &= -(1 - 2b)b^2 - \left[b^2\theta - b\theta^2 + \frac{\theta^3}{3} \right]_0^{2b}, \\ &= -b^2 + 2b^3 - \left(2b^3 - 4b^3 + \frac{8b^3}{3} \right), \\ &= -b^2 + \frac{4}{3}b^3. \end{aligned}$$

The legislator appoints financial experts if and only if $\mathbf{E}[U(a_i, \theta)] > \mathbf{E}[U(a, \theta)]$.

Then, from Lemma 1:

$$\begin{aligned} 0 &> \mathbf{E}[U(a, \theta)] - \mathbf{E}[U(a_i, \theta)], \\ &= -b^2 + \frac{4}{3}b^3 + \frac{1}{12N^2}. \end{aligned}$$

The legislator's expected utility for $\pi = 1$ is higher than her expected utility for $\pi = 0$ if and only if $N < \frac{1}{2\sqrt{3b^2-4b^3}}$. \square

5.3. Advocacy Work

Theorem 2 Let $0 > l > 1$, the legislator appoints financial experts if $N < \frac{1}{2\sqrt{3b^2(1-l)^2 - 4b^3(1-l)^3}}$ and appoints bureaucrats otherwise.

Proof. From Lemma 4 to 7, we know that the expected utility of the legislator when delegating the regulatory task to financial experts is:

$$\mathbf{E}[U(a, \theta)] = - \int_0^{2b(1-l)} (b(1-2l) - (\theta - lb))^2 d\theta - \int_{2b(1-l)}^1 (\theta - b - (\theta - lb))^2 d\theta,$$

$$\mathbf{E}[U(a, \theta)] = -b^2(1-l)^2 + \frac{4}{3}b^3(1-l)^3,$$

The legislator appoints financial experts if and only if $\mathbf{E}[U(a_i, \theta)] > \mathbf{E}[U(a, \theta)]$.

Then, from Lemma 6:

$$\begin{aligned} 0 &> \mathbf{E}[U(a, \theta)] - \mathbf{E}[U(a_i, \theta)], \\ &= -b^2(1-l)^2 + \frac{4}{3}b^3(1-l)^3 + \frac{1}{12N^2}. \end{aligned}$$

The legislator's expected utility with financial experts is higher than her expected utility with bureaucrats when $N < \frac{1}{2\sqrt{3b^2(1-l)^2 - 4b^3(1-l)^3}}$. \square

5.4. Public Scrutiny

In this section, we apply the proofs of Goltsman et al. (2009) to our case where the preferred action of the agency is lower than the one of the legislator.

Let $l \in L = [0, 1]$ be the lobbying effort exerted by the industry and let $w \in W = [0, 1]$ be the citizen involvement parameter, the legislator's utility can be written as:

$$U(a, \theta, b, l, w) = -(a - (\theta - lb + w))^2.$$

Proposition 4 If $\pi = 1$, the optimal delegation rule selects the preferred action of the financial experts in the interval $[\min\{b - 2(lb - w), \frac{1}{2} - lb + w\}, 1]$.

The proof of Proposition 4 proceeds through Lemma 3 to Lemma 7.

Lemma 3. $\{a(\theta), \sigma^2(\theta)\}$ satisfy (IC) if and only if

i) $a(\theta)$ is non-decreasing.

ii) $-\sigma^2(\theta) = V(\theta) + (a(\theta) - (\theta - b))^2$, and $V(\theta) = V(0) + \int_0^\theta 2(a(\tilde{\theta}) - (\tilde{\theta} - b))d\tilde{\theta}$.

Proof. The mechanism described in Theorem 1 must be incentive compatible, meaning that both the legislator and the agency can achieve the best outcome to her/himself just by acting according to her/his true preferences.

i) From incentive compatibility for every $\theta, \theta' \in \Theta$ we have

$$-\sigma^2(\theta) - (a(\theta) - (\theta - b))^2 \geq -\sigma^2(\theta') - (a(\theta') - (\theta - b))^2;$$

$$-\sigma^2(\theta') - (a(\theta') - (\theta' - b))^2 \geq -\sigma^2(\theta) - (a(\theta) - (\theta' - b))^2.$$

Adding up and rearranging we get:

$$(\theta - \theta') (a(\theta) - a(\theta')) \geq 0.$$

ii) Note that we can express

$$\sigma^2(\theta) = V(\theta) + (a(\theta) - (\theta - b))^2. \quad (4)$$

By the generalized Envelope Theorem (Corollary 1 (Milgrom & Segal, 2002)) we can express $V(\theta)$ as a function of its first element $V(0)$ and its primitive between 0 and θ .

$$V(\theta) = V(0) + \int_0^\theta 2(a(\tilde{\theta}) - (\tilde{\theta} - b))d\tilde{\theta}.$$

We need to show that the agency gets a higher payoff when telling the truth than when hiding it. Thus, for every $\theta, \theta' \in \Theta$:

$$(-\sigma^2(\theta) - (a(\theta) - (\theta - b))^2) - (-\sigma^2(\theta') - (a(\theta') - (\theta - b))^2) \geq 0. \quad (5)$$

Notice that:

$$\begin{aligned} -\sigma^2(\theta') - (a(\theta') - (\theta - b))^2 &= -\sigma^2(\theta') - (a(\theta') - (\theta' - b))^2 - 2(a(\theta')(\theta' - b)), \\ &\quad + (\theta' - b)^2 + 2a(\theta')(\theta - b) - (\theta - b)^2, \\ &= V(\theta') - \int_\theta^{\theta'} 2(a(\theta') - (\tilde{\theta} - b))d\tilde{\theta}. \end{aligned} \quad (6)$$

From (4) and (6), (5) becomes:

$$V(\theta) - V(\theta') + \int_\theta^{\theta'} 2(a(\theta') - (\tilde{\theta} - b))d\tilde{\theta} = \int_\theta^{\theta'} 2(a(\theta') - a(\tilde{\theta}))d\tilde{\theta} \geq 0. \quad \square$$

Proof. By Lemma 1 the optimal delegation rule has to solve the following simplified

problem:

$$\max_{a(\cdot), \sigma^2(\cdot), V(0)} U = \int_0^1 -\sigma^2(\theta) - (a(\theta) - \theta + lb - w)^2 d\theta,$$

Subject to

$$a(\theta) \text{ is non decreasing;} \quad (\text{MON})$$

$$\sigma^2(\theta) = -V(0) - 2 \int_0^\theta a(\tilde{\theta}) - (\tilde{\theta} - b) d\tilde{\theta} - (a(\theta) - (\theta - b))^2; \quad (\text{ENV})$$

$$\sigma^2(\theta) \geq 0, \quad V(0) \leq 0. \quad (\text{NONNEG})$$

This representation allows us to prove the theorem.

