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# Transposing the 'real effects of financial markets' perspective onto the marketingfinance interface

Andrew Zylstra

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ESCP Europe

Ecole Doctorale de Management Panthéon-Sorbonne  
ED 559

**Transposing the 'real effects of financial markets' perspective  
onto the marketing-finance interface**

THESE

En vue de l'obtention du  
DOCTORAT ÈS SCIENCES DE GESTION

Par

Andrew ZYLSTRA

Soutenance publique le 14 octobre 2019



JURY

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“It’s been a long time coming.”

The French translation of this oft-cited English expression seems even more to the point:

« C'est un moment que nous attendions depuis longtemps. »

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## RÉSUMÉ

Afin d'approfondir les connaissances sur la relation entre le marketing et le marché des actions, cette thèse questionne l'éventualité selon laquelle la perspective des « effets réels des marchés financiers » (P. Bond, Edmans, & Goldstein, 2012) est adaptée à la fusion des deux courants de l'interface marketing-finance. Les quatre études de cette thèse font la démonstration suivante : les flux d'informations transmis par les cours des actions sont bidirectionnels entre les investissements marketing et les marchés secondaires. Les deux premières études (chapitres 3 et 4) montrent de façon empirique l'impact des flux d'informations provenant des investissements marketing sur les marchés secondaires, tandis que les troisième et quatrième études (chapitre 5 et 6) montrent de la même manière l'impact des flux d'informations provenant du marché des actions sur les investissements marketing. Réunies, ces quatre études attestent que l'information circule de façon bidirectionnelle entre les investissements marketing et les marchés secondaires, ce qui met en relief les débats autour de la perspective « des effets réels des marchés financiers ».

Nous présentons deux conclusions relatives à ce résultat. Dans un premier temps, nous soutenons l'idée selon laquelle la perspective des « effets réels des marchés financiers » devrait être superposée à l'interface marketing-finance car elle améliore notre compréhension de ces deux axes. Elle nous apporte également un cadre théorique adéquat pour examiner la manière par laquelle les investissements marketing reflètent et impactent les informations du marché des actions. Dans un second temps, la superposition de la perspective des « effets réels des marchés financiers » à l'interface marketing-finance ouvre la voie à de nombreuses possibilités de recherche permettant d'en savoir plus sur les interactions bidirectionnelles entre les investissements marketing et le marché des actions.

## Abstract

To obtain deeper insights into the relationship between marketing and equity markets, this thesis investigates whether the ‘real effects of financial markets’ perspective (P. Bond et al., 2012) is suitable for integrating the two streams of the marketing-finance-accounting interface research area. The four studies in this thesis highlight the bidirectional flows of information in stock prices between marketing investments and equity markets. The first two studies (Chapters 3 and 4) show empirically the impact of information flows from marketing investments to equity markets while the third and fourth studies (Chapters 5 and 6) show empirically the inverse flow of information from equity markets to marketing. Together, the four studies suggest that information flows bidirectionally between marketing investments and equity markets, reflecting the contentions of the ‘real effects of financial markets’ perspective.

We make two arguments based on this finding. First, we contend that the ‘real effects of financial markets’ perspective should be transposed onto the marketing-finance interface because it enhances our understanding of the two research streams of the marketing-finance interface and provides a suitable theoretical framework to account for how marketing investments both affect and reflect information in equity markets. Second, transposing the ‘real effects of financial markets’ perspective onto the marketing-finance interface opens up many research possibilities to generate new insights into the two-way interactions between marketing investments and equity markets.





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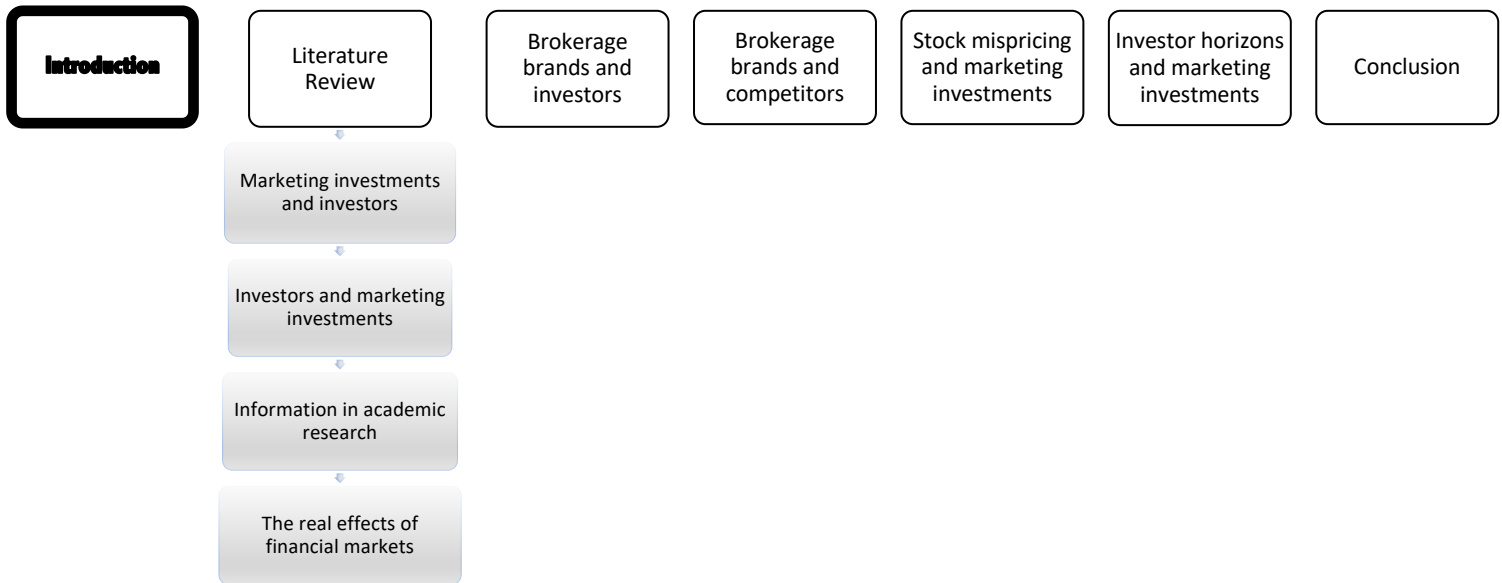
TRANSPOSING THE 'REAL EFFECTS OF  
FINANCIAL MARKETS' PERSPECTIVE ONTO  
THE MARKETING-FINANCE INTERFACE





# 1 INTRODUCTION





### Research context

Uncertainties about the effectiveness of marketing, increasing pressure from capital markets on top management teams and the perception of marketing expenditures as merely costs expensed on the income statement prompted marketers to prove the value relevance of marketing investments (see for example the research priorities of the Marketing Science Institute from 2014 to 2016), leading to the emergence of the marketing-finance interface about twenty years ago. This research stream explores whether and how marketing investments created shareholder value and how equity markets reflect information about marketing expenditures such as advertising and R&D and marketing assets such as brands and customer satisfaction that the marketing expenditures create (see (S. Srinivasan & Hanssens, 2009) for a review). The second research stream in the marketing-finance interface that emerged more recently considers how financial market participants such as financial analysts, investors and bondholders may hinder the ability of marketing investments to generate value for shareholders (see Chakravarty & Grewal, 2012 for a review).

The two research streams have considered the directions of information flows between marketing investments and equity markets separately, meaning that the first stream may consider whether investors consider information concerning marketing actions such as advertising expenditures when making decisions whereas the second stream would consider whether a firm's advertising expenditures influence investor attention and financial markets. This separation also concerns marketing assets such as customer satisfaction. For example, studies the influence of information flows about customer satisfaction on firms whereas studies the opposite direction, that is the impact of bondholders on customer satisfaction. Table 1 below shows in more detail how the information flows about various marketing investments have been studied separately in marketing and finance.

**Table 1 - Marketing-finance interface literature illustrating the bidirectional flows between marketing investments and financial markets**

Marketing investment	Illustrative article	Player 1	Information Flow	Player 2	Article description
Brand	(Luo, Raithel, & Wiles, 2013)	Firms	→	Equity market	The impact of brand rating dispersion on firm value
	(Schoenbachler, Gordon, & Aurand, 2004)	Firms	←	Equity market	Individual investors tend to buy brands of companies they invest in
Customer satisfaction	(E. W. Anderson, Fornell, & Mazvancheryl, 2004)	Firms	→	Equity market	Positive association between customer satisfaction and shareholder value.
	(Malshe & Agarwal, 2015)	Firms	←	Debt market	Firm leverage reduces customer satisfaction.
Advertising	(Joshi & Hanssens, 2010)	Firm	→	Equity market	Advertising spending has a positive, long-term effect on firms' market capitalization
	(Lou, 2014)	Firms	←	Equity market	Firm managers adjust firm advertising to attract investors

Marketing investment	Illustrative article	Player 1	Information Flow	Player 2	Article description
R&D	(Lev & Sougiannis, 1996)	Firms	→	Equity market	R&D capitalization is significantly associated with stock prices and returns
	(Chakravarty & Grewal, 2011)	Firms	←	Equity market	In response to investor expectations for short-term stock returns, managers may modify R&D budgets.
Innovation	(Moorman, Wies, & Mizik, 2012)	Firms	→	Equity market	Public firms influence their stock market valuations by timing the introduction of innovative new products
	(Wies & Moorman, 2015)	Firms	←	Equity market	After going public, firms increase their innovation levels but reduce the innovation riskiness
Brands	This thesis	Brokerage house	→	Equity market	Brokerage house brands influence investors and competitors
Stock mispricing and investor horizon	This thesis	Firms	←	Equity market	Stock mispricing and investor horizon influence marketing investments

The separation of the two research streams is an issue because, as Table 1 shows, the impact of marketing investments on financial markets are being studied without full consideration of the bidirectional information flows. This thesis argues that it is interesting to investigate the information that flows in both directions and integrate the bidirectional information flows into the marketing-finance interface using the ‘real effects of financial markets’ perspective. We adopt the

term perspective to describe the ‘real effects of financial markets’ because the authors argue for a broadening of the efficient market theory and not a new conceptual framework. This thesis argues this perspective would confer the marketing-finance interface with a more solid theoretical grounding and open up new areas of research that reflect the two-way information flows.

## 1.1 Research framework

Since Akerlof’s seminal article in 1970 on lemon cars and the role played by information in transactions, academic research has carried out considerable investigation into the role played by information in decision-making. Marketing research has sought to understand the motivations that drive consumers to search for information, sources of information, how information is processed and the role information plays at different stages in the consumer decision-making process. This research has been extended in the marketing-finance interface to understand how information about marketing investments is assessed by equity markets and in turn how information about financial market players affects marketing investments. Finance research, on the other hand, looks at the effect of information in financial markets, focusing on market-level outcomes such as informational efficiency and what happens when informational efficiency declines.

Recently, finance has investigated an approach from economics that considers that information flows may be bidirectional and studies their effects on real management decisions. So, security analysts traditionally looked upon the rise and fall of a firm's stock price as an indicator of investor expectations about the firm's future cash flows. The stock however price can also reflect investor agreement or disagreement with the management's decisions. It can consequently affect what decisions are taken as managers glean information from stock prices. The ‘real effects of financial markets’ perspective studies how the information flows are bidirectional between companies and financial markets, in particular secondary markets. Under this perspective, stock prices both reflect

information about investor expectations and convey information to managers. We mobilise the ‘real effect of financial markets’ perspective to better understand the relationship between marketing investments and financial markets. To explore this perspective, we adopt a multi-disciplinary approach, bringing together research from marketing and finance.

## 1.2 Research questions

The starting point of this thesis is the information conveyed by stock prices, which has been studied by academic research for 50 years (Akerlof, 1970; Fama, 1970; Rappaport, 1987). The information conveyance led to the efficient market hypothesis under which stock prices aggregate all available information (Fama, 1970). This thesis builds on the role of stock price as an aggregator of information to investigate the influence of information in stock prices on the relationship between marketing investments and equity markets. We use the term marketing investments in this thesis rather than marketing action (e.g., advertising expenditure) or marketing asset (e.g., brand) because the term investment englobes 1/ the action or process of investing money for profit, that is to say a marketing action, and 2/ the outcome created by the action of investing that will generate wealth in the future, or, in other words, the marketing assets that marketing expenditures create.

This thesis argues that the relationship between marketing investments and financial markets is a bidirectional relationship with information conveyed by share prices playing a key role in both directions. The bidirectional flows reflect the emerging body of research into the real effects of financial markets (P. Bond et al., 2012). The authors argue that the theory of informationally-efficient markets should be broadened to include the bidirectional flows of information between all market players in order to have a better understanding of the real effect of equity markets and in particular the effect of secondary markets on firms. We argue that the marketing finance interface research area should incorporate the bidirectional information flows that current research



considers separately based on the ‘real effects of financial markets’ perspective. In so doing, the marketing-finance interface acquires a stronger conceptual basis and open up new research possibilities.

The general research question reflects our argument about applying the ‘real effects of financial markets’ perspective to the two research streams of the marketing-finance interface by considering whether information flows are bidirectional between marketing and equity markets:

Does the information in stock prices flow bidirectionally between marketing investments and equity markets?

In the four studies in this thesis described briefly below, we investigate the following four research sub-questions. The first two research sub-questions assess whether information flows about marketing investments influence equity markets. The last two research sub-questions investigate whether information from investors influence marketing investments. Together, the four research sub-questions are designed to study whether the information flows between marketing investments and equity markets are bidirectional.

### 1.2.1 Research sub-question 1 (Study 1)

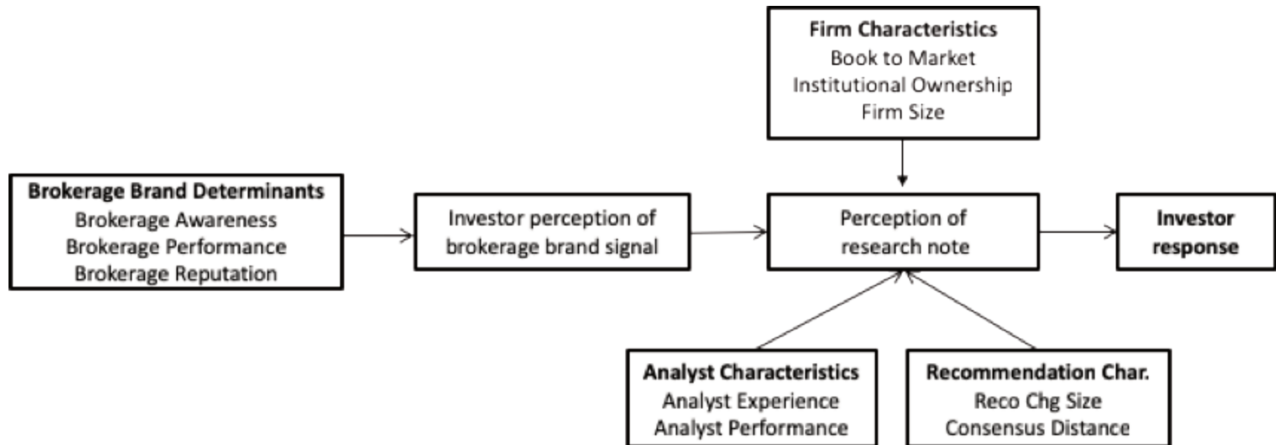
The research sub-question 1 focuses on the impact of brokerage house brands, a type of marketing investment, on equity investors. More specifically, we seek to ascertain whether the information contained in the brokerage house brand influence investor response to recommendation changes.

#### **Does the information in brokerage house brand signals matter for equity investors?**

To address this question, we use the brand signal model (Erdem & Swait, 1998) based on information economics in the context of an event study to investigate the impact of the information

in brand signals and their determinants on investors at the time of recommendation changes. Figure 1 below shows the conceptual framework used to address this research question in study 1.

**Figure 1 Conceptual framework for Study 1 (Chapter 3)**



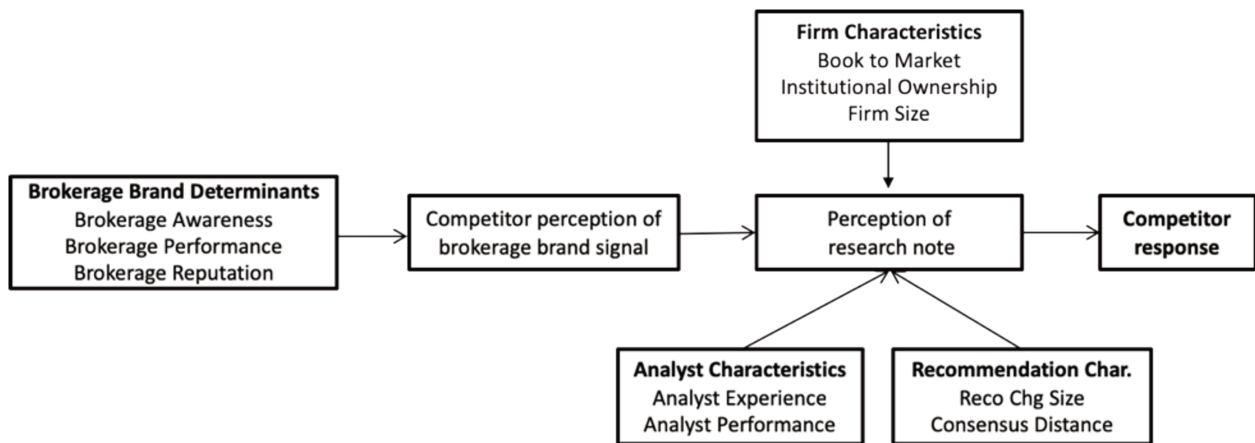
### 1.2.2 Research sub-question 2 (Study 2)

The study investigates the impact of brokerage house brands, a type of marketing investment, on competing brokerage houses. This question broadens the scope of information flows to study how the information in brand signals affects a second equity market participant, competitors, in equity markets on top of the equity investors studied in study 1.

#### **Does the information in brokerage house brand signals matter for competing brokerage houses?**

We extend the brand signal conceptual framework (Erdem & Swait, 1998) and the empirical methodology, both used in study 1, to explore the effect of the information in brand signals and their determinants on the leader status of a brokerage house. We use recommendation changes and the leader-follower status of a brokerage house to investigate this subject. Figure 2 contains the conceptual framework for Study 2.

**Figure 2 Conceptual framework for Study 2 (Chapter 4)**



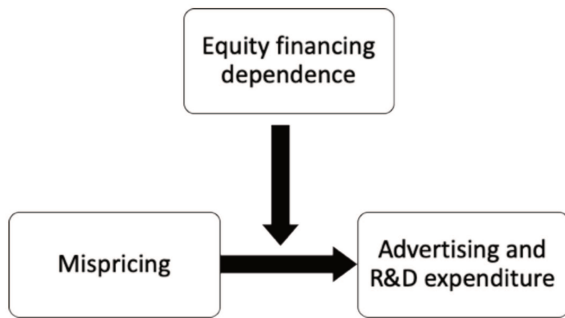
### 1.2.3 Research sub-question 3 (Study 3)

The next two research sub-questions focus on the inverse direction of information flows, i.e., from equity markets to marketing investments. In study 3, we investigate whether investor mispricing of stocks affects marketing investments. We further seek to understand if a firm’s dependence on equity financing moderates this relationship. This study seeks to answer the following research sub-question.

**Does information about investor mispricing of stocks affect marketing investments?**

To do so, we use four measures of stock mispricing to see if they affect marketing investments (advertising and R&D expenditures). We further use a measure of a firm’s dependence on equity finance to investigate the moderation. We use the conceptual framework shown in Figure 3 to respond to this question.

**Figure 3 Conceptual framework for Study 3 (Chapter 5)**



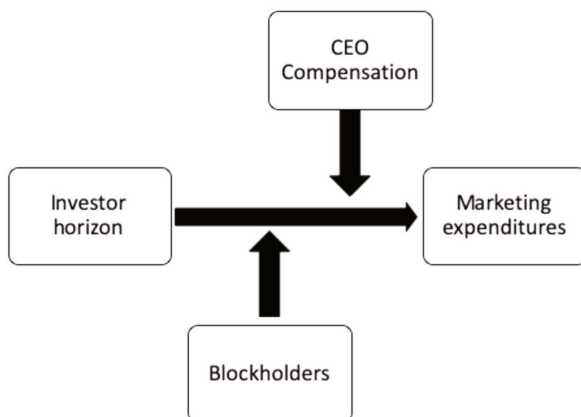
#### 1.2.4 Research sub-question 4 (Study 4)

This study investigates a second type of information reflected in stock prices that may influence marketing investments. More specifically, we consider whether information about investor horizons in stock prices influence marketing expenditures. We further study whether CEO compensation and the presence of blockholders moderate the relationship.

##### **Does information about investor horizon in stock prices affect marketing investments?**

To do so, we measure the investor horizon of a firm at a given moment and then assess its effect on a firm’s marketing expenditures. We further consider whether CEO compensation and blockholders mitigate the effect of investor horizon on marketing expenditures. Figure 4 shows the conceptual framework we use to investigate this question.

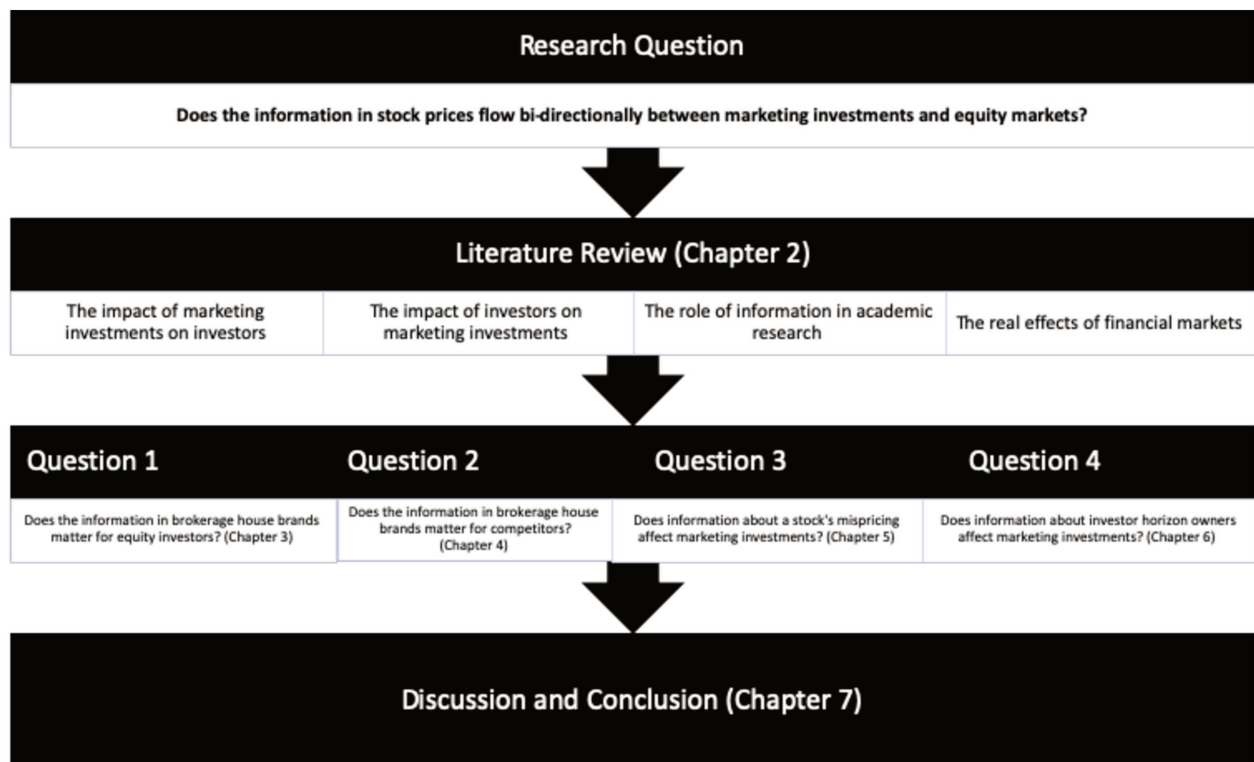
**Figure 4 Conceptual framework for Study 4 (Chapter 6)**



### 1.3 Thesis organisation

Table 2 and Table 3 provide an overview of the thesis structure. Table 2 integrates the overarching research question, the literature review and the research sub-questions. Table 3 contains the theoretical frameworks, financial data and quantitative methodologies derived from the marketing and finance literature used to answer the research question.