Lemma 4. *If $(a(\theta), \sigma^2(\theta), V(0))$ are feasible, then we can rewrite $U(a(\theta), \sigma^2(\theta), V(0))$*

$$\begin{aligned} U(a(\theta), \sigma^2(\theta), V(0)) &= V(0) + 2 \int_0^1 a(\theta) (1 - \theta + b - lb + w) d\theta + b^2 - \frac{1}{3} \\ &\quad + lb(1 - lb) - w(1 + w - 2lb). \end{aligned}$$

Proof. Substitute constraint (ENV) into the objective function and change the order of integration in the double integral.

$$\begin{aligned} U(a(\theta), \sigma^2(\theta), V(0)) &= \int_0^1 [V(0) + 2 \int_0^\theta a(\tilde{\theta}) - (\tilde{\theta} - b) d\tilde{\theta} + (a(\theta) - (\theta - b))^2 \\ &\quad - (a(\theta) - \theta + lb - w)^2] d\theta \\ &= V(0) + 2 \int_0^1 \int_0^\theta a(\tilde{\theta}) - (\tilde{\theta} - b) d\theta d\tilde{\theta} \\ &\quad + \int_0^1 2a(\theta) (b - lb + w) - 2\theta(b - lb + w) + b^2 - l^2b^2 + 2wlb - w^2 d\theta \end{aligned}$$

$$\begin{aligned}
 &= V(0) + 2 \int_0^1 a(\theta) (1 - \theta + b - lb + w) d\theta \\
 &+ \int_0^1 -2(1 - \theta)(\theta - b) - 2\theta(b - lb + w) + b^2 - l^2b^2 + 2wlb - w^2 d\theta \\
 &= V(0) + 2 \int_0^1 a(\theta) (1 - \theta + b - lb + w) d\theta + b^2 - \frac{1}{3} + lb(1 - lb) \\
 &- w(1 + w - 2lb). \quad \square
 \end{aligned}$$

Lemma 5. *Let $b - lb + w \in [0, \frac{1}{2}]$. Mechanism $(a(\theta), \sigma^2(\theta), V(0))$ is optimal.*

Proof. Assume there exists a mechanism $(\hat{a}(\theta), \hat{\sigma}^2(\theta), \hat{V}(0))$ which achieves a strictly higher welfare than the mechanism $(a(\theta), \sigma^2(\theta), V(0))$.

By Lemma 4 we have:

$$\begin{aligned}
 0 &< U(\hat{a}(\theta), \hat{\sigma}^2(\theta), \hat{V}(0)) - U(a(\theta), \sigma^2(\theta), V(0)) \\
 &= \hat{V}(0) - V(0) + 2 \int_0^1 (\hat{a}(\theta) - a(\theta)) (1 - \theta + b - lb + w) d\theta \tag{7}
 \end{aligned}$$

Also

$$\begin{aligned}
 0 &< U(\hat{a}(\theta), \hat{\sigma}^2(\theta), \hat{V}(0)) - U(a(\theta), \sigma^2(\theta), V(0)) \\
 &= - \int_0^1 (\hat{a}(\theta) - (\theta - lb + w))^2 + \hat{\sigma}^2(\theta) d\theta + \int_0^1 (a(\theta) - (\theta - lb + w))^2 + \sigma^2(\theta) d\theta \\
 &\leq - \int_0^1 (\hat{a}(\theta) - (\theta - lb + w))^2 d\theta + \int_0^1 (a(\theta) - (\theta - lb + w))^2 d\theta \\
 &= 2 \int_0^1 (\hat{a}(\theta) - a(\theta)) (\theta - lb + w - a(\theta)) d\theta - \int_0^1 (\hat{a}(\theta) - a(\theta))^2 d\theta \tag{8} \\
 &= \int_0^1 2\hat{a}(\theta) (\theta - lb + w) - 2a(\theta) (\theta - lb + w) - \hat{a}^2(\theta) + a^2(\theta) d\theta
 \end{aligned}$$

$$\begin{aligned}
 &= \int_0^1 (\hat{a}(\theta) - (\theta - lb + w))^2 d\theta + \int_0^1 (a(\theta) - (\theta - lb + w))^2 d\theta \\
 &< 2 \int_0^1 (\hat{a}(\theta) - a(\theta)) (\theta - lb + w - a(\theta)) d\theta.
 \end{aligned} \tag{9}$$

Where (14) derives from $\sigma^2(\theta) = 0$ (NONNEG), so $\hat{\sigma}^2(\theta) \geq 0$, and then $\sigma^2(\theta) - \hat{\sigma}^2(\theta) \leq 0$.

Adding up (13) and (15) inequalities,

$$0 < \hat{V}(0) - V(0) + 2 \int_0^1 (\hat{a}(\theta) - a(\theta)) (1 + b - 2lb + 2w - a(\theta)) d\theta.$$

Substituting $a(\theta)$ and using (ENV) we get:

$$\begin{aligned}
 0 &< \hat{V}(0) - V(0) + 2 \int_{2(b(1-l)+w)}^1 (\hat{a}(\theta) - a(\theta)) (1 + b - 2lb + 2w - \theta + b) d\theta \\
 &\quad + 2 \int_0^{2(b(1-l)+w)} (\hat{a}(\theta) - a(\theta)) (1 + b - 2lb + 2w - b(1 - 2l) - 2w) d\theta \\
 &= \hat{V}(0) - V(0) + \int_{2(b(1-l)+w)}^1 \hat{a}(\theta) (1 + 2b(1 - l) + 2w - \theta) d\theta \\
 &\quad + \int_{2(b(1-l)+w)}^1 a(\theta) (1 + 2b(1 - l) + 2w - \theta) d\theta \\
 &\quad + \int_0^{2(b(1-l)+w)} \hat{a}(\theta) d\theta + \int_0^{2(b(1-l)+w)} a(\theta) d\theta \\
 &= \hat{V}(0) - V(0) + \int_{2(b(1-l)+w)}^1 \frac{\delta \hat{V}(\theta)}{\delta \theta} (1 + 2b(1 - l) + 2w - \theta) d\theta \\
 &\quad - \int_{2(b(1-l)+w)}^1 \frac{\delta V(\theta)}{\delta \theta} (1 + 2b(1 - l) + 2w - \theta) d\theta \\
 &\quad + \int_0^{2(b(1-l)+w)} \frac{\delta \hat{V}(\theta)}{\delta \theta} d\theta - \int_0^{2(b(1-l)+w)} \frac{\delta V(\theta)}{\delta \theta} d\theta
 \end{aligned}$$

$$= 2(b(1-l) + w)(\hat{V}(1) - V(1)) + 2 \int_{2(b(1-l)+w)}^1 \hat{V}(0) - V(0) d\theta \geq 0.$$

However, this is not possible since $\hat{V}(\theta) \leq V(\theta) = 0$ for every $\theta \in [0, 1]$. \square

Lemma 6. *Let $b - lb + w > \frac{1}{2}$. If $(\hat{a}(\theta), \hat{\sigma}^2(\theta), \hat{V}(0))$ are optimal, then $\hat{a}(\theta)$ is constant on $[0, 1]$.*

Proof. Suppose that $\hat{a}(\theta)$ is not constant on $[0, 1]$, i.e. $\exists \theta, \theta' \in (0, 1)$ such that $\theta' > \theta, \hat{a}(\theta') > \hat{a}(\theta)$.

Consider the following policy:

$$a_1(\theta) = \hat{a}(0) \quad \text{for every } \theta,$$

$$\sigma_1^2(\theta) = \hat{\sigma}^2(0),$$

$$U_1(\theta) = \hat{U}(0).$$

$(a_1(\theta), \sigma_1^2(\theta), U_1(\theta))$ satisfy constraint (MON) and (NONNEG). This policy achieves a strictly higher value of the objective function than the original policy, since, by Lemma 4,

$$\begin{aligned} U(\hat{a}, \hat{\sigma}^2) &= \hat{V}(0) + 2 \int_0^1 \hat{a}(\theta) (1 - \theta + b - lb + w) d\theta + b^2 - \frac{1}{3} + lb(1 - lb) \\ &\quad - w(1 + w - 2lb) \\ &< \hat{V}(0) + 2 \int_0^1 \hat{a}(\theta) d\theta \int_0^1 (1 - \theta + b - lb + w) d\theta + b^2 - \frac{1}{3} + lb(1 - lb) \\ &\quad - w(1 + w - 2lb) \end{aligned}$$

$$\begin{aligned}
 &= \hat{V}(0) + 2 \int_0^1 (\theta - b) d\theta \int_0^1 (1 - \theta + b - lb + w) d\theta + b^2 - \frac{1}{3} + lb(1 - lb) \\
 &\quad - w(1 + w - 2lb) \\
 &< \hat{V}(0) + 2\hat{a}(0) \int_0^1 (1 - \theta + b - lb + w) d\theta + b^2 - \frac{1}{3} + lb(1 - lb) \\
 &\quad - w(1 + w - 2lb) \\
 &= U(a_1(\theta), \sigma_1^2(\theta)).
 \end{aligned}$$

The first inequality is due to (MON) and the fact that $\hat{a}(\theta)$ is not constant on $(0, 1)$. Chebyshev's inequality tells us that $\frac{1}{b-a} \int_a^b f(t)g(t)dt \geq \left(\frac{1}{b-a} \int_a^b f(t)dt\right) \left(\frac{1}{b-a} \int_a^b g(t)dt\right)$ if $g(t)$ and $h(t)$ have the same monotony.

The last inequality to (MON) and $\int_0^1 \hat{a}(\theta) d\theta = \int_0^1 (\theta - b) d\theta < \int_0^1 a_1(\theta) d\theta$ because $b - lb + w > \frac{1}{2}$. The air below the flat curve $a(\theta) = \frac{1}{2}$ is larger than the aire below $a(\theta) = \theta - b$ because $b - lb + w > \frac{1}{2}$. \square

Lemma 7. *Let $b - lb + w > \frac{1}{2}$. Mechanism $(a(\theta), \sigma^2(\theta), V(0))$ is optimal.*

Proof. By Lemma 6, if $\hat{a}(\theta)$ is a part of an optimal policy, then it is constant on $(0, 1)$. Without loss of generality, we can restrict attention to policies such that $\hat{a}(\theta)$ is constant on $[0, 1]$. Take any such policy $(\hat{a}(\theta), \hat{\sigma}^2(\theta), \hat{V}(0))$. Then

$$\begin{aligned}
 &U(a(\theta), \sigma^2(\theta), V(0)) - U(\hat{a}(\theta), \hat{\sigma}^2(\theta), \hat{V}(0)) \\
 &= \int_0^1 -\sigma^2(\theta) - (a(\theta) - \theta + lb - w)^2 d\theta - \int_0^1 -\hat{\sigma}^2(\theta) - (\hat{a}(\theta) - \theta + lb - w)^2 d\theta \\
 &\geq \int_0^1 (a(\theta) - \theta + lb - w)^2 d\theta + \int_0^1 (\hat{a}(\theta) - \theta + lb - w)^2 d\theta
 \end{aligned}$$

$$\begin{aligned}
 &= - \int_0^1 \left(\frac{1}{2} - lb + w - \theta + lb - w \right)^2 d\theta + \int_0^1 (\hat{a}(\theta) - \theta + lb - w)^2 d\theta \\
 &= - \left[\frac{\theta}{4} - \frac{\theta^2}{2} + \frac{\theta^3}{3} \right]_0^1 + \left[\frac{(\hat{a}(\theta) - \theta + lb - w)^3}{3} \right]_0^1 \\
 &= \hat{a}^2(\theta) - (1 - 2lb + 2w) \hat{a}(\theta) + \frac{1}{4} - lb + l^2b^2 + w + w^2 - 2lbw \\
 &= (\hat{a}(\theta) - (\frac{1}{2} - lb + w))^2 \geq 0.
 \end{aligned}$$

Where the first inequality follows from the fact that: $\hat{\sigma}^2(\theta) \geq \sigma^2(\theta) = 0$ (NON-NEG). \square

Theorem 3 Let $0 > l > -1$ and $0 > w > -1$, the legislator appoints financial experts if $N < \frac{1}{2\sqrt{3(b(1-l)+w)^2 - 4(b(1-l)+w)^3}}$ and appoints bureaucrats otherwise.

Proof. From Lemma 3 to 7, we know that the expected utility of the legislator when delegating the regulatory task to financial experts is:

$$\begin{aligned}
 \mathbf{E}[U(a, \theta)] &= - \int_0^{2(b(1-l)+w)} ((b - 2(lb - w)) - (\theta - lb + w))^2 d\theta \\
 &\quad - \int_{2(b(1-l)+w)}^1 (\theta - b - (\theta - lb + w))^2 d\theta,
 \end{aligned}$$

$$\mathbf{E}[U(a, \theta)] = -(b(1-l) + w)^2 + \frac{4}{3} (b(1-l) + w)^3,$$

The legislator appoints financial experts if and only if $\mathbf{E}[U(a_i, \theta)] > \mathbf{E}[U(a, \theta)]$.

Then, from Lemma 1:

$$\begin{aligned}
 0 &> \mathbf{E}[U(a, \theta)] - \mathbf{E}[U(a_i, \theta)], \\
 &= -(b(1-l) + w)^2 + \frac{4}{3} (b(1-l) + w)^3 + \frac{1}{12N^2}.
 \end{aligned}$$

The legislator's expected utility with financial experts is higher than her expected

utility with bureaucrats when:

$$N < \frac{1}{2\sqrt{3(b(1-l)+w)^2-4(b(1-l)+w)^3}}. \quad \square$$

Appendix B. Financial Regulators and Regulatory Capture

5.5. Indicators

Indicators	Strict	Medium	Lax
Collusive			
Gift and hospitality	Forbidden or restricted	Allowed but registered	Otherwise
Post-employment	Permanent ban for employment in the industry	Cooling-off periods	Otherwise
Information			
Power to do on and off-site inspections	Yes	Yes with restrictions	Otherwise
Advisory committee	Yes and mandatory consultation	Yes but consultation not mandatory	Otherwise
Scientific committee	Yes		No
Cognitive			
Pre-employment	Permanent ban for recruitment in the industry	Cooling-off periods	Otherwise
Interactions between regulators and interest groups	Register to record meetings		Otherwise
Restrictions for scientific committee composition	Yes		Otherwise
Equal representation of the stakeholders in the decision-making process	Yes or consumer advisory committee with mandatory participation to the decision-making process	Yes or consumer advisory committee without mandatory participation to the decision-making process	No