**Table 2 - Thesis structure**



**Table 3 - Empirical Overview of Thesis Studies**

	<b>Study 1 (Ch. 3)</b>	<b>Study 2 (Ch. 4)</b>	<b>Study 3 (Ch. 5)</b>	<b>Study 4 (Ch. 6)</b>
Title	Do Brokerage House Brands Matter for Equity Markets?	Do Brokerage House Brands Matter for Competitors?	Stock Mispricing and Marketing Investments	Investor Horizon and Marketing Investments
Dependent variable(s)	Cumulative abnormal returns	Leader Status	Advertising expenditures; R&D expenditures	Advertising expenditures; marketing expenditures
Independent variables	Brokerage house indicator variables; brokerage awareness performance, reputation	Brokerage house indicator variables; brokerage awareness performance, reputation	Mispricing_PV; Mispricing_RH; Mispricing_HP; KZ Index	Investor horizon; Blockholders; CEO Equity-Bonus Ratio; Incentive Ratio
Data sources	IBES, CRSP, Compustat, Carter-Manaster IB Prestige, Thomson-Reuters, Institutional Investor Survey	IBES, CRSP, Compustat, Carter-Manaster IB Prestige, Thomson-Reuters, Institutional Investor Survey	CRSP, Compustat, Thomson-Reuters 13F Filings	CRSP, Compustat, Execucomp, Thomson-Reuters 13f Filings, Bushee web site
Control variables	Analyst, firm and recommendation characteristics	Analyst, firm and recommendation characteristics	Size, Leverage, Sales Growth, Profitability, Market Share, Institutional Ownership, Risk	Size, Leverage, Risk, Market Share, Profit Margin, Sales Growth, Investor Churn, Bushee Investor Classification
Primary analysis	Ordinary least squares	Logit regressions	Panel regressions	Logit panel regression
Sample size	47,345 recommendation changes	30,619 recommendation changes	40,966 firm year observations	40,962 firm-year observations
Time frame	2000-2014	2000-2014	1980-2014	1980-2014

## 1.4 Findings and contribution

Overall, this thesis determines that the information flows between marketing investments and investors are bidirectional. This aspect of information flows has thus far been ignored by researchers in the marketing-finance interface. We argue that the ‘real effects of financial markets’ perspective provides a suitable framework for assessing the impact of the two-way information flows and opens up new research possibilities to better comprehend the two-way effects.

Studies 1 and 2 investigate the effect of information flows from marketing investments to equity markets. Study 1 shows that information in brokerage house brands, a type of marketing investment, influence equity investors. We further show four characteristics of brokerage houses that influence investor response to the brokerage house brand. In so doing, we show that brokerage house brands influence firm pricing and develop a methodology to estimate a brokerage house’s brand equity.

Study 2 shows that brokerage house brands impact competitors in addition to investors. We further show how brokerage house characteristics influence competitors. Brands contain information for competitors about the leadership of a brokerage house on a particular stock and the brokerage house’s characteristics contribute to this leadership.

Combined, the findings of Studies 1 and 2 suggest that information flow from marketing investments to equity markets. They also suggest that brokerage houses perceive competing brands differently than investors and suggest that what is important for investors in brands is different than for competitors.

The third and fourth studies study the flow of information from investors to marketing investments. Study 3 determines that how investors prices a stock affects marketing investments. We show empirically that a stock’s mispricing has strong, negative impacts on advertising and R&D

expenditures. In addition, a firm's dependence on equity financing moderates the relationship. We show that stock mispricing may drive cuts to marketing expenditures and that the irrationality of stock prices may affect marketing in firms.

Study 4 determines that information about investor horizon influences marketing investments. We show that investor turnover is associated with a high probability to cut marketing expenditures. We also show that CEO compensation does not mitigate this effect, suggesting that the existence of myopic marketing management is more than just a matter of agency conflicts.

Taken together, studies 3 and 4 demonstrate that information flows from equity markets to marketing investments. Or in other words, information about investors reflected in stock prices affects how firms invest in marketing.

The four studies combined show the bidirectional nature of information flows between marketing investments and equity markets. The implications of this finding, limitations and suggestions for future research are discussed in the conclusion.

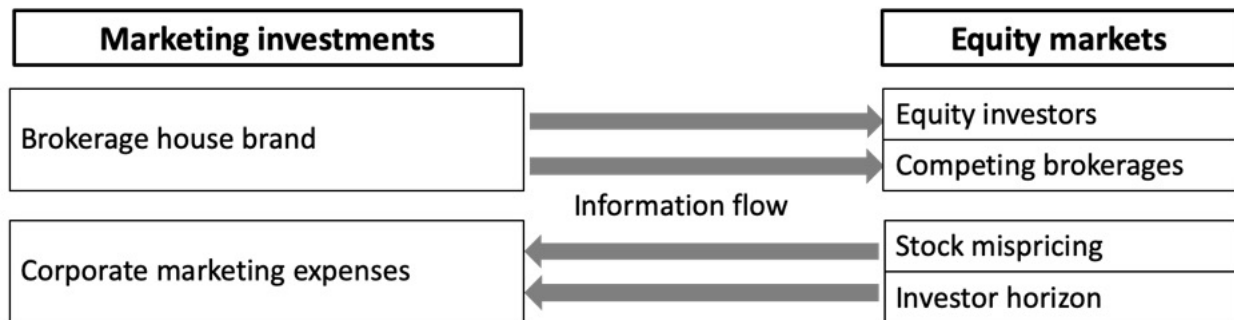
## 1.5 Research design

The general research design of the thesis shown in Figure 5 includes arrows that represent the relevant direction of information flows between marketing investments and investors. The top arrow represents flows from marketing investments to equity markets. The bottom arrow indicates flows from equity markets to marketing investments. The relevant players we study are indicated next to the chapter numbers.

### **Figure 5 - General research design**



## Bidirectionality of information flows between marketing investments and equity markets



Logically, the sender of information in Chapters 3 and 4 would be the receiver of the information in Chapters 5 and 6. In other words, corporations would be the sender of information in Chapters 3 and 4 and receiver of information in Chapters 5 and 6. However, the sender of information in Chapters 3 and 4 is brokerage houses and the receiver in Chapters 5 and 6 is corporations.

We do not follow this logical approach because the impact of corporate brands on investors has been studied extensively elsewhere, so our thesis would not make a contribution. We opt instead to use brokerage houses as senders of information in Chapters 3 and 4 because investors are their direct clients. Although prior marketing research establishes that equity investors take into account the brand equity of corporations they invest in (S. Srinivasan & Hanssens, 2009), it does not indicate whether marketing investments of brokerage houses directly affect investors. The outcome for this thesis is that the sender of information to investors via marketing investments is brokerage houses (top arrow) and that the receiver of information from equity investors via stock prices is corporations (bottom arrow).

In the general research design above (Figure 5), Chapter 3 and 4 study the impact of information about brokerage houses (i.e., brand signals) on investors and competitors Chapter 5 and 6 study the influence of investor mispricing and investor horizon respectively on corporate marketing

investments. The arrows in the General Research Design represent the relevant direction of the information flow.

Studies 1, 3 and 4 are formatted as articles. Study 1 has been submitted to IJRM. The other two articles will be submitted soon. Study 2 (Chapter 4) is not formatted as a research article because it is an extension of the conceptual framework and empirical methodology used in Study 1 (Chapter 3).

## 1.6 Epistemology

When considering a research subject, the obvious issues are: 1/ what is the best way to apprehend the subject; and 2/ what is the best method to clearly show the interest of the subject, present the theoretical choices, explain the methodological choices, justify results, and, above all, make the thesis as coherent as possible?

Our answer to these questions leads us to our choice for the format of this thesis, meaning, literature review and four studies that respond to the four sub research questions. Each study adopts the format of hypothesis, data collection, data analysis and results. Our thesis therefore adopts a hypothetico-deductive approach.

All research gives rise to epistemological questions. This thesis takes a positivist paradigm for two reasons:

- i. Our thesis is framed in terms of “why and for what reasons?” In other words, whether and how stock price can convey information between marketing investments and equity markets rather than the interpretivist paradigm that asks questions in terms of “for what reasons do actors ...?” or the constructivist paradigm that asks “for what purpose?”

- ii. The validity criteria of this thesis correspond to the positivist paradigm: verifiability, confirmability and refutability.

## 1.7 Thesis organisation

This thesis starts with this introductory chapter, then the literature review (Chapter 2), four empirical studies (Chapters 3, 4, 5 and 6) and finally the conclusion.

Chapter 2 reviews the relevant literature for the thesis. It starts with an unnumbered introduction, then the two streams of the marketing-finance interface that reflect the two directions of information flows studied in marketing (2.1 and 2.2), how information has been studied in the academic literature (2.3) and finally a look at the accounting and finance research into information in financial markets and the real effects of financial markets (2.4).

Chapters 3, 5 and 6 (Studies 1, 3 and 4 respectively) are structured in the format of an academic study, with an introduction, theoretical framework, empirical analysis, results and discussion. Chapter 4 (Study 2) contains an introduction, results and discussion without a theoretical framework or empirical analysis section. We adopt this approach because Chapter 4 is an application of the brand signal model developed in Chapter 3 applied to competing brokerage houses.

Chapter 3 investigates how brands, a type of marketing investment, contribute to information in equity market prices using an event study. Chapter 4 investigates how brands contribute to stock market information efficiency using a brokerage house's leadership status. Chapter 5 studies the impact of information in stock prices that leads to stock mispricing and whether and how it affects marketing investments. Chapter 6 studies the impact of investor horizon information in stock prices on marketing investments.

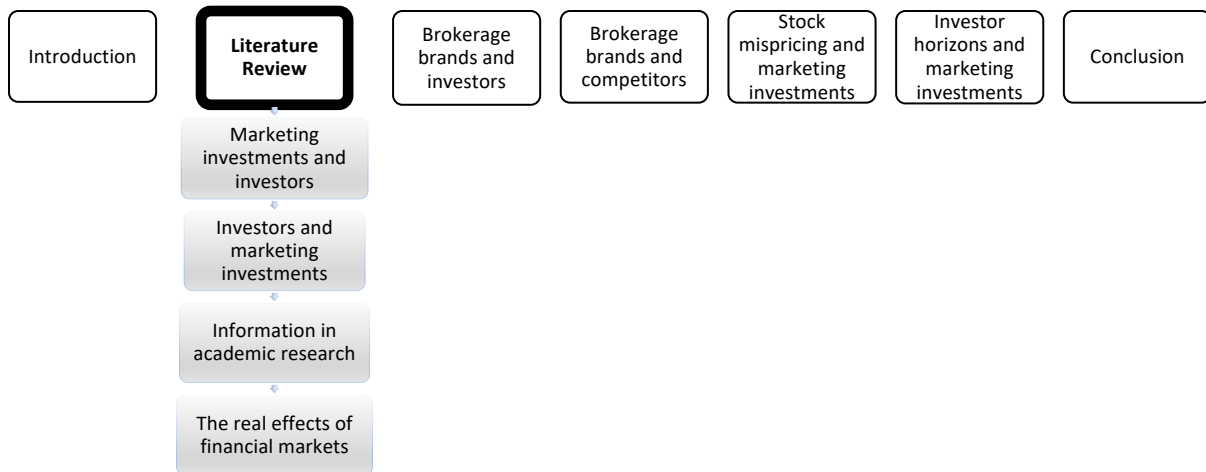
Chapter 7 sets out the results, theoretical and managerial contributions, limitations and future research. Chapter 8 contains the French résumé of the thesis and Chapter 9 the references.



# 2 LITERATURE REVIEW



## Chapter 2 - Literature review



### Introduction

This section describes the main theoretical fields mobilized in this thesis. Then, in sections 1 through 4 of this chapter, we explore the relevant literature. We start by looking at the first stream of the marketing-finance interface, i.e., how financial markets respond to marketing investments (section 2.1), then the more recent second stream of the marketing-finance interface, i.e., how financial markets impact marketing investments (section 2.2), the study of information in marketing (section 2.3), the ‘real effects of financial markets’ perspective (section 2.4) and finally we conclude (section 2.5).

- iii. **Section 2.1:** The first stream of the marketing-finance interface studies whether and under what conditions stock prices reflect information from financial markets that impact marketing investments. We see how questions about marketing's ability to generate value for shareholders accountability drove the emergence of the marketing-finance interface as a separate research area in marketing. We then study how marketing investments contribute to shareholder returns, and end with a description of the main empirical methods used in this stream, particularly event studies since chapter 3 (study 1) employs this methodology.



- iv. **Section 2.2:** The second stream of the marketing-finance interface considers how information from financial markets affect marketing investments. We see how the discretionary nature of marketing expenditures makes them vulnerable to manipulation by managers. Then we consider the conditions that may prompt managers to behave myopically towards marketing investments, grouped into three themes: 1/ REAM (real earnings management), 2/ firm financing and 3/ stock price information and marketing investments.
- v. **Section 2.3** considers how information has been studied in marketing research. We start by considering how the imperfect and asymmetric information creates uncertainty about the quality of brokerage house research. We consider how consumers look for information and determine its role in consumer purchases. We then consider how signals help resolve consumer uncertainty about quality, then look at research into brands as information, first in general and then in services, which is the sector we focus on in our studies in Chapters 3 and 4 (studies 1 and 2).
- vi. **Section 2.4** studies how the ‘real effects of financial markets’ perspective impacts the theory of informationally-efficient markets. Next, we consider how managers and financial markets contribute to the real effects. We consider managerial motivations for reacting to the information in stock prices via personal motivations, catering and learning. Then we consider the information in stock prices arising from limited arbitrage, investor expectations, monitoring and corporate funding needs. Finally, we consider the literature surrounding mispricing and investor horizons in finance, which we study in the context of marketing investments in chapters 5 and 6 (studies 3 and 4).
- vii. **Section 2.5** concludes and explains the choice of subjects and levels of analyses included within this thesis.

## 2.1 How marketing investments affect financial markets

The marketing-finance interface has emerged as a major area of study in marketing research as marketing practitioners and academics realized that criticism over marketing accountability needed to be addressed starting mainly in the 1990s. We study this criticism, the reasons behind it and the research results in section 2.1. We see how information about firm marketing investments is reflected in stock prices. Over time, a second stream emerged, which considers how information from investors influence marketing investments, which we consider in section 2.2. The two streams taken together reflect the bidirectional information flows that we argue in this thesis can be consolidated using the real effects of financial markets (section 2.4).

### 2.1.1 Impetus for creating the marketing-finance interface

The increasing pressure on marketing departments and researchers alike to show how marketing creates value for shareholders prompted the emergence of the marketing-finance interface. Calls for marketing to prove its contribution to the firm are not new (Rust, Ambler, Carpenter, Kumar, & Srivastava, 2004; Stewart, 2009), giving rise to the notion of marketing accountability for firm investments in marketing. (Ambler, 2003) describes how senior management and CFOs focus on shareholders' returns and ignore metrics favoured by marketing departments such as customer loyalty, customer satisfaction and brand awareness because they either do not understand them or do not understand how these metrics affect shareholder returns. A Fortune 100 CFO quoted in (Stewart, 2009) sums up the perception of marketing's unaccountability in this way: "Marketing is not strategic. It's just tactics and we just control the cost."

A second factor that hinders marketing accountability is that marketing assets (e.g., brands, customer relationships) are intangible and are surrounded by asymmetric information, which creates uncertainty about their value (Barth, Kasznik, & McNichols, 2001). Tangible assets however generate earnings in the short-term whereas intangible assets take longer to be priced

into share prices (Srivastava, Shervani, & Fahey, 1998). (Mouncey 2009) reports that almost 80% of a US firm's assets are intangible assets and may indicate better future stock returns than the tangible assets that firms are required to disclose. This intangibility and the difficulties in measuring the value of marketing investments make holding marketing departments accountable for expenditures difficult. Note however that the debate about marketing assets does not suggest that all marketing investments should be capitalized on the balance sheet. Creating unlimited accounting assets from marketing investments would create new problems for marketing and accounting that go beyond the scope of this thesis but this limit needs to be mentioned.

### 2.1.2 The issue of marketing accountability

This thesis follows the American Marketing Association definition of marketing accountability as "responsibility for the systematic management of marketing resources and processes to achieve measurable gains" (R. K. S. Rao & Bharadwaj, 2008). Accountability for marketing resources is a struggle because the outcomes of marketing actions such as pricing and advertising are often measured by marketing via sales impact (Leone, 1995), and not stock returns and other financial measures, which CEOs and shareholders use.

Marketing's traditional focus on ensuring that products are successful was not enough to ensure accountability. The underlying assumption in marketing departments was that as long as product-market results were positive, i.e. revenues, good financial results would follow (Srivastava et al., 1998). Furthermore, (Lehmann, 2005) observes that marketing is often insular in nature, which has led to a push for metrics that expresses the contribution of marketing in terms that understands (e.g., stock returns, profits). To ensure marketing remains a vital part of modern firms, (P. F. Anderson, 1982) argues that marketing research needs to take into account the firm as a whole. Furthermore, looking at marketing in terms of firm performance measures may enhance the status marketing in firms (O'Sullivan & Abela, 2007).

This focus on assessing marketing's performance in terms of shareholder-relevant metrics is one of the specific characteristics of the marketing-finance interface stream of literature.

### 2.1.3 Conceptualizing how marketing investments create value for investors

Our definition of marketing investments follows that of (Rust et al., 2004; S. Srinivasan & Hanssens, 2009; Srivastava et al., 1998), which provide theoretical frameworks about how marketing outlays create marketing assets. These outlays, which we call marketing actions in this thesis, are the expenditures that firms make to enhance customer loyalty or enhance the brand equity through advertising or customer relationship management. In this section, we focus on how marketing actions (e.g., promotions, marketing communication, etc.) influence firm performance in the stock market.

The starting point of marketing creating value for investors is a firm's marketing strategy, e.g. product innovation or price promotions or customer service. The strategy gives rise to tactical actions such as advertising, brand initiatives and loyalty programs that require marketing expenditures, which in turn affect customer satisfaction, brand attitudes and other customer-centred items. These firms are combined at the firm level into what we call marketing assets in this thesis, defined as assets that arise from the commingling between the firm and outside entities. These assets may be brand equity or customer satisfaction. The marketing assets lead to long-term returns such as satisfied customers making repeat buys. Marketing actions therefore create and leverage market-based assets (Srivastava et al., 1998). (R. K. S. Rao & Bharadwaj, 2008) then built on the theory of firm valuation (Modigliani & Miller, 1958) to formalize the chain of effects from a firm's marketing actions to shareholders' wealth via marketing's impact on a firm's net present value.

#### 2.1.4 How marketing actions create marketing assets

Finance textbooks suggest that the role of the firm is to create value for shareholders by maximizing stock returns. Investors determine the stock price based on their expectations of a firm's ability to generate cash based on the net present value of a firm's future cash flows. Shareholder value is created when the present value of future cash flows rises.

A key step in conceptualizing the shareholder value created by marketing came with the publication of a conceptual framework for the marketing-finance interface. (Srivastava et al., 1998) propose that marketing is concerned with developing market-based assets (e.g., customer and channel relationships, brands) that emerge from the commingling of the firm with entities in its external environment rather than product markets and positive outcomes. They argue that when the value of assets is hard to assess, which is the case of marketing assets, they are less likely to be allocated resources. Marketing's adoption of shareholder metrics such as net present value (NPV) ensures that shareholders are better able to grasp marketing's contribution to shareholder value, making marketing's contribution to the firm more difficult to ignore.

To show how marketing can contribute to shareholder value, (Srivastava et al., 1998) break market-based assets into two types, customer relationships and partner relationship (see figure below). Together, customer and partner relationships deliver favorable outcomes for the firm via price premiums or higher market share, etc. In turn, the favorable outcomes lead to positive effects on shareholder value such as accelerated cash flows and higher residual values of cash flows. These relationships are highlighted in the figure below.

**Figure 6: Linking market-based assets to shareholder value**



(Srivastava et al., 1998)

### 2.1.5 Findings on investor response to marketing actions

In the next two sub-sections, we look at investor response to the two types of marketing investments considered in this thesis: 1/ marketing actions and 2/ marketing assets. An important distinction between marketing actions and marketing assets is that the former could be either impulsive or persistent, whereas the latter is accumulated over time and relatively stable. In addition, compared with marketing assets, marketing actions are directly observable by investors (S. Srinivasan & Hanssens, 2009) whereas investors cannot observe directly the value of marketing assets.

To organize the empirical findings on how marketing creates value for shareholders, we use the categories set out in the review article of (S. Srinivasan & Hanssens, 2009). We put the original table of results from the article in Appendix 2: Marketing Actions and Investor Response (S. Srinivasan & Hanssens, 2009). We shorten and update the review because we want only to highlight how firm marketing investments affect equity markets, which reflects the top arrow in our research design concerning information flows from marketing investments to financial markets.

- i. **Advertising** has the most research into its effects, perhaps due to its relatively easy availability as data relative to the other types of marketing investments. The first interesting research result is that advertising directly affects stock returns beyond the effects on sales revenues and profits. (Joshi & Hanssens, 2010) suggest that the direct effect of advertising on stock returns passes through spillover and signalling. Spillover refers to advertising for products spilling over into investment behaviour and affecting demand for the stock. The authors suggest that demand for stock driven by advertising may increase the number of investors, which increases firm liquidity and may lower the cost of capital (Grullon, Kanatas, & Weston, 2004). Signalling refers to advertising conveying positive signals to investors about the firm's financial situation. (Joshi & Hanssens, 2010). In addition to advertising's effect on stock returns, it may also lower a firm's systematic market risk (McAlister, Srinivasan, & Kim, 2007).
- ii. To study the effect of **promotions**, (Pauwels, Silva-Risso, Srinivasan, & Hanssens, 2004) looks at the impact of sales promotions on firm value in the context of new product introductions in the automobile industry. The authors find that whereas product promotions enhance sales they do not increase long-term financial performance. This reinforces the idea that the temporality impact of marketing actions is an important factor in research and in practice.
- iii. To study the effect of whether investors understand the importance of adding new **distribution channels**, (Geyskens, Gielens, & Dekimpe, 2002) look at the impact of adding internet distribution channels on firm valuation. Using an event study, the authors show that on average internet channel investments are positive NPV investments and that strong firms with few direct channels show greater valuation gains than smaller firms with broader distribution channels.

## Chapter 2 - Literature review

- iv. Finally, **new products** are studied in the context of preannouncements and product introductions. (A. Sorescu, Shankar, & Kushwaha, 2007) study the effect of new product preannouncements on shareholder value. They assess the benefits and risks of preannouncements and find that the financial returns are significantly positive over the long term. The benefits only accrue, however, if firms keep markets updated on the progress of the new product and that the reliability of preannouncements is high.

### 2.1.6 Findings on investor response to marketing assets

In this section, we look at research into how marketing assets, the second type of marketing investment, create value for shareholders. To organize the empirical research, we use the categories set out in the review article of (S. Srinivasan & Hanssens, 2009), shown in full in Appendix 1. (S. Srinivasan & Hanssens, 2009) break the findings into how investors respond to marketing assets into four types of marketing assets, which we look at below.