Table 3..6: *Capture Indicators*

5.6. Sources

COMPETITION	CMA	FTC	BKartA	ACM	AGCM	Autorité de la Concurrence
Gift and hospitality	CMA Website < https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/511598/CMA_Board_Rules_of_Procedure.pdf >	-	-	-	Law No. 215 of 20 July 2004	-
Post-employment	-	-	-	-	Law No. 215 of 20 July 2004 - section 2 § 4	Charte de déontologie de l'Autorité de la concurrence -Part II § 2
Advisory committee	CMA Website < https://www.gov.uk/government/organisations/competition-and-markets-authority >	FTC Website < https://www.ftc.gov/about-ftc/bureaus-offices >	BKartA Website < http://www.bundeskartellamt.de/SharedDocs/Publikation/EN/OrganizationalChart/Organisation%20Chart.html?nn=3590806 >	-	-	-
Scientific committee	CMA Website < https://www.gov.uk/government/organisations/competition-and-markets-authority >	FTC Website < https://www.ftc.gov/about-ftc/bureaus-offices >	BKartA Website < http://www.bundeskartellamt.de/SharedDocs/Publikation/EN/OrganizationalChart/Organisation%20Chart.html?nn=3590806 >	ACM Website < https://www.acm.nl/en/about-acm/our-organization/organizational-structure/ >	AGCM Website < http://www.agcm.it/en/organization-chart.html >	-
Pre-employment	-	-	-	-	-	-
Interactions with interest groups	-	-	-	-	-	-
Equal representation of stakeholders in the decision-making process	-	-	-	-	-	-
Academics in scientific committee	-	-	-	-	-	-

Table 3..7: Source for competition regulators

APPENDIX B. FINANCIAL REGULATORS AND REGULATORY CAPTURE

ENERGY	Ofgem	FERC	BNetzA	ACM	Autorità Energia	CRE
Gift and hospitality	Bribery Act 2010 Ofgem Website < https://www.ofgem.gov.uk/sites/default/files/docs/2013/03/conflicts-of-interest-at-ofgem.pdf >	18 CFR Part 3c - Standard of Conduct	-	-	-	-
Post-employment	-	-	-	-	Law n. 481 of November 14th 1995 Autorità Energia Website < http://www.autorita.energia.it/it/inglese/about/presentazione.htm >	CRE Website : < http://www.cre.fr/en/presentation/status > § Guarantees of independence and
Advisory committee	Ofgem Website < https://www.ofgem.gov.uk/about-us/how-we-engage/environmental-and-sustainability-issues/sustainable-development-advisory-group > https://www.ofgem.gov.uk/about-us/who-we-are/our-structure	18 CFR 157.11 - Hearings	BNetzA Website < http://www.bundesnetzagentur.de/cdn_1431/EN/General/Bundesnetzagentur/AdvisoryCouncil/AdvisoryCouncil_node.html >	-	Autorità Energia Website < http://www.autorita.energia.it/it/inglese/about/presentazione.htm >	CRE Website < http://www.cre.fr/en/presentation/status > § Main points
Scientific committee	-	-	-	https://www.acm.nl/en/about-acm/our-organization/	-	-
Pre-employment	-	-	-	-	-	-
Interactions with interest groups	-	-	-	-	-	-
Equal representation of the stakeholders in the decision-making process	Ofgem Website < https://www.ofgem.gov.uk/about-us/how-we-engage/engaging-consumer-issues >	Federal Advisory Committee Act §5 b.(2)	-	-	Law n. 481 of november 14th 1995, article 2, §23 Autorità Energia Website < http://www.autorita.energia.it/it/inglese/about/legge_istitutiva.htm >	-
Academics in scientific committee	-	-	-	-	-	-

Table 3..8: Source for energy regulators

APPENDIX B. FINANCIAL REGULATORS AND REGULATORY CAPTURE

FINANCE	FCA	PRA	SEC	CFTC	BaFin	AFM	Consob	AMF	ACPR
Gift and hospitality	Bribery Act 2010	Bribery Act 2010 Bank of England Code Part Demonstrating impartiality § Entertainment and gifts	17 CFR §200.59 Relationship with persons subject to regulation	17 CFR §140.735-4 Receipt and disposition of foreign gifts and decoration	BaFin Website <http://www.bafin.de/EN/BaFin/Organisation/Compliance/PreventionOfCorruption/preventionofcorruption_node.html>	AFM Regulation for Gifts, Invitations and Remuneration for External Activities - §2	-	-	ACPR Règlement intérieur du Collège - Chapter 6 - Article 27
Post-employment	-	-	Executive Order on Ethics Commitments by Executive Branch Personnel - Section 2 - §4 and §5 5 CFR Chapter XXXIV §4401.103	-	-	-	-	-	-
Advisory committee	FCA Website <https://www.fca.org.uk/about/structure>	PRA Website <http://www.bankofengland.co.uk/about/Pages/people/mpc.aspx>	17 CFR §201.300 - Hearings SEC Website <http://www.sec.gov/divisions.shtml SEC Offices and Divisions>	CFTC Website <http://www.cftc.gov/About/CFTCOrganization/index.htm>	BaFin Website <http://www.bafin.de/EN/BaFin/Organisation/BaFinBodies/bafinbodies_node.html>	AFM Website <https://www.afm.nl/en/over-afm/organisatie/ext-stakeholders>	Consob Website <http://www.consob.it/mainen/consob/what_organizational_text/text_version2014.html?symlink=/mainen/consob/what_organizational_text/index.html>	AMF Website <http://www.amf-france.org/en_US/L-AMF/Commissions-consultatives/Presentation.html#title_paragraph_1>	ACPR Website <https://acpr.banque-france.fr/en/acpr/organisation/the-consultative-committees-and-the-scientific-committee.html>
Scientific committee	-	PRA Website <http://www.bankofengland.co.uk/about/Documents/pdfs/orgchart.pdf>	17 CFR §200.23a SEC Website <http://www.sec.gov/dera>	CFTC Website <http://www.cftc.gov/About/EconomicAnalysis/CFTCEconomists/index.htm>	-	-	-	AMF Website <http://www.amf-france.org/en_US/L-AMF/Conseil-scientifique.html?>	ACPR Website <https://acpr.banque-france.fr/en/acpr/organisation/the-consultative-committees-and-the-scientific-committee.html>
Pre-employment	-	-	Executive Order - Ethics Commitments - Executive Branch Personnel - Section 1 §2 -3	-	-	-	-	-	-
Interactions with interest groups	-	-	The Lobbying Disclosure Act of 1995	The Lobbying Disclosure Act of 1995	-	-	-	-	-
Equal representation of the stakeholders in the decision-making process	-	-	Federal Advisory Committee Act §5 b.(2) SEC Website <http://www.sec.gov/investorad/Office of the Investor Advocate>	Federal Advisory Committee Act §5 b.(2)	Articles of Association of the Federal Financial Supervisory Authority (BaFin) - Part II - Section 8a	AFM Website <https://www.afm.nl/en/over-afm/organisatie/ext-stakeholders>	-	AMF Website <http://www.amf-france.org/en_US/L-AMF/Commissions-consultatives/Presentation.html#title_paragraph_1Specific skill sets>	-
Academics in scientific committee	-	-	-	-	-	-	-	-	-

Table 3.9: Source for finance regulators

APPENDIX B. FINANCIAL REGULATORS AND REGULATORY CAPTURE

HEALTHCARE	CQC	AHRQ	Bfarm	HAS
Gift and hospitality	-	-	-	HAS Website < http://www.has-sante.fr/portail/jcms/c_2051506/en/ethics-transparency-and-management-of-conflicts-of-interest >
Post-employment	-	-	-	HAS Website < http://www.has-sante.fr/portail/jcms/c_2051506/en/ethics-transparency-and-management-of-conflicts-of-interest >
Advisory committee	CQC Website < http://www.cqc.org.uk/content/how-we-are-run >	-	-	HAS Website < http://www.has-sante.fr/portail/jcms/c_415961/en/organisational-structure >
Scientific committee	-	AHRQ Website < http://www.ahrq.gov/cpi/centers/oerep/index.html >	Bfarm Website < http://www.bfarm.de/EN/Research/_node.html >	-
Pre-employment	-	-	-	-
Interactions with interest groups	-	-	-	-
Equal representation of the stakeholders in the decision-making process	-	-	-	-
Academics in scientific committee	-	AHRQ Website < http://www.ahrq.gov/cpi/centers/oerep/index.html >	-	-

Table 3..10: *Source for healthcare regulators*

APPENDIX B. FINANCIAL REGULATORS AND REGULATORY CAPTURE

MEDICINE	MHPRA	FDA	Bfarm	CBG-MEB	AIFA	ANSM
Gift and hospitality	MHPRA Website < https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/457365/Dealing_with_conflicts_of_interest.pdf >	FDA Website < http://www.fda.gov/AboutFDA/WorkingatFDA/Ethics/ucm071702.htm >	-	CBG-MEB Website < http://english.cb-meb.nl/about-meb/contents/independence-and-integrity >	-	-
Post-employment	MHPRA Website < https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/457365/Dealing_with_conflicts_of_interest.pdf >	-	-	-	-	-
Advisory committee	MHPRA Website < https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency/about#our-advisory-bodies >	FDA Website < http://www.fda.gov/AdvisoryCommittees/default.htm >	-	CBG-MEB Website < http://english.cb-meb.nl/about-meb/contents/regular-consultations >	-	ANSM Website < http://ansm.sante.fr/L-ANSM2/Commissions-consultatives/Commissions-consultatives-de-l-ANSM/(offset)/0 >
Scientific committee	-	FDA Website < http://www.fda.gov/AdvisoryCommittees/CommitteesMeetingMaterials/ScienceBoardtotheFoodandDrugAdministration/default.htm >	Bfarm Website < http://www.bfarm.de/EN/Research/_node.html >	CBG-MEB Website < http://english.cb-meb.nl/about-meb/contents/organisation-and-units/programme-office-science >	AIFA Website < http://www.agenziafarmaco.gov.it/en/content/committees >	ANSM Website < http://ansm.sante.fr/L-ANSM2/Comites-scientifiques-specialises-temporaires/Comites-scientifiques-specialises-temporaires/(offset)/0 >
Pre-employment	-	-	-	-	-	-
Interactions with interest groups	-	-	-	-	-	-
Equal representation of the stakeholders in the decision-making process	-	FDA Website < http://www.fda.gov/AdvisoryCommittees/AboutAdvisoryCommittees/CommitteeMembership/ucm231782.htm >	-	CBG-MEB Website < http://english.cb-meb.nl/human-for-patients-and-consumers/contents/consultation-with-patient-and-consumer-organisations >	-	ANSM Website < http://ansm.sante.fr/L-ANSM2/Commissions-consultatives/Commissions-consultatives-de-l-ANSM/(offset)/0 >
Academics in scientific committee	-	-	-	-	-	-

Table 3..11: *Source for medicine regulators*

APPENDIX B. FINANCIAL REGULATORS AND REGULATORY CAPTURE

TELECOM	Ofcom	FCC	BNetzA	ACM	AGCOM	ARCEP
Gift and hospitality	Ofcom Website <http://stakeholders.ofcom.org.uk/binaries/spectrum/spectrum-awards/awards-in-progress/Stakeholder_Engagement_Rules.pdf> <http://www.ofcom.org.uk/about/annual-reports-and-plans/gifts-and-hospitality-register/>	47 CFR 19.735-102 5 CFR Part 2635	-	-	-	-
Post-employment	-	-	-	-	-	Charte de déontologie - Part III § 1
Advisory committee	Ofcom Website <http://www.ofcom.org.uk/about/how-ofcom-is-run/committees/>	FCC Website <https://www.fcc.gov/about-fcc/advisory-committees-fcc>	BNetzA Website <http://www.bundesnetzagentur.de/cln_1431/EN/General/Bundesnetzagentur/AdvisoryCouncil/AdvisoryCouncil_node.html>	-	-	-
Scientific committee	-	FCC Website <https://www.fcc.gov/about-fcc/advisory-committees-fcc>	-	ACM Website <https://www.acm.nl/en/about-acm/our-organization/organizational-structure/>	-	-
Pre-employment	-	-	-	-	-	-
Interactions with interest groups	-	47 CFR 19.735-102 The Lobbying Disclosure Act of 1995	-	-	-	-
Equal representation of the stakeholders in the decision-making process	Ofcom Website <http://www.ofcom.org.uk/about/how-ofcom-is-run/committees/communications-consumer-panel/>	FCC Website <https://www.fcc.gov/consumer-advisory-committee>	-	-	-	-
Academics in scientific committee	-	-	-	-	-	-

Table 3.12: *Source for telecommunication regulators*

Appendix C. Exploring Agencies Design

5.7. Indicators

Criteria	Strict	Medium	Lax
Conflict of Interests			
Pre-Employment	Permanent ban for recruitment in the industry	Cooling-off periods	Otherwise
Post-Employment	Permanent ban for employment in the industry	Cooling-off periods	Otherwise
Additional Activities	Plurality forbidden	Only activities that may induce a conflict	Otherwise
Asset Disclosure			
Declaration of interests	All members	Only board members	Otherwise
Control ex-post for the rightness of the declaration	Yes by an independent body	Yes by the agency	Otherwise
Mandatory withdrawal	Yes for past and present interests	Yes for present interests	Otherwise
Lobbying			
Gift and hospitality	Forbidden or restricted	Allowed but registered	Otherwise
Interactions with interest groups	Register to record meetings		Otherwise
Equal representation of the stakeholders in the decision-making process	Yes or mandatory consultation of consumer advocates	Consumer advisory committee without mandatory consultation	Otherwise
Academics in scientific committee	Yes		Otherwise
Whistleblowing Protection			
Whistleblower Protection	Yes at the state level	Agency supplemental standards	Otherwise

Table 3..13: *Integrity.*

OECD criteria applied to agencies. Three levels of compliance are associated with the criteria. A rating of 1 is given if the agency satisfies the policy, a 0.5 for partial compliance, and a 0 for non-compliance.