## Equity market response to marketing assets

- i. For **brands**, (Madden, Fehle, & Fournier, 2006) show that strong brands generate higher risk-adjusted stock returns. (Mizik & Jacobson, 2007) go one step further, showing that changes in firm brand assets are related to changes in firm valuations. (S. G. Bharadwaj, Tuli, & Bonfrer, 2011) show that unanticipated changes in brand quality are positively linked to stock returns and negative linked to changes in idiosyncratic risk.
- ii. **Customer satisfaction** has been studied considerably in how it enhances shareholder wealth. (E. W. Anderson et al., 2004) show that a 1% increase in customer satisfaction as measured by ACSI (American Customer Satisfaction Index) increased Tobin's Q by 1.016%. finds that financial analysts respond to changes in customer satisfaction. More recently, (Fornell, Morgeson, & Hult, 2016) show that firm selection based on customer satisfaction significantly outperforms the S&P 500, highlighting the value of customer satisfaction for investors.
- iii. (Sunil Gupta, Lehmann, & Stuart, 2004) look **at customer value**, saying that valuing customers make it possible to value firms. They show that improvements in retention, margin or acquisition costs improve firm value.
- iv. For **product quality**, (S. Srinivasan, Pauwels, Silva-Risso, & Hanssens, 2009) suggest that new products with positive quality perceptions and product appeal systematically generate higher returns.

All told, marketing-finance interface research suggests overall that the higher the marketing investments, the greater the share price impact (Saboo, Chakravarty, & Grewal, 2016).

### 2.1.7 Marketing actions create value over the long term

An important finding of the marketing-finance interface is the temporality of value creation for marketing assets and investments. Research in the marketing-finance interface suggests that marketing investments bear fruit over the long term (e.g. Rust et al., 2004). For example, investments in brands (advertising, service quality) affect cash flows over the long term (Keller & Lehmann, 2006). Likewise, (Pauwels et al., 2004) studies the role of promotions and new product launches in the automobile industry and shows that product innovation positively affects long-term financial performance and firm value.

(Reilly & McGann, 1977) study the impact of advertising on stockholder wealth and find that the effects of advertising expenditures increase and decay over time depending on if they are supported. (Joshi & Hanssens, 2010) indicate that finance has studied the decay effect for many years but much less so in marketing, perhaps because measuring long-term effects is harder to do (Dekimpe & Hanssens, 1999) but some studies do exist (Dekimpe & Hanssens, 1999; Hirschey, 1982; Joshi & Hanssens, 2010). (Hirschey, 1982) finds that marketing spending and R&D produce long-term benefits when considered jointly. (Dekimpe & Hanssens, 1999) found mixed effects of marketing spending on stock returns. (Joshi & Hanssens, 2010) show that the effect of advertising on sales and profits was significantly positive but the link between R&D and sales was less clear.

The long-term horizon necessary for marketing to create value for shareholders is important for the thesis because marketing investments such as R&D for new products and advertising to build brand assets only bear fruit in the long term. However, if managers adopt myopic behaviour such as cutting marketing expenditures, then the capacity of marketing to generate value for shareholders is hindered. We consider two factors that may prompt myopic behaviour in this thesis: stock mispricing (Chapter 5) and investor horizon (Chapter 6).

### 2.1.8 Research approaches for studying investor response to marketing

Srinivasan describe five methods for evaluating financial market reaction to marketing investments: the four-factor approach, calendar portfolio, stock return response models, persistence modelling and event studies. We discuss below in more detail the event study methodology and what makes it suitable for our research.

### 2.1.9 The use of event studies in marketing research

In this section, we delve further into the use of event studies in marketing research because our first study (Chapter 3) uses this approach. Our goal is to show the rich and long variety of uses of event studies in marketing research and its relevance in marketing research.

(Horsky & Swyngedouw, 1987) were among the first to use event studies in marketing research, revealing that firm name changes are associated with improved performance and that the name change is an information signal that other measures to improve performance will be successfully undertaken. (Agrawal & Kamakura, 1995) study the impact of celebrity endorsements and determine that the average impact of celebrity endorsement contracts on stock returns is positive, making celebrity endorsement contracts a worthwhile investment. (Gielens & Van de Gucht, 2008) study the performance implications for incumbents of the strategic entry of Wal-Mart in the United Kingdom in 1999 and show that proactive actions can mitigate the negative performance consequences of the giant's entry. (Homburg, Vollmayr, & Hahn, 2014) use event studies to show that new channel creation is highly positive for firm value whereas the effect of expansions of existing distribution channels varies.

In this thesis, event studies are used to assess the response of investors to brand signals. We focus on the research into brands using event studies for this reason. (Lane & Jacobson, 1995) study the impact of brand extensions. They show that brand attitude and brand name familiarity influence the positive benefits of brand influence and also the adverse consequences. Stock market participant response to brand extension announcements depends interactively and

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monotonically on brand attitude and familiarity. To assess whether financial markets saw the impact of changes in brand attitude and help predict future earnings and thus stock returns, (Aaker & Jacobson, 2001) found that changes in brand attitudes are associated contemporaneously with stock stocks. They also found that increases in brand awareness that were not reflected in brand attitude had little impact on future earnings. (Changeur, 2004) use announcement dates of brand strategies to assess whether share prices react. The overall results show that investors react positively to announcements and that investor reactions vary depending on differences in brand strategies.

### 2.1.10 Summary and implications

In section 2.1, we see how the need to improve marketing accountability fostered the creation of the marketing-finance interface and the results of actions by marketing researchers to empirically link marketing investments to financial market outcomes such as stock prices and financial ratios. A key finding for the purposes of this thesis is that financial markets recognize that financial markets incorporate information about firm marketing investments into stock prices over the long term. This idea is particularly important for our third and fourth studies, which look at two factors that may hinder the ability of marketing expenditures to generate long-term value for shareholders. We also look in this section at the event study methodology that we mobilize in Chapter 3 and show it has been used extensively in marketing research and its advantages for our research.

## 2.2 How equity markets affect marketing investments

In this second emerging research stream of the marketing-finance interface studied below, we examine how information flows from financial markets to marketing investments via stock prices. We organize the research into three main themes: real activity manipulation (REAM), corporate financing (equity and debt) and stock price information. Before we do so however, we consider how the discretionary and low-profile nature of marketing investments actually makes them susceptible to manipulation by managers.

### 2.2.1 Marketing expenditures are discretionary and have low visibility

The accounting requirements for marketing expenditures and low visibility make them vulnerable to manipulation by managers. Current accounting standards require marketing expenditures, i.e., R&D and advertising, to be expensed immediately rather than being considered as investments that create value over the long-term (Cañibano, Garcia-Ayuso, & Sanchez, 2000). Marketing expenditures are currently treated as expenses as set out by accounting standards that must be booked in the current period. For example, concerning R&D expenditures, SFAS No. 2, October 1974 explains that this is due to the 'uncertainty' surrounding the future benefits of R&D. This immediate booking means that firms consider marketing expenditures from a short-term standpoint and ignore their long-term value creation that we highlighted in 2.1. The immediate expensing and low visibility make marketing expenditures suitable for manipulation. Some research suggests that marketing expenditures are the first to be cut, for example during recessions (Lamey, Deleersnyder, Dekimpe, & Steenkamp, 2007).

To complicate the issue further, the assets created by marketing (Srivastava et al., 1998) are not visible to shareholders because Generally Accepted Accounting Principles (US GAAP) does not allow the recognition of intangible assets arising from marketing expenditures such as advertising and SG&A such as brands and customer satisfaction on the balance sheet as

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marketing assets. The absence of marketing assets on financial statements means that investors cannot see how marketing expenditures contribute to marketing assets in financial terms, which in turn generate firm profits and cash flows, creating a context where marketing's role may be underestimated over the short and long term. To the logical follow-up question of whether marketing expenditures are always the first to be cut, (Paul, 1994) responds that managers do not systematically favour long or short-term projects, but prefer projects that the stock market can best evaluate in the short run.

In the next few sub-sections, we look at the three ways financial markets affect marketing investments. We end with research on how the information in stock prices affects marketing investments.

### 2.2.2 REAM (real earnings manipulation) and marketing investments

In this section, we look at how brokerage houses affect marketing expenditures. Brokerage houses act as information intermediaries between firms and investors. Their opinions play a key role in informationally-efficient markets. Several financial analysts may cover one stock, each from different brokerage houses. Each of these brokerage houses issues earnings forecasts. Managers will expend considerable efforts to meet the earnings forecasts because, as the literature in finance and accounting documents, investors react negatively to corporate earnings that do not meet earnings forecasts (e.g. Bhojraj, Hribar, Picconi, & McInnis, 2009). To achieve the earnings goal, managers may engage in real activity manipulation (REAM). REAM involves cutting expenditures that affect cash flows or alter a firm's underlying operations to alter current period earnings (Gunny, 2010). In the context of marketing, REAM denotes managers altering planned marketing investments to ensure current period earnings prop up or increase stock prices (Ganesan, 2012).

Managers may cut marketing investments when they fear that quarterly earnings will not meet analyst forecasts (Mizik, 2010) shows that firms cut R&D investments to manage earnings. (Bhojraj et al., 2009) find that firms cut advertising and R&D expenditures to meet or exceed analyst earnings forecasts, which generates higher stock returns in the short run. (Cohen, Mashruwala, & Zach, 2010) test if managers manage expenditures to meet or exceed analyst earnings forecasts and find that managers do cut advertising investments to increase earnings. (Chakravarty & Grewal, 2016) study the boundary conditions and find that monitoring of investors and managerial compensation moderates the relationship between earnings forecasts and advertising and R&D outlays. Furthermore, the authors demonstrate that unexpected changes in R&D and advertising outlays hurt long-term firm returns and risk, highlighting both the value of marketing investments for investors and the factors that hinder the ability of marketing investments to create value for investors. Finally, (Currim, Lim, & Zhang, 2017) show that firms with greater past commitment to marketing investments during periods of high analyst pressure generate higher stock market performances.

### 2.2.3 Firm financing and marketing investments

Firm financing via equity or debt issuance is the second area of marketing research on how investors can affect marketing investments. (Mizik & Jacobson, 2007) show how enterprises can profit from the financial market's focus on earnings by cutting advertising and R&D expenditures to boost earnings prior to seasoned equity offerings (SEO), i.e., the sale of stock by mature companies on secondary markets. The effect on equity financing may be important for marketing because increases in marketing outlays are usually funded by equity (Garmaise, Srinivasan, & Hanssens, 2009). (Cohen & Zarowin, 2010) find corroborating evidence of REAM and, furthermore, they show that the decline of subsequent earnings of SEO firms is linked to decisions to cut marketing expenditures in the year of the SEO.

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(Malshe & Agarwal, 2015) consider the effect of the second type of firm financing, debt, on marketing investments. They find that higher debt leverage reduces customer satisfaction and moderates the relationship between satisfaction and firm value. The authors theorize that the requirement of making regular cash payments to debt holders pressures managers to undertake myopic actions such as cutting advertising and R&D outlays, which in turn reduces customer satisfaction.

### 2.2.4 Past stock performance and marketing investments

As far as we know, (Markovitch, Steckel, & Yeung, 2005) were the first to publish on this theme by showing the effect of equity market expectations of future earnings incorporated into stock prices. Using empirical data from the pharmaceutical industry, they find that firms with underperforming stocks tend to implement more changes to product portfolios and distribution while firms with outperforming stocks make fewer changes to their current portfolio and distribution and focus instead on long-term R&D and marketing of existing products.

In the context of resource accumulation, (Shin, Sakakibara, & Hanssens, 2008) show that unexpected drops in the stock prices of leaders prompts increased investments in marketing whereas unexpected drops in stock prices of followers prompt increased investments in R&D, indicating that managers take into account market position when deciding how to react to information in stock prices. Finally, (Chakravarty & Grewal, 2011) look at how information in stock prices about past performances and volatility affect R&D and marketing expenditures, finding that volatility and past stock performances affect managerial actions concerning marketing and R&D outlays.

### 2.2.5 Myopic marketing management hinders long-term value creation

The question that arises is what is the effect on stock returns of myopically managing marketing investments to meet analyst forecasts, boost IPO returns and respond to information in stock



prices? After all, if firm value were not affected, then cutting marketing expenditure would be inconsequential for shareholder value creation.

Research indicates that myopic management of marketing resources does generate the desired short-term performances but yields a negative long-term effect. In her seminal paper, (Mizik, 2010) studies the total financial impact of cutting marketing and R&D spending to meet analyst earnings forecasts. The author shows that initially firms that behave myopically do outperform over a 1-year horizon. However, over a three-year horizon, the firms that behave myopically underperform. Furthermore, the author demonstrates that REAM has a greater negative effect on future financial performance relative to accruals-based earnings inflation. Similarly, (Bhojraj et al., 2009) show that using accruals or discretionary expenditures such as marketing to meet or exceed earnings forecasts yields a higher short-term stock return but a longer-term underperformance compared to companies that do not manage earnings to meet forecasts. In their study of managers using marketing actions to manage earnings, (Chapman & Steenburgh, 2011) find that marketing promotions can be used to boost quarterly net income by up to 5% but the cost is up to 7.5% of the next quarter's net income. In the context of IPOs, (Saboo et al., 2016) show likewise that investors are effectively misled but they correct their beliefs in the three years following the IPOs and penalize these firms.

### 2.2.6 Summary and implications

In section 2.2, we review the second stream of the marketing-finance interface. The section starts by discussing how the discretionary nature of marketing investments and low visibility to shareholders make them vulnerable to changes by top managers. We then look at how the financial markets can exert pressure on managers grouped into three themes. Section 2.2 ends by considering how myopic considerations can hinder long-term value creation. We build on this second stream of the marketing-finance interface to investigate in Studies 3 and 4 the

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impact of stock mispricing and investor horizon. In doing so, we can highlight the reverse flow of information from equity markets to marketing investments.

## 2.3 The study of information in marketing research

After looking at the two streams of the marketing-finance interface (2.1 and 2.2), we now look at academic research into information. We start by considering brokerage houses and the services they provide. We then use investor uncertainty about the quality of brokerage house services to motivate the review of how information is studied in information economics and marketing research. We examine why and how investors (consumers for marketing research) look for signals to resolve issues of imperfect and asymmetric information and end by focusing on research into the information contained in brand signals.

### 2.3.1 Assessing uncertainty about brokerage house quality.

To avoid any confusion about terminology, when we speak in this thesis about brokerage houses, we refer to the traditional brokerage house that serves institutional investors. We focus on them because they are by far much larger players in financial markets compared to the second type of brokerage house, which provide services to retail investors. The larger size of the traditional brokerage house makes our research more relevant to a broader audience than studying the latter type. Furthermore, retail investors hold a small portion of the stock market.

Finance research shows that the services provided by brokerage houses contribute valuable information to financial markets and have a significant effect on prices and investors responding to the information conveyed by brokerage house forecasts (Griffin, 1976). Other research analyses the predictive content of analyst recommendations and shows that analyst recommendation change are followed by abnormal returns (Stickel, 1995; Womack, 1996), indicating that analysts add value to markets by producing valuable information.

The brokerage houses and the analysts they employ have different levels of quality driven by for example better information processing, a higher frequency of earnings and recommendation revisions, or greater experience and effort (e.g. Clement & Tse, 2003; S. Sorescu &

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Subrahmanyam, 2006). These factors indicate that brokerage house quality may vary, creating uncertainty for investors about quality. We look in the next section at research into how investors might use marketplace information to resolve the uncertainty about service quality based on economic and marketing research.

### 2.3.2 How information economics looks at information

The mathematical definition of information is that which reduces uncertainty or changes an individual's degree of belief about the world (Shannon & Weaver, 1949). Glazer reports that this definition is impractical as the construct depends on the context and is multidimensional (Glazer, 1991). This has limited its use in mathematics because it is hard to measure the meaning of the information to relative agents. For example, Glazer points out that several sources have even shown that two signals that can reduce uncertainty by the same amount (thus they are quantitatively the same) but may carry vastly different meaning for the receivers. This mathematical shortcoming did not stop the subsequent growth of information economics.

The classic context for information economics adapted to marketing is that consumers generally have less information about product quality than producers. Producers know the effort and inputs that were used to make the product, but consumers do not, creating information asymmetry. To resolve this uncertainty, consumers may look for a signal that contains information to resolve the information asymmetry. In the case of product markets, a signal can be a brand or a certification. This signal indicates higher quality and a higher price.

When consumers do seek out information about quality, consumers are still not sure of their information, giving them imperfect or limited information. The notion of uncertainty emerged or the making of decisions in response to a situation without knowing for certain what the outcome will be. This uncertainty prompts decision makers to look for information, to suggest how things will turn out. The notion of credibility arises in this context because investments in

advertising to build brands or certification are sunk costs. In other words, the firm is not able to retrieve its investments in building brands or gaining a certification. This indicates to consumers that the firm is committed to its product. Thus, the cost of advertising acts as a signal because the perceived high cost confers credibility on the certification or brand.

However, the question arises, however, as to whether the consumer finds the product brand or certification useful. This depends in turn on how easy it is to fake a brand or certification. The situation where faking is easy is called a pooling equilibrium because all the firms in the market can do it so there is no differentiation between them and therefore they are pooled together. This gives rise to a low signalling costs. If faking is hard, then the brand or certification differentiates between the firms, making the signal useful for consumers.

### 2.3.3 Information in a marketing context

Economic research started looking at consumers and the role of information in the 1970s, when Nelson published a string of articles (Nelson, 1970; 1974; 1975) that suggest that the primary goal of advertising campaigns is not to inform consumers about products. The goal instead is to tell consumers that a large amount of money has been spent on the ads themselves, and thus inform consumers about product quality. Nelson argues that the mere fact advertising is taking place may represent a signal to consumers of high product quality. If high-quality brands advertise more and if consumers can gain an approximate idea of the amount of a seller's advertising spending, then consumers will react positively to advertising, even if the advertising itself does not convey a lot of information. (Klein & Leffler, 1981; C. Shapiro, 1983) put forward the first models that analyze the role of branding for consumers. They suggest the notion of costly signalling and use it to justify how markets can police quality level and describe a reputation equilibrium.

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Research in economics on signalling theory assumes that consumers are rational. The research usually focuses on identifying equilibrium conditions. Empirical testing tests if the overall behaviour of firms in the marketplace fits the results of the equilibrium. Marketing research, however, uses mainly experimentation to analyze the implied behaviour of consumers (Boulding & Kirmani, 1993; Kirmani, 1990). Marketing research aims to assess whether consumer behaviour reflects the assumptions set out in signalling theory and not to focus on equilibriums like in economics, which constitutes a different approach to the study of consumer use of information.

### 2.3.4 The study of brands in marketing

Marketing research into signals (Kirmani & Rao, 2000; Wernerfelt, 1988) suggests formally that in the presence of asymmetrical and imperfect information, firms can inform consumers of unobservable quality in a transaction by emitting an observable signal. There are four circumstances under which signals are useful: 1/ the product or service is not familiar (Kirmani & Rao, 2000) 2/ perceived risk is too high and needs to be lowered (Shimp & Bearden, 1982) 3/ consumers do not have the required level of knowledge to assess quality (A. R. Rao & Monroe, 1989) 4/ an information search preference exists and additional information is required (Nelson, 1970; 1974).

Marketing research has studied signals of quality via several parts of the marketing mix: price (Tellis & Wernerfelt, 1987), warranty (Boulding & Kirmani, 1993), advertising (Kirmani, 1990) and country of origin (Verlegh & Steenkamp, 1999). Research in the field of marketing has even studied what the combined impact of signals is on consumers (Dawar & Parker, 1994). (Dawar & Parker, 1994) also studied the mix of signals in different cultures. Marketing research indicates that these marketing mix elements convey both direct information and indirect information (Erdem & Swait, 1998). So, marketing mix elements become conveyors of information.

The study of brand equity in marketing research focuses on comprehending the impact of the brand name and symbol on the consumer decision-making process. (Farquhar, 1990) defines brand equity as the 'added value' a brand gives a product relative to an unbranded one. Brands have been studied from a cognitive psychology approach (e.g. McAlexander, Schouten, & Koenig, 2002), from a socio-cultural standpoint (Holt, 2013) and finally as signals (Erdem & Swait, 1998; Spence, 1973). In this thesis, we focus on brands from a cognitive psychology standpoint and then brands as signals (Erdem & Swait, 1998; 2004; Swait, Erdem, & Peters, 2014).

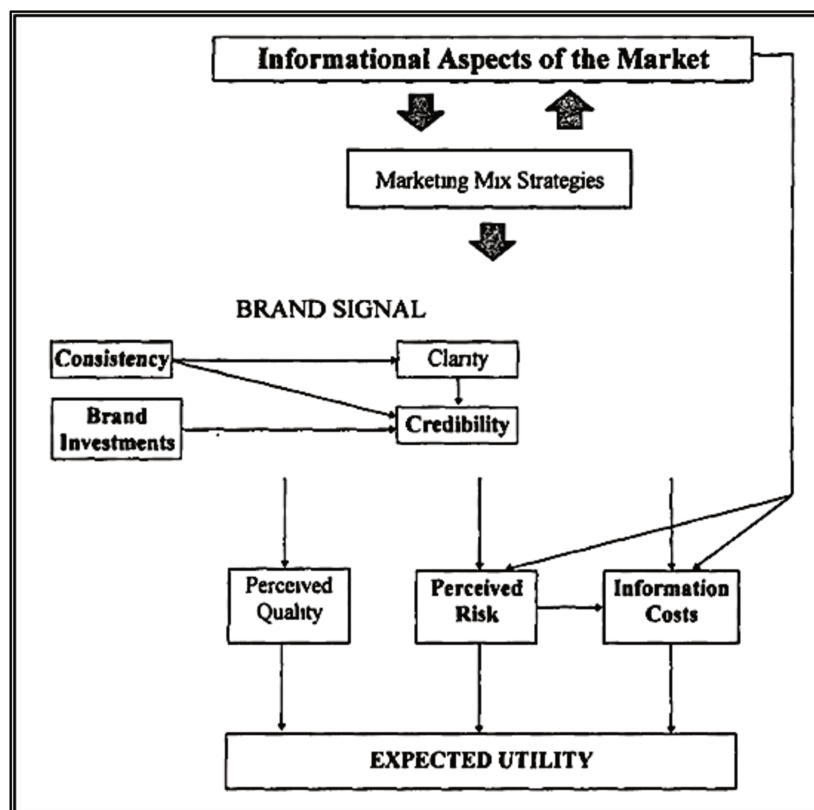
Two works laid the groundwork for the cognitive psychology approach. The first is (Aaker 1991), which argues that a brand name and symbol have assets and liabilities attached to them. These asset liabilities are brand loyalty, brand awareness, perceived quality, brand associations and other proprietary brand assets. The second is (Keller, 1993), which argues that brands should be seen only from a consumer's standpoint. The advantage of (Keller, 1993) is that he builds his brand equity model on a solid conceptual framework. Unfortunately it has not proven effective for building testable models of brand equity and choice behaviour (Christodoulides & de Chernatony, 2010).

It should be noted that the cognitive psychology approach is not completely separate from the brand signal approach we describe below. (Sweeney & Swait, 1999) reconcile the cognitive psychology approach which has a sound conceptual basis with the brand signal models. (Erdem & Swait, 2016) further develop the theoretical complementarity of the two streams of brand research. This reconciliation is important for this thesis because it resolves our concern that focusing on only one brand approach may influence our results.

### 2.3.5 The brand signal model

Brands have now become commonplace for signaling unobservable quality in situations of asymmetric information. Their effective low cost has led several academics to suggest that a brand is the most widely used signal for unobservable quality (Dawar & Parker, 1994; Erdem, Swait, & Valenzuela, 2006; A. R. Rao & Monroe, 1989). The brand's credibility enables the effective conveyance of information (Tirole, 1988). In their seminal paper, (Erdem & Swait, 1998) show theoretically and test empirically that credible signals increase the quality evaluations of consumers. Empirical testing in marketing highlights the effectiveness of brand credibility (Erdem et al., 2006; Erdem & Sun, 2002; Erdem & Swait, 1998; Swait et al., 2014).

**Figure 7 - Brand Signal Model**



(Erdem and Swait 1998)

(Erdem & Swait, 2004) extend the study of brand signals by looking at whether brands signals impact brand consideration and brand choice differently. To do so, they look at products that



differ in terms of uncertainty about the product's attributes, the cost of acquiring product-related information and the perceived risks. The results indicate that brand signals impact brand consideration more than brand choice, even for products with moderate uncertainty. (Erdem et al., 2006) investigate the applicability of the brand signal model to various countries with different cultural dimensions. Among the cultural differences between countries that the authors study, brand signals show higher impact in countries where consumers attach more importance to collectivism or uncertainty avoidance.

(Swait et al., 2014) look at the stability over time of brand signals. They use survey data on car buyers in 2006 and 2011 to assess the impact of bankruptcies, layoffs, product recalls, etc. on the brands of car manufacturers. Their results indicate that consumer perceptions can be explained by the information economics framework and that the framework shows stability over time.

#### 2.3.5.1 Signalling costs

Brands have significant monetary value (Aaker 1991). (Erdem & Swait, 1998; A. R. Rao, Qu, & Ruekert, 1999; Wernerfelt, 1988) argue that signalling theory in information economics defines the monetary underpinning of a brand. A quick look at Interbrand shows the high monetary value of brands. Interbrand estimates Apple's brand value at \$178bn in 2016 and Google's brand value at \$133bn. Consumer punishment may include negative word of mouth and no longer using the brand (A. R. Rao et al., 1999), which would reduce the brand value.

This potential punishment by the consumer underlies signal theory, what (Ippolito, 1990) calls posting a bond or signal cost (Connelly, Certo, Ireland, & Reutzel, 2011). This idea is so important to signalling theory that it is sometimes called the "theory of costly signalling". The high value of brands mean that "faking it" will lead to punishment by consumers, as we describe in 2.3.2.

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### 2.3.5.2 Utilities of brand signals for consumers

The brand signal conveys information that has three utilities (benefits) for investors (see diagram above). These utilities are the "added value" (Farquhar, 1990) that brands contribute to products (Erdem and Swait 1998). The first utility is perceived quality (Erdem & Swait, 1998), defined as the consumer's judgment about how good the product or service is (Zeithaml, 1988, p. 5). The second utility of brand signals is perceived risk, defined by (Schiffman and Kanuk 2000) as "the uncertainty consumers face when they cannot foresee the consequences of their purchase decisions." The third utility is information gathering costs, i.e., how much cost in terms of time, money and psychological costs must expend to gather information about product quality. The brand signal increases product quality, reduces perceived risk and save on information gathering costs.

### 2.3.5.3 The importance of brands in services industries

Brokerage houses are services and as such have specific characteristics that make brands more important relative to products. All products, be they products or services, have search, experience and credence attributes (Darby & Karni, 1973; Nelson, 1970). Search attributes, such as brands and prices, reflect product characteristics that consumers can assess before buying. Experience attributes, such as emotion and entertainment value, are characteristics that can only be assessed during consumption or after buying. Credence attributes reflect any product attribute that consumers cannot assess even after purchase or consumption (Darby & Karni, 1973). Car repairs are an example of credence products because it is hard to assess the quality of the car repairs even when the repairs have been carried out, leading to uncertainty about the service received. (Berry, 2000) suggests that the difference between a product and a service company is that for products, the product itself is the primary brand whereas for a service the company is the primary brand. So in services, a strong brand would act as a safe haven for consumers (Richards, 1998). The intangibility of services makes buying them from

a strong brand appealing. Research confirms the perceived higher risk of services relative to goods.

### 2.3.6 Brands as information to investors

Academic research highlights how brand signals communicate information about quality to investors and stock prices. (Shiller, 2003) and (Frieder & Subrahmanyam, 2005) show how investors prefer familiar brands because they cannot know everything about all companies they have in their portfolios. (Singh, Hansen, & Gupta, 2005) suggest that advertising can help stock prices because it increases the familiarity of the brand to investors, who therefore base their investing practices in part on brand familiarity. (Merton, 1987) suggests that investors prefer firms with stronger information flows. (Grullon 2003) indicate that companies that have built their brands using advertising have a broader ownership of both individual and institutional investors and their stocks are more liquid. This result suggests that brand familiarity influences a company's cost of capital and thus firm value. (McAlister et al., 2007) took the impact of brands one step further, showing that strong brands reduce firm risk because of the strong brands' effect on investors.

### 2.3.7 Summary and implications

In section 2.3, we look into academic research into information. We start by looking at how the wide variety of brokerage houses gives rise to uncertainty about the quality of their research. This uncertainty motivates our discussion about how consumer uncertainty in general about product quality motivates consumers to look for information. We look at academic research on consumers in general and briefly at information from a mathematical and economic standpoint because they shape marketing research's study of information. We then shift to marketing's study of information and in particular the research into signals. We see that credibility plays a key role in signals and that bonding costs underlie credibility. Next, we

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consider specific characteristics about services that heighten consumer uncertainty due to their nonphysical nature and then focus on how investors use information about brands.

We see in this section how consumers can use marketplace information to reduce asymmetric and imperfect information about product quality. We use the brand signal model in studies 1 & 2 to investigate the impact of brokerage house brand signal on investors and competing brokerage houses. We argue that the brand signal model is relevant and gives a richer understanding of how marketing investments can help incorporate information into stock prices. Furthermore, no research has been undertaken into how investors and competing brokerage houses respond to the brands of information intermediaries.

## 2.4 The real effects of financial markets on corporate decisions

In the previous section, we looked at how information is mobilized in marketing to address quality uncertainty issues. In this section, we survey the literature from research in finance and accounting on the theory of the real effects of financial markets (P. Bond et al., 2012). Similar to information flows described separately in the marketing-finance interface in sections 2.1 and 2.2, the ‘real effects of financial markets’ perspective suggests that information flows both ways, i.e., from firms to financial markets and vice versa. The onus in this section is on describing the full process of how financial market information flows can affect firm decisions. Secondary financial markets do not lead to any direct transmission of capital to firms. Information in prices will therefore only have an impact if they affect the decision makers in firms.

We start by describing the efficient market theory and the extension that the ‘real effects of financial markets’ perspective proposes. Then we look at the role played by the two parties involved in the real effects of financial markets, managers and investors. We end by looking at the literature surrounding two effects of financial markets on corporate investment, i.e., stock mispricing and institutional investors, which we consider in more detail in chapters 5 and 6 respectively.

### 2.4.1 Efficient markets and the role of stock price information

In financial markets, information plays a key role in efficient markets. Fama gave this definition of the efficient market hypothesis saying, ‘I take the market efficiency hypothesis to be the simple statement that security prices fully reflect all available information (Fama, 1991). In other words, security prices reflect all information about the fundamental value of the security, i.e. the present value of future cash flows. The fundamental value in asset prices is beneficial for both long and short-term investors because both benefit from the discounted value of cash flows generated over the long term.

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In efficient markets, managers adopt a long-term outlook and make strategic decisions to create the highest NPV projects. Managers use their information to maximize the sum of discounted value of future cash flows and corporate investment decisions are based on choosing the best projects and the discount rate. The discount rates reflect the cost of capital and managerial decisions reflect the best interests of all investors. The stock price set by markets is fair for all shareholders because it reflects the long-term value of the stock. The focus here is on information flows from firms to stock markets.

### 2.4.2 Incorporating the ‘the real effects of financial markets into the efficient markets hypothesis

Corporate finance research traditionally reflects the information flow defined by Fama above, i.e., understanding the effects of financing on the firm and the firm's cost of capital. Corporate finance research focuses less on the effect of information from secondary markets on stock prices. (P. Bond et al., 2012) argue that financial markets may not be as neutral for firms as presented in textbooks and the efficient market theory. They argue that the efficient information theory described in 2.4.1 should be broadened to reflect the 'feedback effect'. They suggest that the large amounts of capital traded on securities markets every day and the substantial resources invested in secondary markets prompt managers to keep a close eye on the information in the share price. This is the definition of the ‘real effects of financial markets’ perspective we adopt in this thesis.

The authors argue that the importance of stock prices stems from the information they convey (P. Bond et al., 2012), an idea first suggested by (Hayek, 1945) in his article about the role played by knowledge in society. Hayek describes how information known only to some market players can spread to the whole market with prices conveying the information because of their role as information aggregators. In turn, decision makers such as managers, investors and

customers use information from prices when making decisions, which in turn affects corporate expenditures, cash flows and stock performance (Baumol, 1965).

In the next section of the literature review, we study the channels through which stock prices may influence corporate decisions via the information they convey, focusing first on managerial channels and then financial market channels.

### 2.4.3 Managerial incentives to respond to stock price information

#### 2.4.3.1 Compensation incentives

The first way that financial markets may have real effects on corporate decisions is through a manager's incentives to take real decisions. Under agency theory, managers can take advantage of their information edge and discretionary power to maximize their personal interests instead of maximizing value for shareholders. To mitigate the divergence of goals, firms may structure managerial compensation plans to link them to quarterly or annual stock returns, which is supposed to better align management interests with shareholder concerns (Jensen & Murphy, 1990). Managers looking to maximize private benefits may seek to boost near-term stock prices to increase their compensation arising from the equity-linked portion of their compensation at the expense of the long-term investors.

A second driver of agency conflicts is the length of a term's tenure at a company. (Narayanan, 1985) suggests that a shorter employment contract means a manager is unlikely to benefit from a firm's future cash flows. And the contracts have gotten shorter with the turnover of CEOs increasing over time (Kaplan & Minton, 2012). This may prompt managers with shorter contracts to behave myopically because they will not benefit from investments that generate returns over the longer term. Thus they may adopt projects with a lower NPV but higher returns in the earlier part of their investment lives (Palley, 1997), showing that shorter CEO horizons are related to faster returns at the expense of value creation over the long term.

## Chapter 2 - Literature review

Managerial reputations in the employment market are a third factor that can incite managers to focus on myopic concerns such as earnings because investors punish firms that do not meet earnings forecasts (Bartov, Givoly, & Hayn, 2002). (Narayanan, 1985) suggests that managers who focus on their labour market reputation may undertake actions that boost the stock's short-term return at the expense of the long-term performance. If their labour market reputations are sufficiently tarnished, managers may find it hard to find another job, making them focus on stock price information (Jensen, 2005). Investor pressure has intensified since the mid-1990s with managers reporting that they prioritize meeting or exceeding analysts' earnings forecasts over other benchmarks. Research shows that that meeting or exceeding analyst earnings forecasts increases manager credibility with capital markets, props up or increases share prices, improves manager reputations and conveys information about future growth prospects.

To sum up, agency theory, CEO tenure and reputational concerns may motivate managers to use the information in stock prices when making corporate decisions.

### 2.4.3.2 Catering to investors

A second channel through which markets may have real effects on corporate investment decisions is through managerial catering to investors. Catering theory argues that investment decisions are influenced by investor misperceptions (Stein 1996). The investor misperceptions are reflected in stock prices. Managers care about how stockholders perceive the firm and so the misperception that is reflected in the stock price information in turn affects investment decisions. Firms that rely on the stock market respond by catering their investment decisions to the opportunities created by these misperceptions.

Recent research shows empirically that that managers may cater to investor information incorporated in share prices. (Q. Chen, Goldstein, & Jiang, 2007a) provide evidence that the amount of private information in the stock price has a strong positive effect on the sensitivity of corporate investment to stock price information. In a similar vein (Duchin, Ozbas, & Sensoy,



2010) show that corporate investment declines significantly following the onset of the financial crisis. Consistent with the causal effect of a supply shock, the decline is greatest for firms that have low cash reserves or high net short-term debt, are financially constrained, or operate in industries dependent on external finance. (Baker, 2009; Baker & Wurgler, 2004) show that when the market grants an irrational premium to dividend-paying firms or to low-price firms, managers respond to this stock price information by paying more dividends or by supplying shares at lower prices. All of this research shows empirically that managers may cater to investor information incorporated in share prices.

#### 2.4.3.3 Managerial learning

The third channel for financial markets to motivate managers to use stock price information is the managerial learning hypothesis. The hypothesis is that markets produce new information and managers learn from this information. (Hayek, 1945) suggests that markets may be better at generating some kinds of information because markets aggregate many small pieces of information from players who have no direct way of communicating with managers but they can inform managers through their trading activity (Zuo, 2016). This does not mean that managers know less than investors. Rather, it's not necessary for managers to have perfect information for every decision in order for the information in share prices to influence investment decisions (P. Bond et al., 2012).

Possible information includes subjects such as the external environment, competition and customer demand. Several studies have empirically shown that managers can learn from markets. (Edmans, Jayaraman, & Schneemeier, 2016) show that price information affects firm investment using the staggered enforcement of insider trading laws as an exogenous shock. They conclude that although the enforcement shock lowered private information it increased outside information, leaving the total amount of information that contributes to the stock price constant. (Zuo, 2016) shows that market information feeds back to management forecasts.

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Furthermore, these studies show that investor private information also helps managers improve their forecast accuracy. (Foucault & Frésard, 2014) confirm that not only do managers learn from their own share prices, but they also learn from the stock price of peers, which are defined as firms that sell related products and this information affects corporate investment decisions.

### 2.4.4 Financial market influence on stock price information

In the previous section, we consider factors that may prompt managers to react to investor information in stock prices. In this section, we look at factors that may influence the incorporation of information in stock prices by financial markets. We look at the impact of limited arbitrage, investor expectations and monitoring on the process of integrating fundamental information into share prices. We see that limited arbitrage may impede the incorporation of fundamental information into stock prices, investor expectations may send confounding information to managers and the effectiveness of monitoring may decline, which means that the market's discipline of managers to focus on fundamentals may diminish.

#### 2.4.4.1 Limited arbitrage

The first factor that may affect the quality of information in share prices is market limitations that prevent arbitrage from incorporating investor information into stock prices. Under the Modigliani-Miller theorem, stock prices mirror fundamentals because informed investors (arbitrageurs) compete to eliminate mispricing. So, mispricing between two firms with the same cash flows but different capital structures in a frictionless market creates risk-free arbitrage opportunities. Arbitrageurs would quickly take advantage of this information and incorporate it into their arbitraging and restore stock prices to their fundamental values.

However, finance research highlights that arbitrage may be less efficient than postulated by theory. (E. M. Miller, 1977) examines the impact of short-selling constraints on stocks that can prevent the aggregation role of information into stock prices from taking place and thus

hindering significantly the effectiveness of arbitrage. (De Long, Shleifer, Summers, & Waldmann, 1990) present a model that indicates that noise trader risk can create a risk in prices that deters rational arbitrageurs, who have short-term horizons and are risk averse, from betting aggressively against noise traders. (Alphonse, 2007) suggests that market depth, which influences the ability of arbitrageurs to unwind their equity positions, may further weaken the effectiveness of arbitrage. Arbitrage is often carried out using relative-value arbitrage. However, the necessary security with similar cash flows may not be available to carry out this arbitrage strategy (Pontiff, 1996). All of these factors may hinder the ability of arbitrageurs to maintain information-efficient prices and may enable stock prices to include non-fundamental-related information, sometimes for extended periods of time. Stock prices may therefore contain information that may be irrelevant and perhaps misleading for managers.

#### 2.4.4.2 Investor expectations

Financial market expectations may also deter managers from focusing on information that generates long-term value for all shareholders. One expectation in particular stands out in the literature, earnings expectations. Firms that release results more often to the market may prompt managers to take myopic decisions in order to meet earnings guidance or improve a firm's share performance. (Bartov et al., 2002) show that the frequency of meeting analyst expectations has increased in recent years, and that the reward from meeting earnings expectations is higher quarterly average returns. Thus the short-term reward is clear but what is the long-term impact on firm growth rates? (Cheng, Subramanyam, & Zhang, 2005) study firms that frequently issue quarterly earnings guidance to see the effect on investment decisions. They find that frequent guider firms invest less in R&D and more often beat the analyst consensus relative to occasional guiders. However, the frequent guiders show significantly lower long-term earnings growth rates.

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(Rappaport, 2005) suggests that a second reason that hinders the incorporation of fundamental information arises from investor reliance on technical analysis and comparables to value stocks. Stock prices contain information that investors use in their valuation processes. The information about prospects and fundamentals used in technical analysis and comparables is short-term information rather than long-term information. These methods obviously shape investor expectations. The share price will therefore contain more short-term related information and less information related to fundamentals, which may mislead managers.

### 2.4.4.3 Monitoring managers

In the literature, investors are supposed to monitor manager decisions, ensuring that managers focus on fundamental information that is relevant to all investors. All investors however are not equal when it comes to monitoring. Institutional investors are generally investors with greater resources than individual shareholders. Their superior resources give them better information arising from research into stocks and industries, whereas individual shareholders have limited time to gather information.

The benefits of gathering information are more likely to exceed costs for institutional investors compared to individual investors (Shleifer & Vishny, 1986). In addition, institutional shareholders, which include pension funds, investment trusts, university endowments and insurance companies, invest much larger sums of money than individual investors, giving them more votes and power (Parrino, Sias, & Starks, 2003). The large sums involved and their fiduciary duties motivate institutional investors to monitor their stakes in firms. If firms fare poorly, investors can dialogue with managers or in extreme cases sell their stakes. So, institutional investors can exert market power for corporate control.

In the finance literature, monitoring is often associated with long-term investment horizon. If a firm has a considerable number of short-term investors, managers may be monitored less because the short-term investors have less incentive to monitor. This decrease in monitoring

may prompt managers to focus on their personal benefits at the expense of shareholders. (Gaspar, Massa, & Matos, 2005) find that firms with short-term shareholders are more likely to receive a takeover bid but get lower premiums. They argue that firms owned by short-term investors have a weaker bargaining position in acquisitions, which arises from lower monitoring. In a similar vein, (X. Chen, Harford, & Li, 2007b) show that concentrated holdings by independent long-term institutions are linked to post-merger performance (bid announcement returns and 3y BHAR returns) and make the withdrawal of bad bids more probable. Some information limits, however, may hinder the effectiveness of monitoring. For example, (Zeckhauser & Pound, 1990) argue that firms present in sectors with highly-complex R&D investments show greater information asymmetry making monitoring more difficult due to the complexity of the high-R&D. The authors further show that blockholders owning over 15% of a firm monitor effectively in low-R&D sectors but not in high-R&D sectors.

#### 2.4.4.4 Acquiring capital market funding

A company's dependence on financial markets for funding may affect the influence of investors on firm policy (Stein, 1989). Managers who need equity financing for new projects may be incentivized to boost short-term stock prices in order to get the financing with the best terms (Bar-Gill & Bebchuk, 2002). So, around the dates for seasoned and initial offerings, firms strive to ensure the share price is inflated, which later becomes abnormal long-term negative returns. In line with this argument, offering issuers tend to report higher net earnings before the offering and post lower long-term abnormal returns (Teoh, Welch, & Wong, 1998).

#### 2.4.5 Why passive investors may not be passive monitors

As shown above, research in finance has highlighted the effect of institutional investors on governance and corporate policies (e.g. Aghion, Van Reenen, & Zingales, 2013; Hartzell & Starks, 2003). However, one concern is that a large portion of investors are classified as passive, so-called because they hold portfolios of stocks with low turnover. Their investment

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goals are to replicate a given index or an investment style (e.g., small-cap growth) at a lower cost. Their passive nature induces the question of how effective they are in monitoring managers. Passive investors may be perceived as large shareholders that do not expend resources to monitor managers due to their passive nature. Furthermore, they have little incentive to monitor as their goal is simply to replicate the index and given the large number of shares in their portfolios, they may not have enough resources to carry out monitoring effectively. This passivity would in turn weaken corporate governance and hurt shareholder performance. The issue can be framed as follows: are passive investors as passive as the term implies in terms of influencing managerial decisions?

(Venkiteshwaran, Iyer, & Rao, 2010) investigate what effects passive investors have on firms. Studying this question is difficult because dialogues with management teams are usually 'not shared with outsiders'. They find, contrary to expectations, that the dialogue between indexers (a type of passive manager) and management teams is indeed fruitful and affects corporate decisions. Passive investors have two incentives to prompt monitoring. First, monitoring may increase the value of assets under management, which increases the amount of fees they earn from the assets they manage. Secondly, institutional investors have a fiduciary duty to manage and vote their proxies in the best interest of shareholders. In this context, activist investors may seek to gain the votes of passive investors given their size and concentration (Brav, Jiang, Partnoy, & Thomas, 2008) to help activist investors pass their proposals.

Taken together, passive investors may be more active in influencing managerial decisions than the term passive indicates.

### 2.4.6 Mispricing and corporate decisions

Many facets of financial markets may affect corporate decisions, such as institutional investors, information asymmetry and analyst coverage. In the next two sections, we describe two

financial market features studied in Chapter 5 and 6: stock mispricing and investor horizon, which as far as we know have not been studied in the marketing-finance interface.

#### 2.4.6.1 Theoretical determinants of mispricing

Mispricing emerged gradually as a subject of interest for corporate finance. Prior to about the year 2000, stock markets were still thought to be efficient in that prices reflect all available information at a given moment. The TMT bubble prompted considerable and abrupt stock market movements that seemed unwarranted given the information available at the time. This prompted considerable research into what information can drive prices away from fundamentals be they undervalued or overvalued (mispricing). The financial crisis of 2007-2008 increased the interest in the area of stock mispricing.

The efficient market hypothesis assumes that prices should follow a random walk. In other words, all information is reflected in stock prices, so tomorrow's stock prices will be independent of today's price changes. Some research, however, suggests that prices include past price information. (Haugen & Jorion, 1996) show that the so-called January effect in which certain types of stocks tend to produce higher abnormal returns, notably small market capitalization stocks, persists despite existing for several decades. (Fama & French, 1992) detect unusually high average returns from stocks with high book-to-market ratios. The rising number of inefficiencies gave rise to the Fama-French three-factor model and then the Carhart four-factor model and perhaps the Fama-French five-factor model (Fama & French, 2015). And of course, the TMT bubble and the 2007-2008 financial crisis were put forward as arguments that markets may not always be efficient for extended periods. Research in behavioral finance suggests inefficient markets may be driven by investors making systematic mistakes in how they come up with their beliefs and expectations about the stock price (Shleifer & Summers, 1990).

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### 2.4.6.2 How stock mispricing affects corporate decisions

Considerable evidence has emerged in the financial literature that suggests that stock mispricing has a real effect on a firm's investment and financing choices. For example, (Shleifer & Vishny, 2003) present a model that looks at the role of stock mispricing and how it affects mergers and acquisitions. Their model shows who buys who, how the acquisition is paid for, the valuation consequences of mergers and how a wave of mergers can take place. (Dong, Hirshleifer, Richardson, & Teoh, 2006) empirically test the links between market valuations of firms and takeover characteristics. They show that a firm's market mispricing can drive takeovers and firm strategy.

Some finance studies suggest that mispricing also affects corporate decisions. (Chirinko & Schaller, 2001) seek to study whether bubbles affect fixed investment using the Japanese bubble between the late 1980s and the early 1990s. They theorize that the high equity values represent cheap financing that can be used to finance investments and find that mispricing did lead to higher stock and bond issues, with the proceeds being used to finance a much larger than normal portion of fixed investments, as well as much lower investment after the bubble burst. They show that high stock prices relax financing constraints, which affects corporate policies (capital investment, stock issuance, cash savings). (Hau & Lai, 2013) provide evidence for a causal effect of equity prices on corporate investment and employment. They use fire sales by distressed equity funds during the 2007–2009 financial crisis to identify substantial exogenous underpricing and show that firms whose stocks are most underpriced have considerably lower investment and employment than industry peers not subject to any fire sale discount.



## 2.4.7 Institutional investors and corporate policies

### 2.4.7.1 The importance of institutional investor ownership for corporate policies

The second financial market face we look at is the investment horizon of institutional investors. We first look at institutional investor ownership in general and then one particular aspect, their investment horizon.

Institutional ownership of U.S. firms has increased dramatically in the last 50 years, and today, institutional investors collectively hold the majority of U.S. shares (Gompers and Metrick 2001) and rising. The high ownership of firms by institutional owners partly justifies our studies in chapter 6 on their impact on marketing investments. Shareholders exercise their power through proxy votes, shareholder proposals or the threat of exiting by selling large amounts of shares that pushes down the share price. Their effect is reflected in the higher votes for their shareholder proposals and a higher stock price reaction (Gillan & Starks, 2000).