Criteria	Strict	Medium	Lax
Institutional			
Legal Basis	Yes		No
Board members	Elected	Appointed by at least two branches	Otherwise
Board's composition	No government or legislative sitting	Government or Legislative sitting without powers	Otherwise
	Academics sitting on board and restriction to political party affiliation	Academics sitting on board or restriction to political party affiliation	Otherwise
Decision-making process	Government intervention forbidden and scientific committee	Government intervention forbidden but no scientific committee	Otherwise
Quorum Rules	Decision taken during plenary session and reached by a consensus	Decision taken during plenary session and reached by majority	Otherwise
Term of mandates	Non-renewable and partially renewed at mid-term	Non-renewable or partially renewed at mid-term	Otherwise
	> 5 years and non revocable	< 5 years or non revocable	Otherwise
Legal Immunity	Yes with clear criteria	Yes without clear criteria	Otherwise
Delegation of powers	Prohibited	Allowed but restricted	Otherwise

Table 3.14: *Independence.*

Criteria of independence applied to agencies. Three levels of compliance are associated with the criteria. A rating of 1 is given if the agency satisfies the policy, a 0.5 for partial compliance, and a 0 for non-compliance.

Criteria	Strict	Medium	Lax
Regulatory and Supervisory			
Issue legally binding rules	Yes autonomously	Yes but not autonomously	Otherwise
Issue or Withdraw Licences	Yes	Yes with prior approval from government	Otherwise
Impose Sanction	Yes	Yes with prior approval from government	Otherwise
On-site/ off-site inspections	Yes	Yes with prior approval from government	Otherwise
Budgetary			
Source of funds	Fees from supervised entities	Fees from supervised entities and State subsidies	Otherwise
Ex-ante control from the legislatives or executives	No		Yes
Right to define the internal organization structure	Yes		No

Table 3..15: *Independence.*

Criteria of independence applied to agencies. Three levels of compliance are associated with the criteria. A rating of 1 is given if the agency satisfies the policy, a 0.5 for partial compliance, and a 0 for non-compliance.

Criteria	Strict	Medium	Lax
Political			
Accountable to the government	Obligation to provide regular reports	Mandatory hearings or official sitting on board	Otherwise
Accountable to the parliament	Obligation to provide regular reports	Mandatory hearings or official sitting on board	Otherwise
Budgetary accountability	Mandatory ex-post presentation of financial accounts to the courts of Auditors or Parliament	On request	Otherwise

Table 3..16: *Accountability.*

Criteria of accountability applied to agencies. Three levels of compliance are associated with the criteria. A rating of 1 is given if the agency satisfies the policy, a 0.5 for partial compliance, and a 0 for non-compliance.

Criteria	Strict	Medium	Lax
Judicial			
Appeal procedure for regulated entities	Yes by an independent specialized judge	Yes by the agency	Otherwise
Fine imposed in case of faulty supervision	Yes with criteria	Yes without criteria	Otherwise
Stakeholder and General Public			
Accountable to the regulated industry	Mandatory and regular hearings	Non-mandatory hearings	Otherwise
Accountable to the general public	Possibility for inquiries to an external body	Possibility for inquiries to the agency	Otherwise
Mandatory Audit of	Yes external	Yes internal	Otherwise
Regulations and decisions released	Systematic free access	On request	Otherwise
Annual reports released	Systematic free access	On request	Otherwise
Rules of practice released	Systematic free access	On request	Otherwise
Code of ethics released	Systematic free access	On request	Otherwise
Stakeholders consultation register released	Systematic free access	On request	Otherwise
Declaration of interests released	Framework and disclosable interests	Framework	Otherwise
Board member's resume released	Yes for all members	Only the president	Otherwise
Procedure for board member's dismissal	Yes	Only the president	Otherwise

Table 3..17: *Accountability.*

Criteria of accountability applied to agencies. Three levels of compliance are associated with the criteria. A rating of 1 is given if the agency satisfies the policy, a 0.5 for partial compliance, and a 0 for non-compliance.

Additional criteria Institutional Independence: we add four criteria to those introduced by (Masciandaro et al., 2011). The characteristics of the board are not sufficiently discussed and therefore there is a need to account for time inconsistency, political interference and plurality of opinion. Delegating a policy task to technocrat is sometimes motivated by the need to avoid time inconsistency and political interference raised by the political mandates or by the need for technocrats' expertise. Therefore, these features are included in Independence: *i) Is the board composed with academics? And is there a restriction on member's political affiliation and activities? ii) Can the board delegate part of its duties to another body of the agency? iii) For how long are board members appointed? And is the mandate non-revokable? iv) Is the board partially renewed at mid-term? And is the mandate renewable?*

Regulatory and Supervisory Independence: Masciandaro et al. (2011) does not account for the measure of agencies' access to information. One major issue raised by regulatory and supervisory activities is the access to information regarding the regulated industries. We therefore add a criterion to assess whether the IRA has the sufficient power to require additional information and technical materials to the regulated industry. *Does the agency have the right to conduct on-site and off-site inspections?*

Political Accountability: Some agencies benefit from budgetary independence, a criteria taken into account in the framework of Masciandaro et al. (2011). To guarantee that agencies' budget and funds are in accordance with their real activities, a criteria related to the budgetary accountability is needed. The aim is to determine if there is a control ex-post of agencies budget and allocation of funds: *Does the Court of Auditors or the parliament control ex-post agencies' financial account?*

Stakeholder Accountability: We reintroduce the dimension of transparency to the framework. Introduced by Das and Quintyn (2002), it was withdrawn from Masciandaro et al. (2011). Transparency arrangements allow stakeholders (whether interest groups or general public) to ensure that the decision-making process follows

the public's interest. The more transparent the agency, the more trustworthy and credible its decisions: *Does the agency release the rule of practice, the code of Ethics, a register of lobbyists consultations, the declaration of interests, board member's resume?*. In addition, we account for the possibility of a regulator's dismissal. This criteria ensures the stakeholders senior members are committed to their tasks and that incompetence and dishonest behaviors do not stay unpunished: *Does the agency provide a procedure for regulator's dismissal in case of failure to comply with the law?*.

5.8. Tables

	Denmark	France	Italy	Germany
Competition	Konkurrence og Forbrugerstyrelsen	Autorité de la Concurrence	Autorita Garante della Concorrenza e del Mercato	Bundeskartellamt
Energy	Energitilsynet	Commission de Régulation de l’Energie	Autorita per l’energia elettrica il gas ed il sistema idrico	Bundesnetzagentur
Finance	Finanstilsynet	Autorité des Marchés Financiers, Autorité de Contrôle Prudentiel et de Résolution	Commissione Nazionale per le Società e la Borsa	Federal Financial Supervisory Authority
Healthcare	Sundhedsstyrelsen	Haute Autorité de la Santé		Bundesinstitut für Arzneimittel und Medizinprodukte
Medicine	Sundhedsstyrelsen	Agence Nationale de Sécurité du Médicament et des produits de Santé	Agenzia Italiana del Farmaco	Bundesinstitut Arzneimittel und für Medizinprodukte
Telecom	Erhvervsstyrelsen	Autorité de Régulation des Communications Electroniques et des Postes	Autorita per le	Bundesnetzagentur garantzie nelle comunicazioni

Table 3..18: *Dataset.*

The white cells are countries in which the regulatory domain is not delegated to an agency.