(Shleifer & Vishny, 1986), among others, theorize that major shareholders monitor managers. Indeed, institutional owners influence R&D by monitoring management and through CEO compensation. (X. Chen et al., 2007b) study whether monitoring works and show, using acquisition decisions to reveal monitoring, that large shareholders that monitor enhance the results of firms participating in mergers. (Cronqvist & Fahlenbrach, 2009) investigate whether large shareholders impact corporate policy and show their presence affects executive compensation and corporate investments.

Highlighting their important, research suggests that CFOs view institutional investors as the most important marginal investors. CFOs say that institutional investors are important because they can leave the stock through herding if the company's earnings disappoint and inversely they can grant easier funding access that lower the future cost of capital if they are pleased with firm management. (Gillan & Starks, 2000) provide some empirical evidence of the influence of institutional investors by threatening to exit.

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### 2.4.7.2 Institutional investor horizon

Underlying the notion of monitoring is the idea that investors stay in the firm long enough to reap the benefits of their monitoring and dialogue with management. However, Institutional investors with a shorter investment horizon may have little to gain from monitoring because they will not remain shareholders long enough to reap the benefits compared to the costs engendered. Furthermore, they have less time to acquire knowledge about the firm and thus are less able to dialogue with management due to their lower knowledge.

In the context of earnings management, (Bushee, 1998) shows empirically that having institutional ownership with higher portfolio turnover significantly enhances the probability that managers reduce R&D to manage earnings. (Gaspar et al., 2005) investigate the impact of short-term investors in the context of acquisitions. They show that target firms owned by short-term investors are more likely to receive an acquisition bid but the bid premiums are lower. Furthermore, bidding firms with short-term investors generate significantly lower abnormal terms around merger announcements. (X. Chen et al., 2007b) look at the impact of large holdings with long-term investments on mergers. Their findings indicate that their presence leads to higher post-merger abnormal returns and post-merger changes in industry adjusted return on assets. Blockholders, i.e. long-term investors with large stakes, have also anecdotally been shown to have a positive impact on firms. In a case study on the impact of Carl Icahn, a leading blockholder present in many companies over the past 30 years and using Schedule 13D filings of his investment vehicles, (Venkiteshwaran et al., 2010) find that meeting corporate governance targets is one of his biggest successes. Taken together, these studies indicate that investor horizon may affect corporate policies.

### 2.4.8 Dissenting opinions about whether secondary markets influence managers

Some researchers have contested the real effects of financial markets on corporate policies. They advance two main arguments that we develop briefly below. The first argument is that

managerial cuts to long-term-oriented investments such as brand building and customer satisfaction are visible to the markets but that dropped positive net present value projects are invisible to markets. In other words, the impact of cutting some expenditures may be compensated for by other decisions that create value for shareholders but they also do not show up either to the markets (Stein 1989c). Second, it is impossible to know management's true intentions implying that any earnings management behaviour may be the result of an omitted variable or may be capturing behaviour other than intentional manipulation (Gunny, 2010).

#### 2.4.9 Summary and implications

In section 2.4, we discuss the 'real effects of financial markets' perspective (P. Bond et al., 2012). We start by describing how it argues that information flows should be considered bidirectional to better comprehend the effect of financial markets on firms. Next, we consider reasons why managers may respond to information in stock prices. We consider personal incentives, catering to investors and managerial learning as possible explanations for their willingness to respond to information in stock prices. We subsequently focus on various facets of financial markets that could lead to stock prices being inefficient, including limited arbitrage, investor expectations, reduced investor monitoring of managers and the role of financing, and suggest that passive investors may be more active in terms of monitoring and pressure on managers than the term passive indicates. We then briefly mention two arguments against secondary markets actually affecting firm decision-making before considering the literature surrounding mispricing and investor horizon.

## 2.5 Conclusion

We strive to show in this literature review that marketing and finance are linked and that marketing is an active player in a firm's relationship with financial markets both as a transmitter and a receiver of information. This thesis strives to extend this work by focusing on what is not yet done, i.e., theorizing the bidirectional relationship of information flows that we hopefully make clear. Chapter 2 starts by reviewing the two streams of the marketing-finance interface. Section 2.1 studies how marketing information flows from marketing investments in firms to financial markets while Section 2.2 studies the literature concerning the opposite information flow, i.e. from financial markets to marketing investments. These two directions of information flow have traditionally been studied separately.

We propose to combine the streams using the 'real effects of financial markets' perspective studied in section 2.4. In financial research, this perspective proposes to extend the efficient market hypothesis to reflect the bidirectional information flows. We believe it would provide a suitable conceptual framework for combining the two streams of the marketing-finance interface. Putting the two streams of the marketing-finance side by side in sections 2.1 and 2.2 show the complementarity of the research streams and suggest that the natural evolution is to combine the two approaches using the real effects of financial markets as a theoretical framework. In section 2.3 we study what the term information means and how it has been mobilized in the academic literature. This is important for our thesis because we mobilize the concept of information in Chapters 3 and 4 and how information can influence the response of investors (customers in this thesis) and competitors.

In the following studies, we explore empirically the bidirectional nature of information flows between marketing investments and equity markets. Our first two studies ascertain whether marketing investments directly impact equity markets, with the equity market being defined as

made up of investors and competing brokerage houses. The last two studies then investigate information flows from equity markets to marketing investments.

## Chapter 2 - Literature review



# 3 BROKERAGE HOUSES BRANDS AND INVESTORS





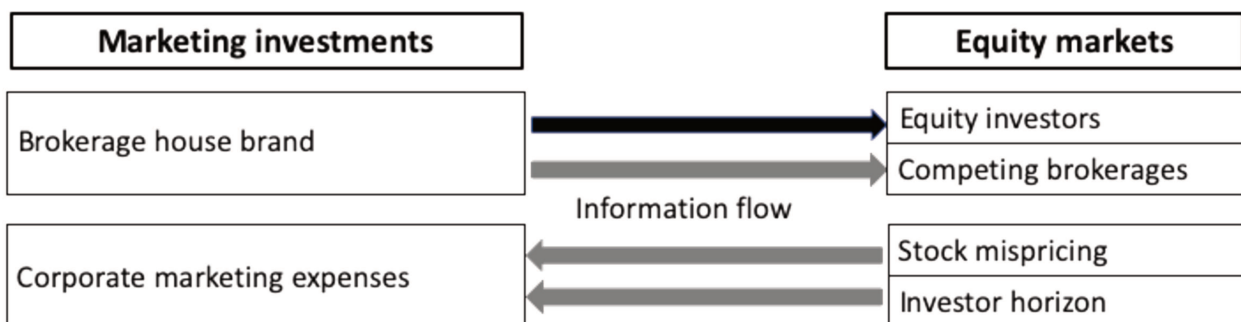
## Contribution of Chapter 3 to the thesis

Chapter 3 studies the impact of information flows from marketing investments to investors. Figure 2 represents the relevant information flows from our research design for Chapter 3 as indicated by the black, bolded arrow.

To study this relationship, we use the brand signal model developed by (Erdem & Swait, 1998; 2016) to investigate how the information in a brokerage house’s brand signal can affect investor response to a brokerage house’s recommendation change. We develop three brand determinants that may contribute to the effect of a brand on investors. We further develop a brand score measure. We then test the brand determinants and scores empirically to assess whether they influence investor response to the recommendation changes of a brokerage house. a brand score based on the brand determinants. We find that the brand of the brokerage house influences investors and also validate the three proposed brand determinants.

**Figure 8 - How marketing Investments affect equity investors (Chapter 3)**

**Chapter 3: information flows coming from brokerage house brand and going to equity investors**





## DO BROKERAGE HOUSE BRANDS MATTER FOR INVESTORS?

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Prior research in accounting and finance has relegated brokerage houses to a support role for security analysts. This research studies how one aspect of brokerage houses, their brands, influences the behavior of equity investors. In so doing, this article highlights a new bias that influences investor perception of information flows in equity markets.

Applying the brand-signaling framework developed in the marketing field to this context suggests that brokerage house brands act as signals that convey information and influence investor response. We study three possible determinants of the brokerage house brand signal: awareness, performance and reputation and propose a measure of the brokerage house brand score. Empirically, we perform an event study on recommendation changes and find a strong, positive impact of the brand of the brokerage house that issues the recommendation change on investor response. We further validate the impact of the three proposed determinants of the brokerage house brand.

**Key words:** institutional investor, brokerage house, brand signal, investors, marketing-finance interface, event study

This research has been presented at two peer-reviewed conferences:

1: 14th Interdisciplinary Workshop on Intangibles and Intellectual Capital held at Ludwig-Maximilians-University in Munich in September 2018

2: Marketing Strategy Meets Wall Street held at Insead in Fontainebleau in June 2019

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### 3.1 Introduction

“When EF Hutton talks, people listen.”

This well-known tagline figured in a series of commercials for EF Hutton, a famous brokerage house, in the 1980s. It suggests anecdotally that EF Hutton's brand is so strong that just mentioning its name is enough to draw investor attention, without even reading its research reports. Marketing research supports the idea that brokerage house brands may be important (Davis, Golicic, & Marquardt, 2008; Homburg, Klarmann, & Schmitt, 2010). However, the hundreds of articles into investor response to equity research over the past 30 years (Brown, 1993; Brown, Call, Clement, & Sharp, 2015; Ramnath, Rock, & Shane, 2008; Schipper, 1991) suggest that brokerage houses do not matter to equity investors. Instead, brokerage houses are limited in this research to a support role for security analysts, with brokerage houses proxying as performance and career outcomes of security analysts (Bonner, Hugon, & Walther, 2007; Hilary & Hsu, 2013; Hong & Kubik, 2003). This article investigates this divergence about the influence of brokerage houses on investors by studying one aspect of brokerage houses, their brands.

Several reasons underlie the interest of exploring the impact of brokerage house brands and their determinants on investors. First, brokerage houses have developed marketing policies (e.g., road shows, ads in specialized press, investor meetings, websites, etc.) that position their brands at the heart of all of their activities. Their brand names figure prominently on their research notes targeting their clients and the journalists. Sales people always present their firm when calling and analysts names are always given with the brokerage house name.

Second, brokerage house services are rarely provided through direct sale (Brennan & Chordia, 1993). Instead, payment for brokerage house research results from a broker vote system by institutional investors that allocates trading commissions proportionally (Maber, Groysberg, & Healy, 2014). Brokerage houses that are perceived as providing the best value are rewarded with a larger portion of an institutional investor's trading commissions. This system drives brokerage houses to build a strong

marketing policy in order to enhance the perceived quality of their service in addition to delivering quality investment research.

Finally, previous research from marketing, finance and accounting indicates that equity markets are sensitive to marketing assets in general and brands in particular. For instance, customer satisfaction, a type of marketing asset, affects both investors (Fornell, Morgeson, & Hult, 2016) and financial analysts (Ngobo, Casta, & Ramond, 2011). Also, (Madden et al., 2006; Mizik & Jacobson, 2008) show that brand equity positively affects firm financial valuations meaning that investors pay attention to the brands of companies they invest in. Furthermore, brand name changes (M. J. Cooper, Dimitrov, & Rau, 2001a) and investor recognition of firm names have been shown to significantly impact investors (Green & Jame, 2013). Since equity markets seem sensitive to firm marketing activities, we reason that investors will be sensitive to the marketing of other equity market players, in particular brokerage house brands.

In this article, we use brokerage houses as the main unit of analysis. The little research into brokerage house brands is surprising given the key role brokerage houses play in the USD30 trillion US stock market (source: barrons.com). In their role as information intermediaries, brokerage houses expend significant resources in collecting and analyzing information to provide investment research in the form of research reports delivering earnings forecasts and stock recommendations (i.e., strong buy, buy, hold, sell, strong sell) to their clients. Prior research in accounting and finance has studied extensively how investors respond to investment research (Ramnath et al., 2008) in general, but it has not studied brokerage houses separately from security analysts.

In order to explore investor response to brokerage house brands, we apply a well-known conceptual framework from the branding literature - the brand signal framework (Erdem & Swait, 1998) - to equity markets. This framework posits that brands can be seen as a signal and allows us to explain how brokerage house brand signals and their determinants - awareness, performance and reputation - might influence investor response to research notes. These research notes, where the brokerage house logo

### Chapter 3 – Brokerage house brands and equity investors

and the analyst's name figure prominently on the front page, usually discuss a stock or news item and often contain an actionable recommendation or forecast. Empirically, we generate abnormal returns using an event study on recommendation changes to test whether the amplitude of abnormal returns is associated with brokerage house brands and their determinants. We consider recommendation changes because they are more informative than recommendation levels (Boni & Womack, 2006; Jegadeesh & Kim, 2010). We distinguish between recommendation upgrades and downgrades as previous research shows that investors may respond differently to recommendation upgrades and downgrades (Asquith, Mikhail, & Au, 2005; Chang & Chan, 2008; Loh & Stulz, 2018).

This research is the first, as far as we know, to investigate whether a key marketing investment, i.e., the brands of brokerage houses, influence investor behavior. To do so, we measure a brand score for each brokerage house and further develop proxies for the three main brand determinants - awareness, performance and reputation. Our results show that brokerage house brands and their determinants influence investors and suggests more generally that information intermediary brands influence investors.

This article makes several major contributions. First, whereas accounting and finance research has focused mainly on security analysts as the primary unit of analysis, this research aims to show that behind every security analyst lies the brokerage house employing them, and that the perception of a brokerage house plays a crucial role in the impact of information flows in equity markets.

Second, we identify a new bias that may influence investors' perception of information flows. Investors should be aware that information intermediary brands may influence positively or negatively their perception of information, leading potentially to suboptimal decisions. Brokerage houses can take advantage of the influence of brands on information by developing a strong marketing policy.



Finally, by applying a conceptual framework developed in marketing to investors, and by providing measures of the brokerage house brand equity, this article contributes to the marketing-finance interface, a recent and growing stream of research (Ganesan, 2012).

The remainder of this study is organized as follows: we first develop the conceptual framework and hypotheses. Then, we describe the data and methodology, present the results and finish by discussing the study's theoretical and managerial implications, limitations and suggestions for future research.

## 3.2 Conceptual framework and hypotheses

### 3.2.1 The brand signal theory applied to equity markets

To investigate brokerage house brands, we use the brand signal theory (Erdem & Swait, 1998; 2016), derived from information economics, which states that in situations of asymmetric information about product quality, brands convey information in the form of signals that reduce uncertainty about quality in the decision making process (Kirmani & Rao, 2000). In this theory, credibility, which can be defined as the perception of trustworthiness of the brand's claims as well as its technical capability to deliver on its promises, is central. Highly credible brands are more likely to be considered and chosen because they reduce uncertainty (Erdem & Swait, 1998; 2016).

The brand signal theory is appropriate for credence products such as research notes for which quality uncertainty is inherent: equity investors cannot assess the quality until well after the recommendation is issued. Moreover, the brokerage house knows more about the quality of the recommendation relative to investors because it knows the information that has been collected and analyzed, and the effort put into drawing up the recommendation.

### 3.2.2 Hypotheses

Applying the brand signal framework to equity markets, we argue that, when deciding to respond to a research note, investors do not rely exclusively on their perception of the analyst who signs the note but also on their perception of the brokerage house brand, which acts as a signal that conveys information about the quality of the research note (see Figure 1). A highly credible brokerage house brand signal (believable and trustworthy) reassures investors that they can trust and follow the recommendation; the signal reduces decision-making costs by decreasing their need to seek more information about the issuing brokerage house, and reduces the perceived risks of following the recommendation.

In other words, the same research note (same analyst, same content, same recommendation level, etc.) bearing the brand of brokerage house A will be perceived differently from the research note bearing the brand of brokerage house B, resulting in a different decision by investors (i.e. buying, selling or avoiding depending on the recommendation change).

We summarize the core conceptual idea in Hypothesis 1.

**Hypothesis 1:** Brokerage house brand signals influence investor perception of research notes.

The notion of credibility underlies our three hypotheses concerning brokerage house determinants. Credibility of the brand signal in equity markets seems to be crucial as brokerage houses communicate in a similar territory: they all claim to offer high quality services, deep knowledge of the stock market, excellent recommendations and accurate forecasts. This lack of differentiation makes brand credibility all the more important for investors. The consistency of the brokerage house's claims with reality lends further credibility to the brand as a signal; in contrast inconsistent claims erode brand signal credibility (Erdem & Swait, 1998; 2016). In this section, we consider three brokerage house brand determinants that might contribute to the credibility of the brokerage house brand signal and lead to higher investor response: awareness, performance and reputation.

**Brokerage house awareness** - Awareness facilitates brand recognition and reassures investors about their decisions. For a brokerage house with low (high) awareness, we expect the brand signal to be perceived as less (more) credible, leading to a lower (higher) response of investors.

**Hypothesis 2:** The higher the awareness, the greater the investor response to research notes bearing the brokerage house brand.

**Brokerage house performance** - The finance and accounting literature highlights the importance of performance as indicators of ability for investors (Bradley, Gokkaya, & Liu, 2017; Hilary & Hsu,

2013). We reason that the better the performance of a brokerage house, the more the brokerage house brand will be perceived as a credible signal and the more investors will respond to research notes bearing the brokerage house brand.

**Hypothesis 3:** The better the performance of a brokerage house, the greater the investor response to research notes bearing the brokerage house brand.

We consider two characteristics that might contribute to the perception of a brokerage house's performance: perceived brokerage error and information access.

*Perceived Brokerage Error* - Over time, the gap size between a brokerage house's earnings forecasts and actual earnings leads investors to build an ongoing perception of the overall error of a brokerage house, as well as to assess the trustworthiness and believability of a brokerage house. Other things equal, we expect a brokerage house brand with low (high) perceived error to generate a more (less) credible signal, leading to lower (higher) response of investors.

*Information Access: Investment Bank* - Brokerage houses that are (not) part of an investment bank should be perceived as more (less) performant because of more (less) privileged access to information arising from the underwriting relationships of their investment banking group. These brokerage house brands are considered as more (less) credible, leading to a higher (lower) response of investors.

**Brokerage house reputation** – The concept of reputation has been studied in many disciplines, including marketing (Walsh & Beatty, 2007), finance and accounting (Hong, Kubik, & Solomon, 2008; Stickel, 1992). Reputation can be seen as an overall evaluation of a firm or organization, the evaluation serving as a “quality promise” that positively impacts attitude and behaviors toward that entity (Fombrun, 1996; Fombrun & Rindova, 1996; Walsh & Beatty, 2007). We reason that the greater the brokerage reputation, the more investors may consider the brokerage house brand as a credible signal.

**Hypothesis 4:** The stronger the brokerage house reputation, the greater the investor response to research notes bearing the brokerage house brand.

*Industry Recognition* reflects the credibility the stock investment industry accords to brokerage houses. We expect brokerage house brands with more (less) industry recognition, as shown by the total number of industry awards won, to be perceived as more (less) credible, leading to a higher (lower) response of investors.

### 3.2.3 Control variables

We add to the conceptual framework control variables from the literature that have been shown to impact investor response (see table in Appendix).

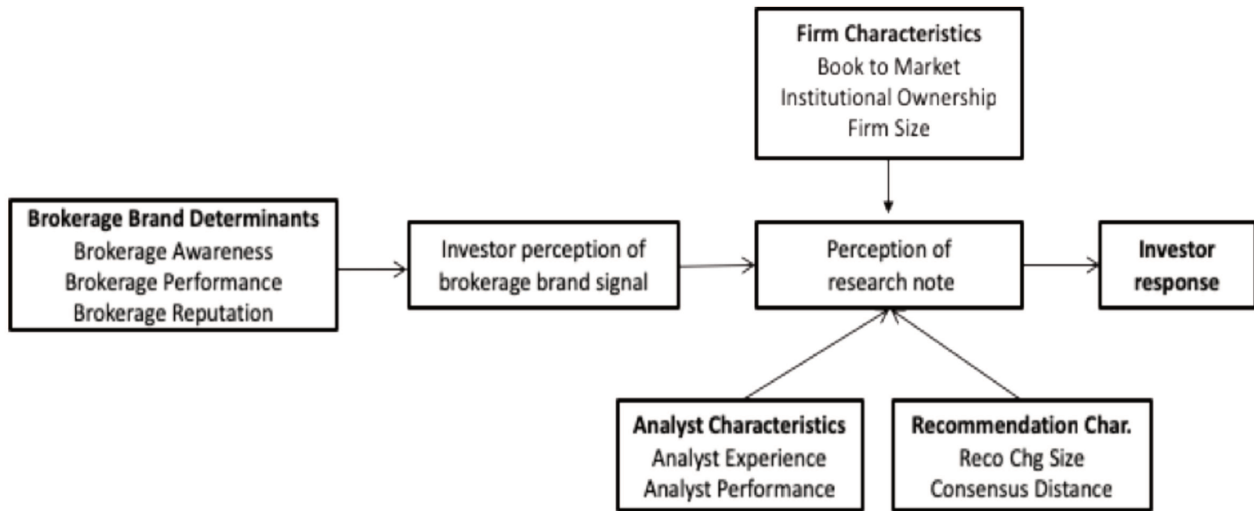
*Analyst characteristics* - Analyst experience, boldness, number of recommendations issued, number of stocks covered and error difference.

*Recommendation characteristics* - size of a recommendation change, distance of a recommendation to the consensus.

*Firm characteristics* - Stock percentage of institutional ownership, book-to-market ratio and firm size.

Figure 1 displays the conceptual framework tested in this research.

**Figure 1: Conceptual framework**



### 3.3 Data and measures

We now look at the data and methodology used to test the hypotheses. We explain how we calculate the recommendation changes, the dependent variable, the brokerage house brand determinants and the control variables concerning analysts, recommendation changes and firms. Table 1 provides a short description of the variables and their sources. We then specify the statistical models.

#### 3.3.1 Recommendation data and description of recommendation change measure

We start with all recommendations issued by US brokerage houses on US-listed firms in all industries between 2000 and 2014 from the I/B/E/S recommendations detail file. For recommendation changes issued on non-trading days or recommendations between 4:30 PM and 11:59 PM, Day 0 is the next trading day. The selection criteria of recommendations for inclusion in the dataset are as follows:

1/ All listed firms with fewer than three analysts covering them are removed from the sample to ensure that the firms in the sample are of interest to investors (Loh & Stulz, 2011).

2/ Stock price data from CRSP and accounting information from Compustat must be available for the firms concerned by the recommendation changes.

3/ The recommendation must be confirmed by the analyst (in the I/B/E/S review date field) within 365 calendar days (Ljungqvist, Malloy, & Marston, 2009). The 365-day criterion ensures that recommendations are not stale and remain relevant to investors.

4/ We remove recommendations for which there is no previous outstanding (i.e. valid) recommendation from the same brokerage house because we need the previous recommendation to determine the size and direction of the recommendation change. This means that all coverage initiations and re-initiations are excluded.

5/ Selection of 66 brokerage houses: Brokerage houses employing less than 20 analysts on average over the entire life of the sample are removed as well as brokerage houses with fewer than 100 recommendations over the whole sample period to avoid results being influenced by small brokerage

houses with no real brand presence. We also exclude brokerage houses with too short a life (less than six years). We further exclude 5 brokerage houses (Morgan Stanley, Goldman Sachs, Merrill Lynch, J.P. Morgan, Lehman Brothers) that are atypical (high media visibility) and statistical outliers: their high media visibility strongly impacts their brand and skews the modelling in this research.

One issue we faced with the data is that the brokerage houses in I/B/E/S are identified only by a code. The translation table, which converts the brokerage house identifier to the brokerage house name, is unavailable to academic researchers. We therefore did the translation manually for the brokerage houses in the sample.

We reverse I/B/E/S's numerical scores so that "1" corresponds to a strong sell to "5" for strong buy to ensure that a recommendation upgrade is a positive number and a recommendation downgrade is a negative number. Recommendation changes are calculated as the current recommendation level minus the previous recommendation level. They range between -4 and +4. Positive values indicate upgrades and negative values downgrades.

### 3.3.2 Measuring investor response using standardized cumulative abnormal returns

We describe in this section how we operationalize the dependent variable of the conceptual framework. We use stock price data to calculate standardized cumulative abnormal returns ( $SCAR_t$ ), which reflect investor response to the event of recommendation changes. We first calculate the abnormal return ( $\varepsilon_{i,j,k,l}$ ) using the extended Fama-French-Carhart four-factor financial model :

#### Equation 1

$$\varepsilon_{i,j,k,l} = (R_{i,t} - R_{rf,t}) - \alpha_{i,j,k,l} - \beta_{i,j,k}(R_{m,t} - R_{rf,t}) - s_{i,j,k}SMB_t - h_{i,j,k}HML_t - u_{i,j,k}UMD_t$$

where  $t$  indicates the time when recommendation number  $l$  is released,  $i$  indicates the firm,  $j$  the analyst,  $k$  the brokerage house and  $l$  the recommendation number;  $R_{i,t}$  is the stock return at time  $t$ ;  $R_{rf,t}$  is the risk-free rate of return at time  $t$ ;  $R_{m,t}$  is the market rate of return at time  $t$ ;  $SMB_t$  is the return on a



portfolio of small stocks minus the return on a portfolio of large stocks at time  $t$ ;  $HML_t$  is the return on a portfolio of high book-to-market stocks minus the return on a portfolio of low book-to-market stocks at time  $t$ ;  $UMD_t$  is the return on two high prior-return portfolios minus the return on two low prior-return portfolios at time  $t$ ;  $\alpha_{i,j,k,l}$  is the intercept; and  $\beta_{i,j,k}$ ,  $s_{i,j,k}$ ,  $h_{i,j,k}$  and  $u_{i,j,k}$  are coefficient estimates of the factors used in the model.

The data for  $R_{rf,t}$ ,  $R_{m,t}$ ,  $SMB_t$ ,  $HML_t$  and  $UMD_t$  are from French's web site (<http://mba.tuck.dartmouth.edu/pages/faculty/ken.french>) and the stock data comes from the daily CRSP (Centre for Research in Security Prices) file.

Equation 1 is estimated over a period of 252 days ending 31 days before the beginning of the event window. Then, for each recommendation change  $k$  issued by the brokerage house  $j$ , the abnormal cumulative return,  $CAR_{i,j,k,l}$ , is obtained by summing the abnormal return,  $(\varepsilon_{i,j,k,l})$ , of each firm  $i$  over the event window. Like previous research, we choose a 2-day window made up of the date the recommendation change is announced and the day before as this window is short enough to ensure the event window does not capture other events and long enough to capture investor response (Agrawal & Kamakura, 1995).

Because the differences in firm variance in the daily closing prices (Homburg et al., 2014; Raassens, Wuyts, & Geyskens, 2012) may affect results, we divide  $\varepsilon_{i,j,k,l}$  by the standard deviation of abnormal returns over the estimation window, yielding the standardized cumulated abnormal returns ( $SCAR_{i,j,k,l}$ ) that we winsorize at the 5% level (Clement & Tse, 2003).  $SCAR_{i,j,k,l}$  is the dependent variable in the model used to indicate investor response.

### 3.3.3 Measuring brokerage house brand score and characteristics

We describe in this section the operationalization of the explanatory variables and the measure of the brokerage house brand score.

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### 3.3.3.1 Measuring brokerage house characteristics

Brokerage House Awareness ( $BH\_Awareness_{k,y}$ ) – There is no measure of a brokerage house's awareness over time so we use as a proxy, for a given year  $y$ , the number of years the brokerage house  $k$  has been present in the sample of recommendations from I/B/E/S.

We consider two characteristics that might contribute to the perception of a brokerage house's performance: the perceived brokerage error and the information access.

Perceived Brokerage House Error ( $BH\_Error_{k,y}$ ) – We take the one-year lagged average absolute forecast error. Using forecast and actual earnings data from the I/B/E/S actual earnings file and detailed forecasts file, we calculate the average difference (in absolute value) between the last yearend EPS forecast issued at least 30 days before the fiscal year-end and the actual EPS value and divide this difference by the actual value, for all firms covered by the brokerage house  $k$ . Brokerage house errors are winsorized at the 5% level. We observe a correlation between brokerage house error and brokerage house size. To ensure we capture the forecast error, we regress brokerage house error on brokerage size and introduce the residuals in the regressions.

Information Access - Investment bank ( $IB_{k,y}$ ) – The information access dummy is set to 1 if the investment bank associated with the brokerage house figures in the Carter-Manaster investment bank rankings (source: [site.warrington.ufl.edu/ritter/ipo-data](http://site.warrington.ufl.edu/ritter/ipo-data)), and 0 otherwise.

Industry Recognition ( $Industry\_Recognition_{k,y}$ ) – The number of awards conferred by the industry reflects the industry recognition of a brokerage house. For a given year  $y$ , we sum the number of awards attributed by the Institutional Investor survey to the brokerage house  $k$ . Awards are weighted by level with four points for the 1st place, three points for the second place, two points for the third place and 1 point for the fourth place. Institutional Investor magazine's web site provides the final yearly score at the brokerage house level starting in 2001. To ensure we capture industry recognition, we first regress industry recognition on brokerage size and use the residuals in the final model.

### 3.3.3.2 Measuring the brokerage house brand score

We calculate a unique brand score for each of the 66 brokerage houses per year using the 755-year observations of brokerage house characteristics. First, we carry out a principal component analysis on the brokerage house characteristics (see 3.3.1, retaining only the quantitative variables) that define the three determinants of the broker house brand. We keep the three principal components and then weight them by their respective eigenvalue to calculate an average brand score called  $Brand\_Score_{k,y}$  for each brokerage house per year. A positive value indicates that the brokerage house brand has a stronger brand than the average (it equals 0) whereas a negative value indicates a weaker brand.

### 3.3.4 Control variables

We rely on prior research to operationalize control variables.

#### 3.3.4.1 Analyst characteristics

For the analyst characteristics, forecasts, actual earnings and recommendation data were taken from I/B/E/S. In line with previous research, all analyst variables except experience are lagged to alleviate endogeneity concerns.

*Analyst experience ( $Analyst\_Experience_{j,y}$ )* – For a given year  $y$ , this variable indicates the total number of years the analyst  $j$  has issued recommendations in the sample at the time the recommendation change is issued.

*Analyst boldness ( $Analyst\_Boldness_{j,y}$ )* – For a given year  $y$ , we calculate the average absolute distance of earnings forecasts of analyst  $j$  to the consensus. We winsorize the average at the 5% level.

*Stock coverage ( $Stock\_Coverage_{j,y}$ )* – We count the number of stocks covered by the analyst  $j$  in a given year  $y$  in the recommendation sample.

*Recommendation frequency ( $Reco\_Frequency_{j,y}$ )* – This variable represents the number of recommendation changes the analyst  $j$  issues in a given year  $y$ .

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Error Difference ( $Error\_Difference_{j,k,y}$ ) – We calculate the average of the analyst’s absolute forecast errors in a given year  $y$ . The absolute forecast error is defined as the percentage difference between the analyst’s EPS forecast and the actual EPS in absolute value. We winsorize the error at 5%. Finally, we subtract the average brokerage house error ( $BH\_Error_{k,y}$ ).

### 3.3.4.2 Recommendation characteristics

Recommendation change size ( $Reco\_Chg\_Size_l$ ) – We describe in section 3.1 how we calculate the size of recommendation change  $l$  and take the absolute value. Possible recommendation change values range from 1 to 4.

Consensus distance ( $Consensus\_Distance_l$ ) - For each recommendation change  $l$ , the consensus distance is calculated by subtracting the recommendation level from the consensus recommendation level.

### 3.3.4.3 Firm characteristics

Book-to-market ratio ( $Book\_to\_Market_{i,y}$ ) – The book-to-market ratio is calculated as the book value of common equity (total assets from Compustat) divided by market capitalization (source: CRSP).

Institutional ownership ( $Inst\_Owner_{i,y}$ ) – This figure represents the percentage of institutional investors who hold stock in the firm (source: Thomson-Reuters).

Firm size ( $Firm\_size_{i,y}$ ) – We take the log of the firm’s market capitalization. Market capitalization is calculated as the shares outstanding at yearend times the share price at yearend and represents the value of the firm’s stock on the stock market (source: CRSP).

## 3.3.5 Model specification

In this section, we discuss how we specify the model to test investor response to brokerage house brands and their determinants.

To test hypotheses 1-4 about investor response, we proceed in the following way. First, like (Loh & Stulz, 2018), we separate the upgrades from the downgrades and we keep only positive (negative)

values of SCARs if the recommendations are upgrades (downgrades). Then, to facilitate the interpretation of the coefficient signs, we take the absolute values of  $SCAR_{i,k,l}$ , yielding  $ASCAR_{i,k,l}$ , our dependent variable in this research. Finally, a recommendation on a firm issued within three days of another recommendation on the same firm is excluded from the sample to avoid news flow about the firm affecting results.

We estimate separately for upgrades and downgrades Equation 2 that relates  $ASCAR_{i,k,l}$ , the absolute standardized cumulative abnormal return of recommendation  $l$  of brokerage house  $k$ , with the brokerage house, firm, analyst and recommendation characteristics. Equation 2 is formatted as follows:

### Equation 2

$$ASCAR_{i,k,l} = \beta_0 + \beta_1 BH_{k,y} + \beta_2 Firm\_Char_{i,y} + \beta_3 Analyst\_Char_{j,y} + \beta_4 Reco\_Char_{i,k,l} + \beta_5 Year_y + \beta_6 Industry_i + \epsilon_{i,k,l}$$

where  $i$  indicates the firm,  $j$  the analyst,  $k$  the brokerage house,  $l$  the recommendation, and  $y$  the year.  $ASCAR_{i,k,l}$  is the absolute standardized cumulative abnormal return of recommendation  $l$  of brokerage house  $k$ ;  $BH_{k,y}$  is the matrix of brokerage house variables;  $Firm\_Char_{i,y}$  is the matrix of firm variables;  $Analyst\_Char_{j,y}$  is the matrix of analyst variables;  $Reco\_Char_{i,k,l}$  is a matrix of recommendation variables;  $Year_y$  is the year fixed effects;  $Industry_i$  is the fixed effect of the industry (SIC 1 level) that firm  $i$  belongs to;  $\beta_0$  is a vector of the constant terms;  $\beta_1$  to  $\beta_6$  are the vectors of the estimated coefficients and  $\epsilon_{i,k,l}$  is a vector of error terms. All brokerage house, firm, analyst and recommendation characteristics are described above.

To test Hypothesis 1 about brokerage house brands affecting investors,  $BH_{k,y}$  in Equation 2 takes the form of  $Brand\_Score_{k,y}$  as described in 3.3.2.

To test hypothesis 2, 3 and 4, we introduce simultaneously the brokerage house characteristics  $BH\_Awareness_{k,y}$ ,  $BH\_Error_{k,y}$ ,  $IB_{k,y}$  and  $Industry\_Recognition_{k,y}$ .  $BH\_Error_{k,y}$  and

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Industry\_Recognition<sub>k,y</sub> have been treated to remove the effect of the brokerage house size as described in 3.3.2 and show no significant correlations (see Table 4).

## 3.4 Results

### 3.4.1 Description of recommendation change magnitude

Table 2 displays the transition probabilities (Panel A) and the distribution of the magnitude of the recommendation changes (Panel B). The results are consistent with (Loh & Stulz, 2011). First, most recommendation changes involve the Hold, Buy and Strong Buy recommendation levels. Second, 54% of recommendation changes concern 1-notch upgrades or downgrades, a further 45% of recommendation changes concern 2-notch upgrades or downgrades and few recommendation changes exceed 2 notches.

### 3.4.2 Summary statistics

Table 3 reports the summary statistics for the main sample. The statistics are consistent with previous research. In our sample, the average CAR, 4.5% for upgrades and -4.25% for downgrades, is in line with the values reported by (Raassens et al., 2012) (3.2% for positive events and -2.8% for negative events). Similar to (Loh & Stulz, 2011), we find that the distributions of the SCAR of recommendation changes (histograms available upon request) show a significant number of values with unexpected signs, i.e., negative SCARs for upgrades and positive SCARs for downgrades. These distributions justify using separate models and considering only the positive (negative) values for SCARs for upgrades (downgrades), like (Loh & Stulz, 2011).

Brokerage houses have an average awareness of 12.2 years. The average absolute brokerage error is 3.79% (SD = 2.91). Regarding the reputation characteristics, brokerage houses win on average 3.17 award points (SD = 10.4). The yearly error difference between analyst and brokerage house error is -0.01 (SD = 0.09).

The data for analysts, firms and recommendation changes are in line with (Baum, Bowers, & Mohanram, 2016; Clement, 1999; Clement & Tse, 2003; Jegadeesh & Kim, 2010; Loh & Stulz, 2011). Analysts show an average of 7.1 years of experience in our sample. The average analyst boldness is

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0.19, they cover 3.8 stocks per year and issue on average 16.7 recommendations per year. Firms in the sample have an average market cap of \$6.5bn, 73% of owners are institutional investors and they show a mean book-to-market of 0.5.

Table 4 shows the correlations between variables. There are no significant strong correlations between the explanatory variables as they have been treated to remove the effect of brokerage house size (see 3.3.2),

### 3.4.3 Brokerage house brand outcomes

This section looks at the estimated coefficients from the regressions on the sample for investor response (see Table 5 and Table 6).

#### 3.4.3.1 Do brokerage house brands affect investor response to recommendation changes?

As explained in the sub-section 3.3.3.2, we obtain a yearly brand score for each of the 66 brokerage houses in the sample. The histogram of the brand scores is shown in Appendix 2. The average brand score is -0.15 with a standard deviation of 0.45. A positive value indicates that the brokerage house brand has a stronger brand than the average whereas a negative value indicates a weaker brand. We can identify several patterns over the period: some brokerage houses (e.g. Oppenheimer, Jefferies, Lazard Frères) underperform over the whole period, their brand score remains negative. In contrast, some brokerage houses, such as Deutsche Bank Securities, CIBC World Markets or Credit Suisse Securities, outperform and show an ongoing positive brand score. Others (e.g. Roth Capital Partners) have a neutral brand as they score around zero. Finally, some brokerage houses (Dresdner Kleinwort, Calyon Securities) improved gradually their brand score, moving from negative to positive values.

#### 3.4.3.2 Impact of the brokerage house brand score on investors

To examine whether the brand score influences investor response (see Table 5). To do so, we estimate Equation 2 for upgrades and downgrades with  $Brand\_Score_{k,y}$  taking the place of  $BH_{k,y}$  in the equation.



The impact of the brokerage house brand is non-significant for downgrades but significant and positive when an upgrade is recommended ( $p < 0.01$ ).

#### 3.4.4 Do brokerage house brand determinants affect investor response to recommendation changes?

We now present the hypothesis results concerning the impact of brokerage house awareness (*H2*), performance (*H3*) and reputation (*H4*) on the response of investors (see Table 6). These results come from Equation 2, where  $BH_{k,y}$  is replaced by the brokerage house brand characteristics:  $BH\_Awareness_{k,y}$ ,  $BH\_Error_{k,y}$ ,  $IB_{k,y}$  and  $Industry\_Recognition_{k,y}$ . Table 7 summarizes the major findings of our four hypotheses.

**Brokerage house awareness** - The results indicate that brokerage house awareness significantly and positively influences investors for upgrades ( $p < 0.05$ ) and downgrades ( $p < 0.01$ ). The results support Hypothesis 2.

**Brokerage house performance** - Overall, the results indicate that brokerage house performance influences investor response to brokerage house brands, supporting Hypothesis 3.

*Perceived Brokerage House Error* - We find that investors respond negatively to brokerage house error for downgrades ( $p < 0.01$ ). The impact of this variable however is non-significant for upgrades.

*Information Access: Investment Bank* - We find that investors are positively and significantly affected by the additional information access for both upgrades ( $p < 0.01$ ) and downgrades ( $p < 0.01$ ).

**Brokerage house reputation** – Hypothesis 4 about brokerage house reputation impacting investor response is partially supported. The results indicate that industry recognition is positively significant for upgrades ( $p < 0.001$ ). However, the brokerage house reputation has no significant impact in the case of downgrades.

### 3.4.5 Control variables

Analyst experience, recommendation change size, institutional ownership and firm size are significant and show the expected signs from investor research (see Appendix 1). Analyst boldness and recommendation frequency are unexpectedly negative and stock coverage and consensus distance show mixed signs. Error difference, for which we had no expectations, is negative and significant for downgrades. Book-to-market is positive and significant for upgrades.

### 3.4.6 Validation Analysis

In the investor model, we test for multicollinearity and heteroskedasticity. The VIF factors in Equation 2 are below 3 for both the brand score and the brokerage house determinants. The results are similar when regressing with robust standard errors.

## 3.5 Discussion

This article examines the impact of brokerage house brand signals on a key player of equity markets, investors. Based on a sample of 47,345 recommendation upgrades and downgrades from 66 brokerage houses concerning 2,759 firms over 15 years, we find that brokerage houses brand signals are a significant determinant of investor buying or selling behavior in response to recommendation changes in addition to the effect of security analysts.

We define three determinants of a brokerage house brand - awareness, performance and reputation - and find overall that these three brokerage house brand determinants influence investor response to recommendation changes.

We structure the discussion below around the key results that arise from the research. We discuss first whether brokerage house brands impact investors, the impact of determinants of brokerage house brands and finally the general contributions.

### 3.5.1 Do brokerage house brands influence equity markets?

Under the efficient market hypothesis, the price of a stock reflects all available information and provides an unbiased estimate of a firm's value (Fama, 1970). Under this framework, brokerage house brand signals should not influence investor response to recommendation changes. By showing that some brokerage house brands on recommendation changes generate more investor response than others we however highlight a new variable that matters to investors, suggesting a stock market inefficiency.

To better understand the perception of their brands, we propose a methodology based on market data that managers can use to calculate their brokerage house brand premium and to assess where their brand stands relative to competitors. Using lagged market variables allows brokerage houses to identify the perception of their brands and measure the effectiveness of their brand. For example, according to our methodology, Deutsche Bank Securities brand is scored 0.63 on average, while FBR Capital Markets takes the value of -0.5. Applying the estimates obtained from Equation 2 (see estimates in

Table 6), this means that the Deutsche Bank Securities brand name on a recommendation upgrade increases ASCAR by about 6.21% relative to the average (e.g.  $6.21 = 0.63 \times \frac{9.55}{96.86} * 100$ ). In contrast, the same recommendation upgrade bearing the FBR Capital Markets brokerage house brand name would lead to a 4.93% (e.g.  $-4.93 = -0.5 \times \frac{9.55}{96.86} * 100$ ) lower response in ASCAR other things constant.

Brokerage houses with lower brand premiums should be aware that the lower effectiveness of their brands may affect indirectly their revenues (as discussed in the introduction, institutional investors may allocate them lower trading commissions due to the lower quality perception of the brokerage house brand). Accordingly, managers should adopt more focused marketing policies to strengthen their brands by taking marketing actions such as practising a strong corporate communication policy using supports such as social media, websites and specialized press, etc., mobilizing more sales people when the brokerage house issues recommendation changes, setting up more meetings between firm management and investors, more investor relations events, etc.

These findings lead us to recommend that future research into the impact of investment research on equity markets include systematically, at least as an indicator variable to take into account brokerage houses brands instead of using brokerage house size to proxy for brokerage house effects.

### 3.5.2 Which brokerage house brand determinants influence equity markets?

Our conceptual framework considers three brand determinants - awareness, performance and reputation - that partially explain the perception and credibility of the brokerage house brand signal.

The results (see Table 6) show that the three determinants impact significantly investor response to both upgrades and downgrades, suggesting nomological validity for the brand determinants of the model.

Overall, these results support the argument that the three brand determinants contribute to the effectiveness of brokerage house brand signal. The greater the past performance of the brokerage house, the more investors perceive the brand signal as credible and respond to the recommendation change. In a similar way, the greater the brokerage house awareness and the stronger the reputation, the greater the impact of the recommendation change on investor decisions.

These findings suggest that brokerage houses must have sufficiently large marketing budgets to build and maintain these three brand determinants, by creating and maintaining brand awareness over the long term, communicating about a brokerage house's performance and awards to create a better perception of a brokerage house's reputation. Public relations, road shows, investor conferences and specialized communications to investors and journalists can all contribute to making the brand signal more effective.

### 3.5.3 Contributions

In this article, we address how a key marketing factor, branding, impacts investors. In this paragraph, we discuss the contributions of the research to marketing and finance and accounting, practical implications and finally suggestions for future research.

#### 3.5.3.1 Contributions to marketing

This paper contributes to the marketing literature in three ways. First, we apply the brand signal framework (Erdem & Swait, 1998; 2016) to an understudied sector in marketing, i.e., capital markets (Lehmann, 2005). The results highlight the robustness of this model.

Second, in contrast to previous studies that use declarative data in the brand signal framework, this research is the first to use actual data (stock market data), yielding the real benefit of brand equity - defined as the value of the brand signal (Erdem & Swait, 1998) - on the brand's performance in the marketplace. By quantifying the incremental benefit due to the brokerage house name according to the

stakeholder (investors), we provide a new measure of brand equity, namely the abnormal return premium.

Third, this research is anchored in the marketing-finance interface stream of research. In the introduction to a special edition on this subject, (Hanssens, Rust, & Srivastava, 2009) call for research into information intermediaries such as security analysts. We focus on a previously unstudied information intermediary, the brokerage houses that employ security analysts. Furthermore, we show that brokerage house brands act as signals that convey information and influence the response of equity investors. We also respond to a call for research into understanding the potential biases introduced by persuasive communication aimed at investors (S. Srinivasan & Hanssens, 2009).

#### 3.5.3.2 Contributions to finance and accounting

This article explores the impact of a key information intermediary, brokerage houses, and leads to contributions to research into investors, which we discuss successively.

This research contributes to investor research and signals. We introduce a new type of signal, brokerage house brand signals, using the brand signal framework (Erdem & Swait, 1998; 2016) derived from information economics. Previous research has shown that investors take into account marketing assets of firms such as brands (Madden et al., 2006) and customer satisfaction (Fornell et al., 2016) in their decision making process (see (S. Srinivasan & Hanssens, 2009) for a review). We contribute to a better understanding of how another marketing asset, brokerage house brands, impacts investors.

Accounting and finance research have focused mainly on security analysts as the main unit of analysis. However, behind every security analyst lies the brokerage house that employs them. We identify a new determinant of investor response to investment research by showing that brokerage house brand signals add to the impact of analyst name signals. In other words, an analyst employed by brokerage house A would not have the same impact on equity markets if the same analyst were employed by brokerage house B. A brokerage house brand signal is a new variable to consider when studying security analysts.

Consequently, brokerage houses should be present systematically as a separate factor in research into security analysts.

We identify, based on the marketing and finance literature, three determinants of brokerage house brands - awareness, performance and reputation - to understand what contributes to an effective brokerage house brand signal more effective. Our results indicate that a brokerage house brand's awareness, performance and reputation influence investor perception of a brokerage house's brand signal.

Finally, our research adds to previous research that differentiates between upgrades and downgrades. Investors seem to rely more on the brokerage house brand and determinants for upgrades relative to downgrades, perhaps due to greater information needs by investors for downgrades relative to upgrades (Asquith et al., 2005).

#### 3.5.4 Implications for brokerage houses, analysts, investors and CEOs/CFOs

Brokerage houses should be aware that their brands are important marketing assets (Srivastava et al., 1998) that help generate revenues. We recommend that brokerage houses reinforce their marketing policies to increase awareness and build a strong reputation. Marketing tools can help convey the perception of a brokerage house's performance to investors. Good performance is crucial in this sector but is not enough if investors do not perceive it. To benchmark their brand effectiveness relative to competitors, brokerage houses can use the methodology developed in this article.