	Netherlands		Sweden	UK	US	
Competition	Autoriteit Consument Markt	Con- and	Konkurrensverket	Competition and Market Author- ity	Federal	Trade Commission
Energy	Autoriteit Consument Markt	Con- and	Energimarkadsin- pektionen	Office of Gas and Electricity	Federal	En- ergy Regulatory Commission
Finance	Autoriteit Financiele Markten	Fi- nanciele Mark- ten	Finansinspektio- nen	Financial Con- duct Authority, Prudential Regulation Authority	Securities and Exchange Commission, Commodity Futures Trading Commission	
Healthcare			Inspektionen for vard och omsorg	Care Quality Commission	Agency for Healthcare Research and Quality	
Medicine	College ter Beo- ordeling van Ge- neesmiddelen		Lakemedelsverket	Medicines and Healthcare Products Regu- latory Agency	Food and Drug Administration	
Telecom	Autoriteit Consument Markt	Con- and	Post och Telestyrelsen	Office of Com- munications	Federal	Com- munication Commission

Table 3..19: *Dataset*.

The white cells are countries in which the regulatory domain is not delegated to an IRA.

5.9. Sources

Competition and Markets Authority	https://www.gov.uk/government/organisations/competition-and-markets-authority ; http://www.legislation.gov.uk/ukpga/2013/24/pdfs/ukpga_20130024_en.pdf (p. 106); https://www.gov.uk/government/news/competition-and-markets-authority-publishes-guidance-on-approach-to-new-powers ; http://resources.civilservice.gov.uk/wp-content/uploads/2011/09/code-of-conduct_tcm6-38901.pdf http://publicappointmentscommissioner.independent.gov.uk/wp-content/uploads/2012/02/Code-of-Practice-20121.pdf
Medicines and Healthcare Products Regulatory Agency	https://www.gov.uk/government/organisations/medicines-and-healthcare-products-regulatory-agency ; http://resources.civilservice.gov.uk/wp-content/uploads/2011/09/code-of-conduct_tcm6-38901.pdf
Care Quality Commission	http://www.cqc.org.uk ; http://www.legislation.gov.uk/ukpga/2008/14/pdfs/ukpga_20080014_en.pdf (p. 115); http://resources.civilservice.gov.uk/wp-content/uploads/2011/09/code-of-conduct_tcm6-38901.pdf https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62130/ndpbs-lobbying.pdf
Office of Gas and Electricity Markets	https://www.ofgem.gov.uk ; https://www.ofgem.gov.uk/ofgem-publications/37942/conflicts-interest-ofgem.pdf ; http://www.legislation.gov.uk/ukdsi/2011/9780111513965/part/7
Office of Communications	http://www.ofcom.org.uk ; http://www.legislation.gov.uk/ukpga/2003/21/contents ; http://www.legislation.gov.uk/ukpga/2002/11/section/1 ; http://www.legislation.gov.uk/ukpga/2002/11/pdfs/ukpga_20020011_en.pdf
Financial Conduct Authority	http://www.fca.org.uk ; http://www.legislation.gov.uk/ukpga/2012/21/pdfs/ukpga_20120021_en.pdf (p. 219)
Prudential Regulatory Authority	http://www.bankofengland.co.uk/pru/Pages/default.aspx ; http://www.legislation.gov.uk/ukpga/2006/46/pdfs/ukpga_20060046_en.pdf ; http://www.legislation.gov.uk/ukpga/2012/21/pdfs/ukpga_20120021_en.pdf (p. 229); https://www.frc.org.uk/Our-Work/Publications/Corporate-Governance/UK-Corporate-Governance-Code-2014.pdf
Federal Trade Commission	https://www.ftc.gov/about-ftc ; https://www.law.cornell.edu/uscode/text/21/393 ; https://www.law.cornell.edu/cfr/text/21/chapter-1/subchapter-A
Food and Drug Administration	http://www.fda.gov/AboutFDA/default.htm ; https://www.law.cornell.edu/uscode/text/21/393 ; https://www.law.cornell.edu/cfr/text/21/chapter-1/subchapter-A
Agency for Healthcare Research and Quality	http://www.ahrq.gov ; https://www.law.cornell.edu/uscode/text/42/chapter-6A/subchapter-VII
Federal Energy Regulatory Commission	http://www.ferc.gov/about/about.asp ; https://www.law.cornell.edu/uscode/text/42/chapter-84/subchapter-IV ; https://www.law.cornell.edu/cfr/text/18/part-3c
Federal Communication Commission	http://www.fcc.gov ; https://www.law.cornell.edu/uscode/text/47/chapter-5/subchapter-I ; https://www.law.cornell.edu/cfr/text/47/part-1/subpart-R
Security and Exchange Commission	http://www.sec.gov/ ; http://www.sec.gov/about/laws/secrulesregs.htm
Commodity Futures Trading Commission	http://www.cftc.gov ; https://www.law.cornell.edu/cfr/text/17/part-140
Bundeskartellamt	http://www.bundeskartellamt.de ; http://www.gesetze-im-internet.de/englisch_gwb/englisch_gwb.html
Bundesinstitut für Arzneimittel und Medizinprodukte	http://www.bfarm.de/DE/Home/home_node.html ; http://www.gesetze-im-internet.de/englisch_amg/englisch_amg.html#p1658
Bundesnetzagentur	http://www.bundesnetzagentur.de ; http://www.gesetze-im-internet.de/bundesrecht/begtpg/gesamt.pdf ; http://www.bmwi.de/EN/Ministry/The-Ministrys-Agencies/federal-network-agency-bnetza.html
Medienanstalten	http://www.die-medienanstalten.de ; http://www.die-medienanstalten.de/fileadmin/Download/Rechtsgrundlagen/Gesetze_aktuell/15_RSiv_english_01-01-2013.pdf
Bundesanstalt für Finanzdienstleistungsaufsicht	http://www.bafin.de/EN/Homepage/homepage_node.html;jsessionid=D71B9F2B1F4F75121185ABE28B4E696D.1_cid381 ; http://www.bafin.de/SharedDocs/Aufsichtsrecht/EN/Satzung/satzung_bafin_en.html?nn=2692286
Autoriteit Consument and Markt	https://www.acm.nl/en/ ; https://www.acm.nl/en/publications/publication/13508/Regulations-of-the-Board-of-ACM/
College ter Beoordeling van Geneesmiddelen	http://www.cbg-meb.nl/CBG/en/about/actueel/default.htm ; http://wetten.overheid.nl/BWBR0021505/geldigheidsdatum_31-03-2015#Hoofdstuk2_Artikel2
Commissariaat voor de Media	http://www.cvdn.nl/english/ ; http://www.lexadin.nl/wlg/legis/nofir/eur/arch/ned/mediaact.pdf ; http://www.government.nl/issues/media-and-broadcasting/the-government-and-media/media-act-and-media-policy
Autoriteit Financiële Markten	http://www.afm.nl/en ; http://www.dutchcivilaw.com/legislation/finsupchap1122.htm
Konkurrence og Forbrugerstyrelsen	http://en.kfst.dk ; http://en.kfst.dk/Competition/~media/KFST/English%20kfstdk/Competition/Legislation/Engelsk%20udgave%20af%20lovbekendtgørelse%207002013.pdf
Sundhedsstyrelsen	http://sundhedsstyrelsen.dk/en ; http://laegemiddelstyrelsen.dk/~media/0C65F89DCCB74F9AAA0C24D28BED3B59.ashx
Energitilsynet	http://energitilsynet.dk/tool-menu/english/ ; http://www.ens.dk/sites/ens.dk/files/info/laws-executive-orders/energy-supply/gb_lovbekg_286_2005_elforsyning_ar001003.pdf
Erhvervsstyrelsen	http://danishbusinessauthority.dk ; http://kubis.kb.dk/c.php?g=91546&p=885577
Radio og tv-nævnet	http://www.kulturstyrelsen.dk/english/media/the-radio-and-television-board/ ; http://www.wipo.int/edocs/lexdocs/laws/en/dk/dk156en.pdf