Also, our results may have strong implications for measures of analyst performance and compensation. So far, analyst performance has aggregated together the contribution of both brokerage house brands and analysts. This means that the performance and compensation of analysts in brokerage houses with strong brands benefited unknowingly from this advantage. In contrast, analysts employed by brokerage houses with less effective brands were penalized in the measure of their equity market response. Our results suggest that when calculating the real contribution of analysts and their compensation, an

approach, such as our methodology, that distinguishes between the real contribution of the analyst and the impact of the brokerage house brand, is recommended.

We identify a new bias that may influence investor perception of the information flows that underlie capital markets. Investors should be aware that information intermediary brands and brand determinants may influence positively or negatively their perception of the information provided, leading potentially to suboptimal investment decisions.

CEOs and CFOs communicate to investors via security analysts. This research suggests that, when selecting security analysts used to convey messages to equity markets, they should prefer security analysts employed by brokerage houses with more effective brands.

### 3.5.5 Limits and future research

We calculate the brokerage house brand score between 2000 and 2014. Future research could study whether and how brokerage house brand scores evolve over time and the influence of events such as recessions (Loh & Stulz, 2018), Regulation Fair Disclosure (Baum et al., 2016) and big bangs (separation of research and trading fees).

While we focus on assessing the impact of brokerage house brands on investors and define some brokerage house determinants that might explain this impact, future research might consider other brand characteristics from the marketing literature such as loyalty and brand associations (Aaker, 1996).

We operationalize brand determinants using equity market data. We recommend that other measures (e.g., declarative) of brokerage house brands and their determinants might be developed to build on our results. Nevertheless, declarative measures will be complex to operationalize over a long time span.

The article highlights the importance of one particular information intermediary, i.e., the brokerage house. Further research could replicate the approach used in this article to investigate the role of other



information intermediary brands in other financial markets such as credit rating agencies in bond markets.

Finally, we successfully apply the brand signal framework to capital markets. We hope that this research will inspire the application of other marketing research frameworks to financial markets and stimulate the marketing-finance interface research.

**Table 1 – Variables, Descriptions and Data Sources**

Variable	Description	Data Source
Dependent variable		
SCAR <sub>i,k,l</sub> /ASCAR <sub>i,k,l</sub>	Difference between the normal returns and the actual returns through a given event window calculated using the Carhart model and standardized using the standard deviation of the residuals from the estimation window. The model uses the absolute values of SCAR (multiplied by 100).	IBES, CRSP & Kenneth French web site
Brokerage house characteristics		
Brand_Score <sub>k,y</sub>	Brand score of brokerage house k in year y	
BH_Awareness <sub>k,y</sub>	Number of years brokerage house has issued recommendations at time of recommendation change	I/B/E/S
BH_Error <sub>k,y</sub>	Lagged absolute average percentage distance between analyst EPS forecast and actual earnings figure for all firms covered in a given year (residual of regression on brokerage house size)	I/B/E/S
IB <sub>k,y</sub>	Equals 1 if brokerage house belongs to an investment bank group, 0 otherwise	Jay Ritter's website
Industry_Recognition <sub>k,y</sub>	Lagged total points of Institutional Investor awards won by brokerage house in a given year (residual of regression on brokerage house size)	Institutional Investor
Analyst characteristics		
Error_Difference <sub>j,k,y</sub>	Lagged average yearly error of analyst minus average yearly error of brokerage house	
Analyst_Experience <sub>j,y</sub>	Lagged number of years analyst has issued recommendations at the time of the recommendation change as a quintile	I/B/E/S
Analyst_Boldness <sub>j,y</sub>	Lagged average absolute distance of the sum of analyst forecasts to the consensus in year y	I/B/E/S
Stock_Coverage <sub>j,y</sub>	Lagged number of stocks covered by the analyst I based on our sample of recommendation changes in a given year	I/B/E/S
Reco_Frequency <sub>j,y</sub>	Lagged number of recommendation changes issued by analyst in a given year	I/B/E/S
Recommendation characteristics		
Reco_Chg_Size <sub>1</sub>	Number of notches of rating change for recommendation	I/B/E/S
Consensus_Distance <sub>1</sub>	Absolute distance of recommendation value to consensus	I/B/E/S
Firm characteristics		
Book_to_Market <sub>i,y</sub>	Lagged firm's market value divided by total book value of assets for year y	Compustat
Inst_Ownership <sub>i,y</sub>	Lagged % of shares held by institutional investors in year y	Thomson Reuters
Firm_Size <sub>i,y</sub>	Lagged market capitalization of firm in year y	I/B/E/S
Controls		
Year <sub>y</sub>	Year dummy for 2000-2014 (reference category: 2000)	Compustat
Industry <sub>i</sub>	Industry dummy using the one-digit SIC code	Compustat

**Table 2****Panel A - Transition probabilities of recommendation changes**

Current Recommendation						
Prior Recommendation	1 Sell	2 Underperform	3 Hold	4 Buy	5 Strong Buy	Total
1 (Sell)	0	69	1,941	6	104	2,120
%	0	3.25	91.56	0.28	4.91	100
2 (Underperform)	62	0	2,486	242	12	2,802
%	2.21	0	88.72	8.64	0.43	100
3 (Hold)	1,418	2,084	0	8,485	9,443	21,430
%	6.62	9.72	0	39.59	44.06	100
4 (Buy)	18	230	8,873	0	1,817	10,938
%	0.16	2.1	81.12	0	16.61	100
5 (Strong Buy)	63	16	8,450	1,526	0	10,055
%	0.63	0.16	84.04	15.18	0	100
Total	1,561	2,399	21,750	10,259	11,376	47,345
%	3.3	5.07	45.94	21.67	24.03	100

**Panel B - Distribution of recommendations by magnitude change**

Rec Change	Frequency	Percentage
-4	63	0.13
-3	34	0.07
-2	10,098	21.33
-1	12,545	26.5
1	12,857	27.16
2	11,626	24.56
3	18	0.04
4	104	0.22
Total	47,345	100

**Table 3 - Descriptive Statistics of sample**

Variable	Mean	Std. Dev.
Sample characteristics		
Number of brokerage houses	66	
Number of upgrades	24,611	
Number of downgrades	22,734	
Dependent variables		
CAR <sub>i,k,l</sub> (upgrades-%)	4.47	4.02
CAR <sub>i,k,l</sub> (downgrades-%)	-4.25	3.86
ASCAR <sub>i,k,l</sub> (upgrades-%)	204.7	193.5
ASCAR <sub>i,k,l</sub> (downgrades-%)	202.5	214.1
Brokerage house characteristics <sup>(a)</sup>		
Brand_Score <sub>k,y</sub>	-0.15	0.45
BH_Awareness <sub>k</sub> (years)	12.2	4.0
BH_Error <sub>k,y</sub> (%)	3.79	2.91
IB <sub>k</sub>	0.91	0.27
Industry_Recognition <sub>k,y</sub>	3.17	10.4
Analyst characteristics <sup>(b)</sup>		
Error_Difference <sub>j,k,y</sub>	0.01	0.09
Analyst_Experience <sub>j,y</sub>	7.14	4.16
Analyst_Boldness <sub>j,y</sub>	0.19	0.48
Stock_Coverage <sub>j,y</sub>	3.78	2.81
Reco_Frequency <sub>j,y</sub>	16.7	7.09
Recommendation characteristics <sup>(b)</sup>		
Reco_Chg_Size <sub>l</sub>	1.46	0.52
Consensus_Distance <sub>l</sub>	0.04	0.10
Firm characteristics <sup>(b)</sup>		
Book_to_Market <sub>i,y</sub>	0.56	0.43
Inst_Ownership <sub>i,y</sub> (%)	0.73	0.22
Firm_Size <sub>i,y</sub> ('000)	6,500,000	21,900,000

(a) Statistics for the sample of 755 brokerage-year observations for 66 brokerage houses

(b) Calculated based on the sample of 47,345 recommendation changes

**Table 4 – Correlation table**

	1	2	3	4	5	6	7	8	9	10	11	12	13
1 ASCAR	1												
2 Analyst Experience	.01*	1											
3 Analyst Boldness	-.02*	.03*	1										
4 Stock Coverage	-.02*	.16*	.03*	1									
5 Reco Frequency	-.01*	.23*	.11*	.40*	1								
6 Error Difference	-.01*	-.01*	-.11*	.01	.00	1							
7 Reco Chg Size	.03*	.00	.00	-.05*	-.01*	.02*	1						
8 Consensus Distance	.01*	.01	.01*	-.04*	-.02*	-.01	.03*	1					
9 Book-to-Market	.00	.06*	.02*	.03*	.06*	.01	.01	.00	1				
10 Institutional Own.	.06*	.11*	.00	.00	-.02*	.01*	.02*	.01*	-.06*	1			
11 Firm Size	-.07*	.03*	.01	.00	.02*	-.01*	.01	.02*	-.04*	-.06*	1		
12 Industry Recognition	.00*	-.01*	.02*	-.06*	-.01*	.00	-.12*	-.01*	.01*	-.01	.02*	1	
13 Brokerage Error	.02*	.02*	-.02*	-.05*	.01	-.07*	.08*	.05*	-.01	.04*	.02*	.04*	1
14 Brokerage Awareness	.04*	.29*	.03*	-.08*	.08*	-.03*	-.01*	.02*	.10*	.18*	.00	-.19*	.11*

Industry Recognition and Brokerage Error have been treated to remove the effect of brokerage house size (see 3.3.2)

**Table 5 -Investor response to brokerage house brand scores on ASCAR**

	(1)	(2)
DV = ASCAR * 100	Upgrade	Downgrade
Analyst Experience	1.54*** (0.31)	-0.62* (0.37)
Analyst Boldness	-10.95*** (2.70)	-8.85*** (2.94)
Stock Coverage	-2.02*** (0.49)	1.71*** (0.56)
Reco Frequency	-0.38** (0.18)	0.17 (0.24)
Error Difference	16.11 (13.67)	-61.90*** (16.36)
Reco Chg Size	8.04*** (2.35)	14.97*** (2.75)
Consensus Distance	30.72*** (11.20)	-18.47 (15.79)
Book-to-market	31.03*** (2.95)	-0.53 (3.53)
Institutional ownership	16.94*** (4.76)	55.21*** (6.53)
Firm Size	-0.00*** (0.00)	-0.00*** (0.00)
Brand_Score	9.55*** (3.08)	0.81 (3.42)
Constant	96.86*** (10.22)	139.40*** (11.61)
Observations	24,611	22,734
Industry Effect	Yes	Yes
Year Effect	Yes	Yes
Adj. R-squared	0.05	0.04
F-stat	45.22	28.69

Standard errors in parentheses - \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 6 – Investor response to brokerage house determinants**

	(1)	(2)
DV = ASCAR * 100	Upgrade	Downgrade
Analyst Experience	1.46*** (0.31)	-0.93** (0.37)
Analyst Boldness	-12.40*** (2.71)	-9.69*** (2.93)
Stock Coverage	-1.82*** (0.49)	2.03*** (0.56)
Reco Frequency	-0.29 (0.18)	0.17 (0.24)
Error Difference	12.87 (13.69)	-59.80*** (16.38)
Reco Chg Size	9.51*** (2.36)	17.65*** (2.77)
Consensus Distance	35.19*** (11.23)	-11.93 (15.79)
Book-to-market	30.60*** (2.95)	-1.55 (3.52)
Institutional Owner	18.57*** (4.77)	55.20*** (6.54)
Firm Size	-0.00*** (0.00)	-0.00*** (0.00)
Brokerage Awareness	0.99** (0.48)	3.37*** (0.53)
Brokerage Error	-65.06 (52.80)	-164.68*** (57.67)
Investment Bank	17.43*** (4.63)	25.85*** (5.77)
Industry Recognition	0.86*** (0.16)	-0.08 (0.18)
Constant	73.06*** (11.24)	87.12*** (13.13)
Observations	24,611	22,734
Industry Effect	Yes	Yes
Year Effect	Yes	Yes
Adj. R-squared	0.05	0.04
F-stat	42.36	28.87

\*  $p < 0.1$ ; \*\*  $p < 0.05$ ; \*\*\*  $p < 0.01$  – standard errors in parentheses

**Table 7 – Hypothesis test results**

Hypotheses results concerning investor response

Hypothesis	Expected	Upgrade	Downgrade	Hypothesis supported?
<b>H1 Brokerage House Brand Score</b>				
<b>Brand Score</b>	+	+	ns	Supported for upgrades
<b>H2-Brokerage House Awareness</b>				
<b>Brokerage Awareness</b>	+	+	+	Supported
<b>H3-Brokerage House Performance</b>				
<b>Brokerage house error</b>	-	ns	-	Supported for downgrades
<b>Information Access: Investment Bank</b>	+	+	+	Supported
<b>H4-Brokerage House Reputation</b>				
<b>Industry Recognition</b>	+	+	ns	Supported for upgrades



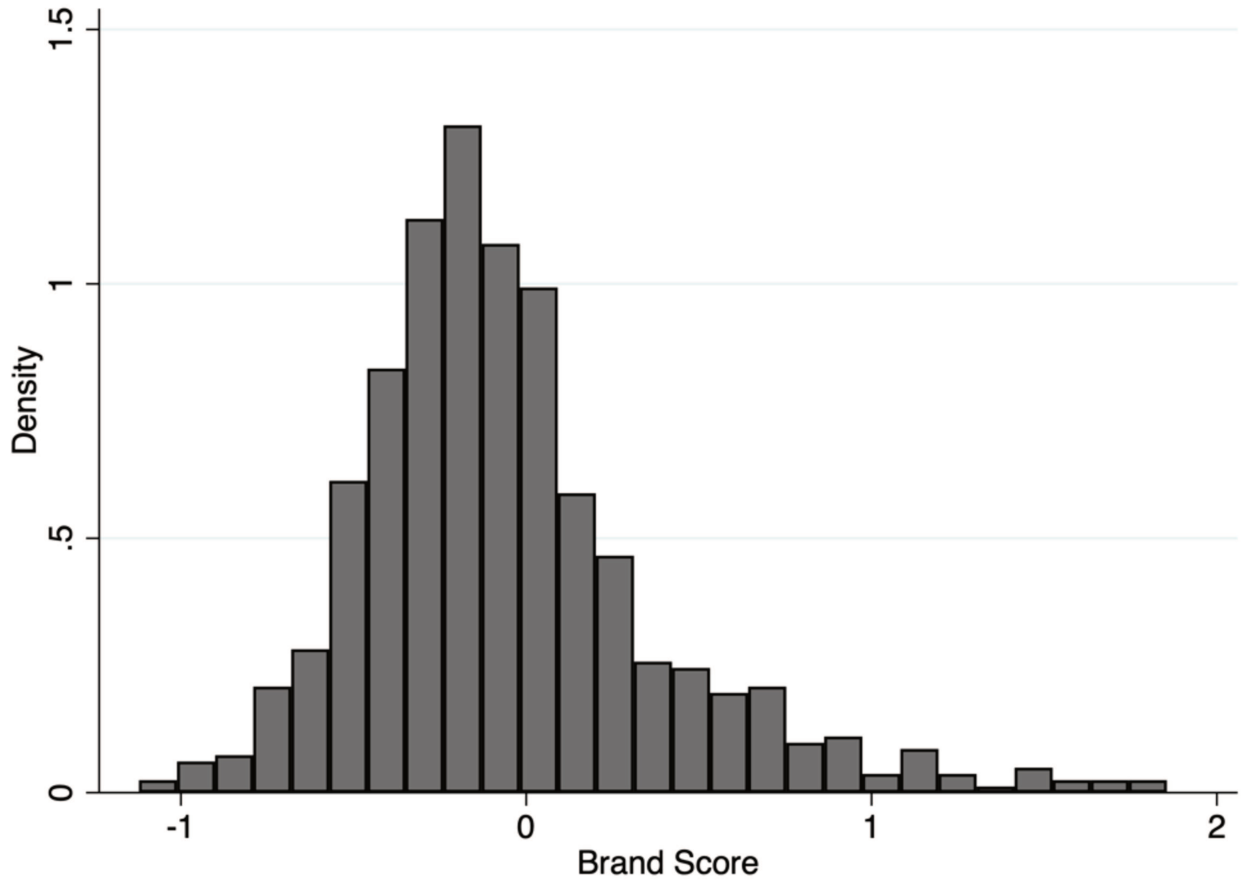
Appendix 1 – Control variables

**Results of control variables from Table 5**

Control Variables	Expected Investor Response	Investor Response		Indicative Reference
		Upgrade	Downgrade	
Analyst Experience	+	+	ns	(Mikhail, Walther, & Willis, 1997)
Analyst Boldness	+	-	-	(Clement & Tse, 2005)
Stock Coverage	-	-	+	(Clement, 1999)
Reco Freq	+	-	ns	(Ertimur, Sunder, & Sunder, 2007)
Error_Difference	?	ns	-	
Reco Chg Size	+	+	+	(Jegadeesh & Kim, 2010)
Consensus Distance	-	+	ns	(Jegadeesh & Kim, 2010)
Book-to-market	-	+	ns	(Loh & Stulz, 2011)
Inst. Ownership	+	+	+	(Loh & Stulz, 2011)
Firm Size	-	-	-	(Baum et al., 2016)

+ indicates positive and significant coefficient ( $p < 0.05$ ), - indicates negative and significant coefficient ( $p < 0.05$ ) and ns indicates not significant

**Appendix 2 - Histogram of brokerage house brand scores**





# 4 BROKERAGE HOUSE BRANDS AND COMPETITORS

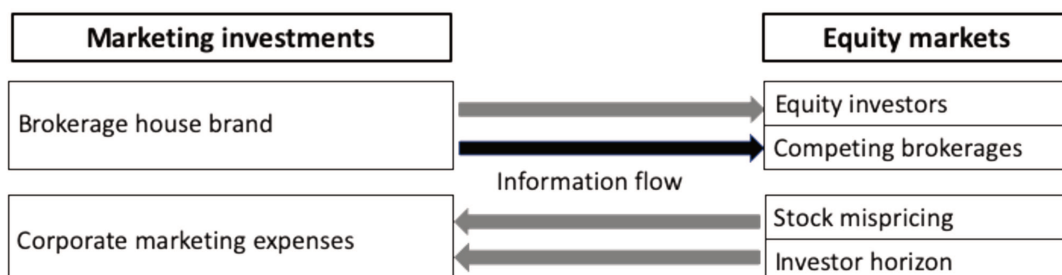


## Contribution of Chapter 4 to the thesis

**Chapter 4** extends the brand signal model used in Chapter to further study the impact of information flows from marketing investments on competing brokerage houses. It is not formatted in this thesis as an article because it uses the same conceptual framework and empirical methodology as Chapter 3. We investigate if the information in brokerage house brand signals influences competitor response to brokerage houses. Extending the model from Chapter 3 allows us to more fully assess the impact of brands on equity markets by covering two main players, investors and competing brokerage houses. Figure 2 represents the relevant information flows from our research design for Chapter 4 as indicated by the black, bolded arrow. We use the same conceptual framework, independent variables and control variables as in Chapter 3. We calculate a measure of competitor response to recommendation changes by brokerage houses called leadership status, which is our dependent variable. We test empirically the effect of the brokerage house brand score and determinants on competitor response. We find that competing brokerage houses respond differently than investors to a brokerage house brand. Furthermore, the brand determinants performance and reputation are influential but brand awareness is negatively related to brokerage house information leadership on competitors. In the study, we argue that sector-specific factors may explain why brokerage house brand determinants influence its competitors differently than investors.

**Figure 9 - How marketing Investments affect competitors (Chapter 4)**

**Chapter 4: information flow coming from brokerage house brand and going to competing brokerage houses**





## **APPLYING THE BROKERAGE HOUSE BRAND SIGNAL MODEL (DEVELOPED IN CHAPTER 3) TO STUDYING COMPETITION BETWEEN BROKERAGE HOUSES**

We extend the brokerage house brand signaling framework developed in Chapter 3 to study competition between brokerage houses. More specifically, we apply the brand framework to see if competing brokerage houses respond to information in a brokerage house's brand signal around a recommendation change. Empirically we develop a measure of a brokerage house's information leadership status on a stock as our dependent variable and use the brand score, brand determinants and control variables from Chapter 3 to investigate the impact of brokerage house brands on competitors. We find that competing brokerage houses respond differently than investors to a brokerage house brand. Furthermore, the brand determinants performance and reputation are influential but awareness is negatively related to brokerage house information leadership on competitors. Some results are in line with expectations and others are unexpected, leading us to reason that there are sector-specific factors that affect competitor response to brokerage house brands.

**Key words:** competitive strategy, brand signal, equity market, marketing-finance interface, brokerage house



## 4.1 Introduction

Deregulation, and emerging technologies have transformed equity markets considerably over the past 20 years. Brokerage houses must compete fiercely to protect their profits. Stiff competition in this mature market means that brokerage houses are constantly confronting competitors when marketing their services. The effectiveness of brokerage house marketing programs depends on the response of customers and competitors. Marketing research has typically focused on consumer response and paid less notice to competitor response (Weitz, 1985). While chapter 3 focuses on investor response to brokerage house brands, this paper investigates competitor response to brands. We do so in an understudied setting for marketing research, i.e., equity markets (Lehmann, 2005). We ask two questions in this article. We ask first whether brokerage house brands influence competitors. Furthermore, we study whether brand determinants - awareness, performance and reputation – contribute to this influence?

How brokerage houses compete is an understudied question in marketing research. Innovation in the brokerage industry is high, with innovation quickly copied or imitated. A leader is characterised as a pioneer or innovator that meets the competitors' needs better than anyone else in the industry. A market follower strategy is a strategy of product imitation. This strategy reflects Porter's (Porter, 2008) generic competitive strategy of differentiation, which has been extensively studied in industrial organisation. Under this strategy, the leader bears the expense and risk of developing, bringing it to market and educating the market. Another firm can come along and copy or improve the product. Although it will not overtake the leader, the follower can achieve high profits because it did not bear any of the innovation expenses. Under Porter's framework, once a firm acquires a reputation for quality, the brand acts as a repository for its reputation of quality.

In this study, we look more closely at the role of the brand as a repository for a brokerage house's reputation and the determinants of the brand. Little research has studied how brokerage

houses compete despite the importance of brokerage houses in equity markets. The research has instead focused on competition between analysts and herding (R. A. Cooper, Day, & Lewis, 2001b; Jegadeesh & Kim, 2010). As far as we know, this study is the first to investigate the role played by brands in the competition between brokerage houses.

In the stock market, when a brokerage house issues a research note on a stock, competitors (we use the terms competing brokerage houses and competitors interchangeably) might choose to follow this research note quickly by releasing their own research note. This choice depends on whether the issuing brokerage house is perceived as having the status of information leader on a stock or not. The status of information leadership on a stock may arise because of specific industry knowledge, intellectual capital or business relationships (Baum et al., 2016; R. A. Cooper et al., 2001b) that enable some brokerage houses over time to become dominant or leader brokerage houses due to the high quality of their forecasts and recommendations.

Information leader status is associated with higher first-mover trading volume and indirectly generates higher revenues for brokerage houses (R. A. Cooper et al., 2001b). However, because brokerage house revenues and profits are related in part to perceived performance, brokerage houses with less industry specific knowledge or intellectual know-how may choose to follow the leader brokerage houses by delaying their release of forecasts or recommendation changes (Moorthy, 1985). The delay enables the follower brokerage houses to use the information produced by leader brokerage houses to improve forecast accuracy and recommendation quality of their earnings forecasts and recommendations and at the same time reduce spending on the internal skills, sector experts and information sources needed to be a leader brokerage house. This strategy allows follower brokerage houses to achieve profits without incurring the higher costs of a leader brokerage house. To sum up, leader brokerage houses may choose to benefit from either additional revenues or they may choose to follow leaders and save on the required spending needed to reach leader status, depending on their strategic posture.