Finanstilsynet	https://www.finanstilsynet.dk/en.aspx ; https://www.finanstilsynet.dk/~ /media/Regler-og-praksis/2012/CAct_885_2011H.ashx ; https://www.finanstilsynet.dk/upload/Finanstilsynet/Mediafiles/newdoc/About/NotatFMemorandumUK261005.pdf ; https://www.finanstilsynet.dk/en/Job-og-karriere/Personale%20-%20OFFLINE/Finanstilsynets-upartiskhed-og-integritet.aspx
Konkurrensverket	http://www.kkv.se/en/omossmeny/about-us/ ; http://www.wipo.int/edocs/lexdocs/laws/en/se/se119en.pdf
Läkemedelsverket	https://www.lakemedelsverket.se/english/
Inspektionen för vård och omsorg	http://www.ivo.se/om-ivo/other-languages/english/
Energimarknadsinspektionen	http://www.energimarknadsinspektionen.se
Post- och Telestyrelsen	http://www.pts.se/en-GB/About-PTS/ ; http://www.pts.se/upload/Documents/EN/The_Electronic_Communications_Act_2003_389.pdf ; https://www.pts.se/upload/Regler/postal_services_act_2010.pdf
Myndigheten för radio och tv	http://www.radioochtv.se/en/about-us/
Finansinspektionen	http://www.fi.se/Folder-EN/Startpage/About-FI/
Autorità Garante della Concorrenza e del Mercato	http://www.agcm.it/en/ ; http://www.agcm.it/en/comp/1727-law-no-287-of-october-10th-1990.html
Agenzia Italiana del Farmaco	http://www.agenziafarmaco.gov.it/en/ ; http://www.agenziafarmaco.gov.it/sites/default/files/Regolamento_AIFA_0.pdf
Autorità per l'energia elettrica il gas ed il sistema idrico	http://www.autorita.energia.it/it/inglese/about/presentazione.htm ; http://www.autorita.energia.it/it/inglese/about/legge_istitutiva.htm
Autorità per le garanzie nelle comunicazioni	http://www.agcom.it/home
Commissione Nazionale per le Società e la Borsa	http://www.consob.it/main/en/consob/index.html
Autorité de la Concurrence	http://www.autoritedelaconcurrence.fr/user/index.php ; http://www.legifrance.gouv.fr/Traductions/en-English/Legifrance-translations
Agence Nationale de Sécurité du Médicament et des Produits de Santé	http://ansm.sante.fr ; http://www.legifrance.gouv.fr/affichCode.do?idArticle=LEGIARTI000027480562&idSectionTA=LEGISCTA000006171401&cidTexte=LEGITEXT000006072665&dateTexte=20150414
Haute Autorité de la Santé	http://www.has-sante.fr/portail/jcms/1c_1249588/en/accueil ; http://www.legifrance.gouv.fr/affichCode.do?idArticle=LEGIARTI000029774565&idSectionTA=LEGISCTA000029763924&cidTexte=LEGITEXT000006073189&dateTexte=20141128
Commission de Régulation de l'Energie	http://www.cre.fr ; http://www.legifrance.gouv.fr/affichCode.do?idArticle=LEGIARTI000027319616&idSectionTA=LEGISCTA000023985699&cidTexte=LEGITEXT000023983208&dateTexte=20141126
Autorité de Régulation des Communications Electroniques et des Postes	http://www.arcep.fr ; http://www.legifrance.gouv.fr/affichCode.do?jsessionid=9CB5774CE0F02C32005352932FB6C867.tpdjo14v_3?idSectionTA=LEGISCTA000006165931&cidTexte=LEGITEXT000006070987&dateTexte=20141127
Conseil Supérieur de l'Audiovisuel	http://www.csa.fr ; http://legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT00000885800&fastPos=2&fastReqId=1816782047&categorieLien=cid&oldAction=rechTexte
Autorité des Marchés Financiers	http://www.amf-france.org ; http://www.legifrance.gouv.fr/affichCode.do?jsessionid=EDD58807343CF72A2A8A670A1D95FB90.tpdjo11v_3?idSectionTA=LEGISCTA000006139678&cidTexte=LEGITEXT000006072026&dateTexte=20141124
Autorité de Contrôle Prudentiel et de Résolution	http://acpr.banque-france.fr/accueil.html ; http://www.legifrance.gouv.fr/affichCode.do?jsessionid=EDD58807343CF72A2A8A670A1D95FB90.tpdjo11v_3?idSectionTA=LEGISCTA000021938914&cidTexte=LEGITEXT000006072026&dateTexte=20141124

Table 3..20: *Websites and Legislations per Regulatory Authority*

The Political Economy of Financial Regulation

This dissertation contributes to the thriving literature in regulatory capture deepening our understanding of both cognitive and information capture along multiple lines. In Chapter 1, I develop a theoretical model to analyse the difficult trade-off faced by politicians when delegating the regulation of the financial service industry. The model shows that the principal trades off the superior knowledge of the financial experts against their regulatory bias in favor of the regulated industry. Where the principal comes down on this trade-off depends on how complex the regulatory area is, and on how intense the industry's preferences are. In Chapter 2, I define precise indicators of regulatory capture and construct a data set of 42 agencies that allow me to evaluate the expectations of the model. My results show that the race to sophistication and the powers of financial lobbies seem to have influenced agency design: financial regulators better prevent information capture than cognitive capture. In Chapter 3, I test two competing hypotheses to explain the disparities in agencies design: political explanations versus historical and cultural explanations. I show that agencies' level of independence and accountability is explained by the credible commitment hypothesis. This hypothesis however fails to explain agencies level of integrity, appearing commonly low.

Keywords: Cognitive Capture; Information Capture; Agencies; Financial Regulation; Governance; Administrative Traditions

L'Economie Politique de la Régulation Financière

La présente thèse contribue à la littérature florissante sur la capture du régulateur en approfondissant notre compréhension des phénomènes de capture cognitive et informationnelle sous de multiples angles. Le manuscrit est partitionné en trois chapitres. Dans un premier chapitre, je développe un modèle théorique afin d'étudier le difficile arbitrage auquel est confronté un dirigeant politique lorsque celui-ci délègue la régulation du système financier. Le choix opéré par le dirigeant politique dépend de son environnement politique et des caractéristiques du domaine réglementé. Dans un second chapitre, je définis des indicateurs de capture du régulateur et les applique à une base de données construite en rassemblant les pratiques de gouvernances et procédures de 42 agences indépendantes. Ce travail a pour but d'évaluer les prévisions du modèle théorique présenté en chapitre 1. Le troisième chapitre a pour objectif d'expliquer les disparités constatées entre agences indépendantes. Des hypothèses concurrentes sont ainsi testées : les explications politiques versus les explications culturelles et historiques.

Mots-clés: Capture Cognitive; Capture Informationnelle; Agence; Régulation Financière; Governance; Traditions Administratives