Extending the theoretical model from Chapter 3, we reason that the brokerage house brand signal on a research note conveys a credible signal to its competitors about its information leadership, in addition to its signal to investors. Empirically, we measure competitor response using the leader status defined by (Baum et al., 2016; R. A. Cooper et al., 2001b; Jegadeesh & Kim, 2010). We then use a brokerage house's leader status on a stock recommendation change to study the impact of brokerage house brands and their determinants on competing brokerage houses using the methodology from. The rest of the empirical framework is the same as Chapter 3, i.e., we use the same brand score and brand determinants and control variables.

This extension of Chapter 3 makes three contributions. First, accounting and finance research has focused mainly on security analysts as the primary unit of analysis. This research aims to show that behind every security analyst lies the brokerage house employing them and that the perception of a brokerage house plays a crucial role in the impact of information flows in equity markets.

Second, we identify a new bias that may influence equity market players' perception of information flows. The characteristics of brokerage house brands may influence positively or negatively competitor perception of their information leadership.

Third, this article is as far as we know the first to study the influence of brokerage house brands on their competitors.

In the following sections, we describe our hypotheses, discuss our dependent variable and then present the results and end with the conclusion. Because we extend on Chapter 3 in this article, we do not present the conceptual framework, independent variables and control variables, because they are presented in Chapter 3.

## 4.2 Conceptual framework and hypotheses

Applying the brand signal framework set out in Chapter 3 to competition between brokerage houses, we argue that, when deciding to respond to a research note, competing brokerage houses rely not only on their perception of the analyst who signs the note, but also on the brokerage house brand present on the research note. This brand acts as a signal that conveys information about the quality of the research note that competitors respond to (see Figure 1).

In other words, the same research note (same analyst, same content, same recommendation level, etc.) bearing the brand of brokerage house A will be perceived differently from the research note bearing the brand of brokerage house B, resulting in different decisions by competing brokerage houses (i.e. buying or selling depending on the recommendation change).

We summarize the core conceptual idea in Hypothesis 1.

**Hypothesis 1:** Brokerage house brand signals influence competing brokerage house perception of research notes.

We further consider the three brokerage house brand determinants presented in Chapter 3. We reason that these three determinants may enhance the credibility of the brokerage house brand signal and lead to higher competitor response: awareness, performance and reputation.

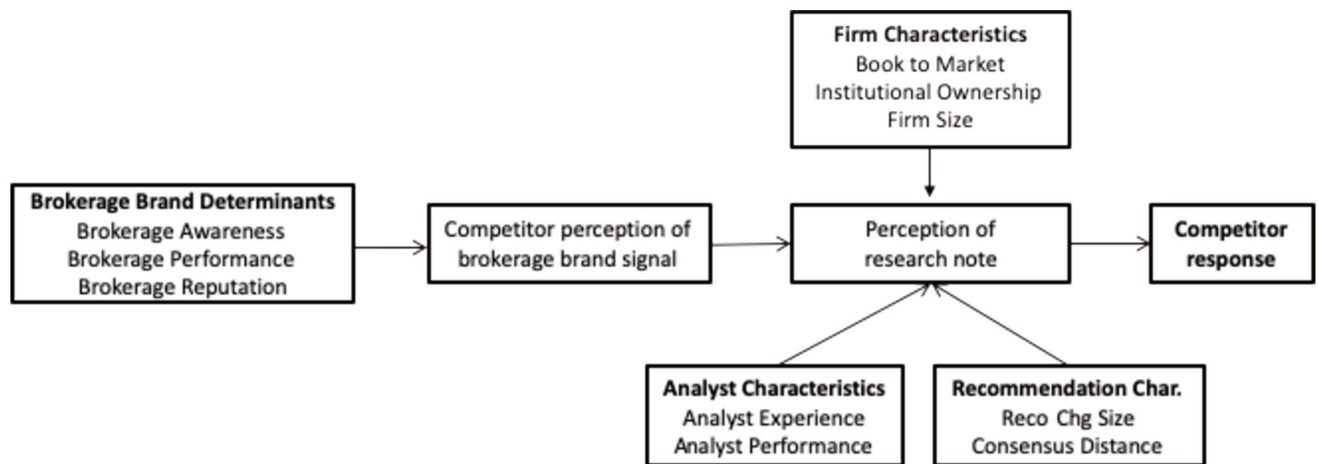
When a recommendation change is issued, we reason that awareness, perceived performance and reputation increase the credibility of a brokerage house brand signal, increasing the likelihood of competing brokerage houses following the issuing brokerage house recommendation and increasing the likelihood of the issuing brokerage house being considered a leader. Consequently, we formulate hypotheses 2, 3 and 4 as follows.

**Hypothesis 2:** The higher the awareness, the higher the competing brokerage house response to research notes bearing the brokerage house brand.

**Hypothesis 3:** The better the perceived performance of a brokerage house, the greater the competitor response to research notes bearing the brokerage house brand.

**Hypothesis 4:** The stronger the brokerage house reputation, the greater the competitor response to research notes bearing the brokerage house brand.

**Figure 1: Conceptual framework developed in chapter 3 applied to competitors**



### 4.3 Data and Measures

We now look at the data and methodology used to test the hypotheses. We use the same measures of brokerage house brand score, brand determinants and control variables described in Chapter 3. The only new variable is the dependent variable that measures a brokerage house's information leadership status, which we describe in more detail below.

We use the methodology from (Baum et al., 2016; R. A. Cooper et al., 2001b; Jegadeesh & Kim, 2010) to determine the leader status of a brokerage house for a given stock recommendation. We calculate the  $LFR_{i,k,l}$  for recommendation change  $l$  on firm  $i$  by brokerage house  $k$  as follows:

#### Equation 1

$$LFR_{i,k,l} = \frac{(\text{day\_before\_1}_{i,k,l} + \text{day\_before\_2}_{i,k,l})}{(\text{day\_after\_1}_{i,k,l} + \text{day\_after\_2}_{i,k,l})}$$

Where  $\text{day\_before\_1}_{i,k,l}$  and  $\text{day\_before\_2}_{i,k,l}$  are the number of days that separate the recommendation change date issued by the brokerage house  $k$  on a given firm  $i$  and the two most adjacent recommendations issued by different brokerage houses before the revision  $l$  and  $\text{day\_after\_1}_{i,k,l}$  and  $\text{day\_after\_2}_{i,k,l}$  are the number of days between the recommendation change date and the two most adjacent recommendations issued by different brokerage houses after the recommendation change  $l$ . Recommendation changes without two recommendations before and two after are removed from the sample.

The  $LFR_{i,k,l}$  (leader-follower ratio) shows how quickly competing brokerage houses follow the brokerage house (R. A. Cooper et al., 2001b). Intuitively, an information leader would have a larger numerator than denominator.

Using  $LFR_{i,k,l}$ , we obtain  $Leader\_Status_{i,k,l}$ , a dummy variable that indicates the brokerage house's information leadership status. (R. A. Cooper et al., 2001b) indicate that  $LFR_{i,k,l}$  follows

a F distribution with both degrees of freedom equal to 4L, where L is the number of recommendations over the period. As we work at the individual recommendation level,  $Leader\_Status_{i,k,l}$  receives a value of 1, meaning that the brokerage house is leader on the recommendation, if the  $LFR_{i,k,l}$  exceeds the top 10 percentile of a F(4,4) distribution. The remaining brokerage houses are assigned a  $Leader\_Status_{i,k,l}$  value of 0, indicating they are followers on a given recommendation change.  $Leader\_Status_{i,k,l}$  is the dependent variable in the model used to explain competing brokerage house response.

### 4.3.1 Model specification

In this section, we discuss how we test competing brokerage house response to brokerage house brands and their determinants. To test hypotheses 1-4 about competing brokerage house response, we use the same modeling approach as in Chapter 3.4. We estimate separately for upgrades and downgrades Equation 2, which relates  $Leader\_Status_{i,k,l}$ , the leadership status of the issuing brokerage house  $k$  for recommendation  $l$  with the brokerage house, firm, analyst and recommendation characteristics. Because leader status is a dummy variable, we run a logit regression for Equation 2, which is as follows:

#### Equation 2

$$Leader\_Status_{i,k,l} = \gamma_0 + \gamma_1 BH_{k,y} + \gamma_2 Firm\_Char_{i,y} + \gamma_3 Analyst\_Char_{j,y} + \gamma_4 Reco\_Char_{i,k,l} + \gamma_5 Year_y + \gamma_6 Industry_i + \epsilon_{i,k,l}$$

where  $i$  indicates the firm,  $j$  the analyst,  $k$  the brokerage house,  $l$  the recommendation, and  $y$  the year.  $Leader\_Status_{i,k,l}$  equals 1 if the brokerage house is an information leader for recommendation  $l$  and 0 otherwise of brokerage house  $k$ ;  $BH_{k,y}$  is the matrix of brokerage house variables;  $Firm\_Char_{i,y}$  is the matrix of firm variables;  $Analyst\_Char_{j,y}$  is the matrix of analyst

variables;  $Reco\_Char_{i,k,l}$  is a matrix of recommendation variables;  $Year_y$  is the year fixed effects;  $Industry_i$  is the fixed effect of the industry (SIC 1 level) that firm  $i$  belongs to,  $\gamma_0$  is the intercept,  $\gamma_1$  to  $\gamma_6$  are the vectors of estimated coefficients and  $\varepsilon_{l,k,l}$  is a vector of error terms. All brokerage house, firm, analyst and recommendation characteristics are described above.

To test Hypothesis 1 about brokerage house brands affecting investors,  $BH_{k,y}$  in Equation 2 takes the form of  $Brand\_Score_{k,y}$  as described in 3.3.2.

To test hypothesis 2, 3 and 4, we introduce simultaneously the brokerage house characteristics  $BH\_Awareness_{k,y}$ ,  $BH\_Error_{k,y}$ ,  $IB_{k,y}$ , and  $Industry\_Recognition_{k,y}$ .  $BH\_Error_{k,y}$ , and  $Industry\_Recognition_{k,y}$  have been treated to remove the effect of the brokerage house size as described in Chapter 3.3.2 and show no significant correlations.



## 4.4 Results

### 4.4.1 Description of recommendation change magnitude

Like in Chapter 3, we show the transition probabilities and magnitude of recommendation changes for our sample. The sample size is smaller than in Chapter 3 because the methodology deletes recommendation changes without two recommendation changes by competitors before and two after. Table 2 displays the transition probabilities (Panel A) and the distribution of the magnitude of the recommendation changes (Panel B). The results are consistent with (Loh & Stulz, 2011) and Chapter 3. First, most recommendation changes involve the Hold, Buy and Strong Buy recommendation levels. Second, 54% of recommendation changes concern 1-notch upgrades or one-notch downgrades, a further 45% of recommendation changes concern 2-notch upgrades or downgrades and few recommendation changes exceed 2 notches.

### 4.4.2 Summary statistics

Table 3 reports the summary statistics for the main sample. The statistics are consistent with previous research and Chapter 3. In line with (Jegadeesh & Kim, 2010), we find that about 11% of recommendations can be qualified as information leaders and generate responses from competitors. Brokerage houses have an average awareness of 11.9 years (SD = 3.9). The average absolute brokerage error is 3.8% (SD=7.4%). Brokerage houses win on average 4.1 award points for industry recognition (SD = 11.9). The annual error difference between analyst and brokerage house error is 0.01 (SD of 0.08).

The data for analysts, firms and recommendation changes are in line with (Baum et al., 2016; Clement, 1999; Clement & Tse, 2003; Jegadeesh & Kim, 2010; Loh & Stulz, 2011). Analysts show an average 7.1 years of experience in our sample. The average analyst boldness is 0.19, they cover 3.9 stocks per year and issue on average 16.7 recommendations per year. Firms in

the sample have an average market capitalization of \$9.2bn, 75% of firm shares are owned by institutional investors and the mean book-to-market is 0.53.

Table 4 shows the correlations between the variables.

#### 4.4.3 Do brokerage house brands affect competing brokerage house response to recommendation changes?

The results (see Table 5) indicate that brokerage house brand scores are not significant for upgrades. Furthermore, contrary to expectations, the brand score affects negatively competitor response to recommendation changes for downgrades, which disconfirms Hypothesis 1.

#### 4.4.4 Do brokerage house brand determinants affect competitor response to recommendation changes?

We now present the hypothesis results concerning the impact of brokerage house awareness (*H2*), performance (*H3*) and reputation (*H4*) on the response of competing brokerage houses (see Table 6). These results come from Equation 2, where  $BH_{k,y}$  is replaced by the brokerage house brand characteristics:  $BH\_Awareness_{k,y}$ ,  $BH\_Error_{k,y}$ ,  $IB_{k,y}$ , and  $Industry\_Recognition_{k,y}$ .

Table 7 summarizes major findings.

**Brokerage house awareness** - The results indicate that brokerage house awareness has a negative influence on competing brokerage houses for upgrades and downgrades. The results disconfirm Hypothesis 2.

**Brokerage house performance** - Overall, the results indicate that brokerage house performance influences competitor response to brokerage house brands.

*Brokerage house error* is fully supported as we find competing brokerage houses respond negatively and significantly to brokerage house error.

*Information access: Investment Bank* - As expected, we find that competitors are positively affected by the additional information access.

**Brokerage house reputation** - the results indicate that brokerage house reputation impacts competing brokerage house response significantly and positively for upgrades but is not significant for downgrades.

#### 4.4.5 Control variables

The findings show relationships in line with expectations for investors for the firm characteristics (book-to-market, institutional ownership and firm size), analyst boldness and analyst experience. For the analyst and recommendation characteristics, relationships are either mixed (error difference, consensus distance) or inverse (stock coverage, recommendation frequency, recommendation change size).

### 4.5 Discussion

This article examines the role played by brands in the competition between brokerage houses. Based on a sample of 30,619 stock upgrades and downgrades from 66 brokerage houses concerning 1,769 firms over 15 years, we find that competitor decisions to follow a recommendation change are significantly and negatively influenced by the brand score of the brokerage house that issues the recommendation changes for upgrades. We further find that reputation and performance behave as expected but awareness unexpectedly negatively influences competitor response.

#### 4.5.1 Do brokerage house brands influence competitors?

Our results are partially as expected. Our brand score results suggest that brokerage houses are negatively influenced by competitor brands for downgrades. In other words, strong brokerage house brands diminish the perception of information leadership. Furthermore, brokerage houses that perform better, that is the brokerage houses associated with an investment bank and brokerage houses with lower past error are more likely to be followed by their competitors.

Brokerage houses with better reputations are also more likely to be followed for upgrades. Awareness however has an unexpectedly negative impact on leadership status.

Reassuringly, competitors are positively influenced by a brokerage house's reputation and performance. However, and unlike for investors, brokerage house awareness negatively influences competitor response.

We surmise that other sector-specific factors may influence competitor response, such as innovative recommendation changes that contain new information. These innovative ideas may come from low awareness brokerage houses, which would explain the negative relationship between information leadership and awareness. Furthermore, the negative influence of awareness may explain why the brokerage house brand score, which shows a high correlation with awareness (0.65), is perceived as a negative signal by competitors in our results for downgrades.

## 4.5.2 Contributions

In this article, we address how a key marketing factor, branding, impacts competing brokerage houses. In this section, we discuss the contributions of the research to marketing and finance and accounting, practical implications and finally suggestions for future research.

### 4.5.2.1 Contributions to marketing

Our contributions are obviously similar to the contributions of Chapter 3: applying the brand signal model to financial markets, using financial data instead of declarative data to measure brand equity and studying an understudied sector in finance. Furthermore, we apply the brand signal framework (Erdem & Swait, 1998; 2016) to assess its impact on competitors. We show that brokerage house brands act as signals that convey information and influence the response of competing brokerage houses. This responds to the call by (Baum et al., 2016) for research into competition between brokerage houses.

#### 4.5.2.2 Contributions to finance and accounting

This article explores the impact of a key information intermediary, brokerage houses, and leads to contributions to herding research.

Previous research in finance and accounting shows that analysts tend to herd (Graham, 1999). This led to the emergence of the concept of information leadership (R. A. Cooper et al., 2001b). We complement this literature by showing that a previously understudied equity market player, brokerage houses, can also act as an information leader and that brand characteristics may influence competitors.

#### 4.5.3 Implications for brokerage houses, analysts, investors and CEOs/CFOs

Our results show that brokerage house reputation and performance have a positive impact on a brokerage house's leadership status. We recommend that brokerage houses reinforce their marketing policies to build a strong reputation and consider how their policies convey the perception of a brokerage house's performance to competitors.

#### 4.5.4 Limitations and future research

The same limits described in Chapter 3 apply to this extension: data limited to 2000-2014, scope limited to only equity markets, limited number of brand characteristics taken into consideration.

In this extension of Chapter 3, we calculate the brokerage house brand score from the perspective of investors, as described in Chapter 3 and then test competitor response to this score. Our results suggest that competitors weigh brand characteristics differently to investors. Our results indicate competitors place greater emphasis on performance and reputation and underweight awareness. We recommend developing a brand score measure specifically for competitors based on characteristics they consider important. To assess which brand characteristics may be important for competitors, we recommend undertaking qualitative

research to assess which criteria in addition to the two this extension identifies may be important for competitors.

Secondly, we hope that this research will inspire the application of other marketing research frameworks to financial markets.

**Table 1****Panel A - Transition probabilities of recommendation changes**

Current Recommendation						
Prior Recommendation	1 Sell	2 Underperform	3 Hold	4 Buy	5 Strong Buy	Total
1 (Sell)	0	52	1,414	4	74	1,544
%	0	3.37	91.58	0.26	4.79	100
2 (Underperform)	27	0	1,483	158	4	1,672
%	1.61	0	88.7	9.45	0.24	100
3 (Hold)	1,044	1,409	0	5,527	6,027	14,007
%	7.45	10.06	0	39.46	43.03	100
4 (Buy)	4	135	5,597	0	1,351	7,087
%	0.06	1.9	78.98	0	19.06	100
5 (Strong Buy)	50	14	5,190	1,055	0	6,309
%	0.79	0.22	82.26	16.72	0	100
Total	1,125	1,610	13,684	6,744	7,456	30,619

**Panel B - Distribution of recommendations by magnitude change**

Rec Change	Frequency	Percentage
-4	50	0.16
-3	18	0.06
-2	6,369	20.8
-1	8,088	26.41
1	8,413	27.48
2	7,599	24.82
3	8	0.03
4	74	0.24
Total	30,619	100

**Table 2 - Descriptive Statistics**

Variable		
Sample characteristics		
Number of brokerage houses	66	
Number of upgrades	16,099	
Number of downgrades	14,520	
Dependent variable	Mean	Std. Dev.
Leader_Status <sub>i,k,l</sub> (upgrades)	.100	.301
Leader_Status <sub>i,k,l</sub> (downgrades)	.124	.329
Brokerage house characteristics		
BH_Awareness <sub>k</sub> (years)	11.91	3.88
BH_Error <sub>k,y</sub> (%)	3.81	7.47
Industry_Recognition <sub>k,y</sub>	4.11	11.95
Analyst characteristics		
Error_Difference <sub>j,k,y</sub>	0.01	0.08
Analyst_Experience <sub>j,y</sub>	7.08	4.04
Analyst_Boldness <sub>j,y</sub>	0.19	0.51
Stock_Coverage <sub>j,y</sub>	3.90	2.93
Reco_Frequency <sub>j,y</sub>	16.7	6.94
Recommendation characteristics		
Reco_Chg_Size <sub>l</sub>	1.47	0.53
Consensus_Distance <sub>l</sub>	0.04	0.11
Firm characteristics		
Book_to_Market <sub>i,y</sub>	0.53	0.40
Inst_Ownership <sub>i,y</sub> (%)	0.75	0.20
Firm_Size <sub>i,y</sub> (*000)	9,200,000	25,000,000



	1	2	3	4	5	6	7	8	9	10	11	13	14
1 Analyst Experience	1												
2 Analyst Boldness	.01*	1											
3 Stock Coverage	.04*	.03*	1										
4 Reco Frequency	.15*	.08*	.35*	1									
5 Reco Chg Size	.02*	-.01*	-.08*	-.05*	1								
6 Consensus Distance	.01*	-.00*	-.04*	-.03*	.05*	1							
7 Error Difference	-.01*	-.03*	.04*	.01*	.01*	.00*	1						
8 Brokerage Awareness	.27*	.01*	-.12*	.03*	.01*	-.01*	-.03*	1					
9 Investment Bank	-.00	.02*	-.07*	-.07*	-.03*	-.05*	-.01*	.15*	1				
10 Brokerage Error	.08*	-.00	-.05*	.03*	.08*	.06*	-.12*	.13*	.02*	1			
11 Industry Recognition	.10*	.03*	-.02*	.07*	-.22*	-.02*	-.03*	.03*	.11*	.16*	1		
13 Book to Market	.03*	-.00*	.04*	.06*	-.02*	.01*	.03*	.01*	.00*	-.02*	.02*	1	
14 Institutional Own.	.09*	.00	-.02*	-.05*	.04*	.03*	-.00	.17*	-.02*	.07*	.07*	-.12*	1
15 Firm Size	.04*	.00	-.01*	.00	-.02*	.04*	-.01*	.01*	-.04*	.06*	.09*	-.09*	-.09*

**Table 3 –**

**Correlation table**

**Table 4 - Competitor response to brokerage house brand score**

DV = Leader Status	Coefficient	Coefficient
Analyst Experience	-0.007 (0.01)	0.025*** (0.01)
Analyst Boldness	0.171*** (0.05)	0.118*** (0.05)
Stock Coverage	0.000 (0.01)	0.031*** (0.01)
Reco Frequency	-0.017*** (0.00)	-0.024*** (0.00)
Error_Difference	0.633** (0.30)	-0.723** (0.30)
Reco Chg Size	-0.082 (0.05)	-0.318*** (0.05)
Consensus Distance	-0.677** (0.30)	0.657*** (0.25)
Book-to-market	-0.305*** (0.08)	-0.558*** (0.08)
Inst. Ownership	0.027 (0.15)	0.533*** (0.14)
Firm Size	-0.000*** (0.00)	-0.000*** (0.00)
Brand Score	0.048 (0.06)	-0.156*** (0.06)
Constant	-1.190*** (0.22)	-1.645*** (0.23)
Observations	16,099	14,520
Industry Effect	Yes	Yes
Year Effect	Yes	Yes
Pseudo R-squared	0.0298	0.0414
Likelihood ratio chi-square	314.3	450.7

Standard errors in parentheses - \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 5 – Competitor response to brokerage house characteristics**

DV= Leader Status	(1)	(2)
Analyst Experience	-0.006 (0.007)	0.029*** (0.007)
Analyst Boldness	0.144*** (0.050)	0.097** (0.046)
Stock Coverage	0.003 (0.011)	0.038*** (0.010)
Reco Frequency	-0.015*** (0.005)	-0.025*** (0.005)
Error_Difference	0.502* (0.297)	-0.867*** (0.304)
Reco Chg Size	-0.059 (0.053)	-0.318*** (0.053)
Consensus Distance	-0.632** (0.318)	0.776*** (0.257)
Book-to-market	-0.292*** (0.080)	-0.523*** (0.078)
Institutional ownership	0.086 (0.150)	0.505*** (0.142)
Firm size	-0.000** (0.000)	-0.000*** (0.000)
Brokerage Awareness	-0.043*** (0.010)	-0.081*** (0.009)
Investment Bank	0.264*** (0.101)	0.564*** (0.114)
Brokerage Error	-2.632*** (1.012)	-1.912* (0.987)
Industry Recognition	0.012*** (0.003)	-0.004 (0.003)
Constant	-1.055*** (0.242)	-1.566*** (0.259)
Observations	16,099	14,520
Industry Effect	Yes	Yes
Year Effect	Yes	Yes
Pseudo R-squared	0.0336	0.0491
Likelihood ratio chi-square	354.4	535.2

Standard errors in parentheses - \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

**Table 6 – Hypothesis test results**

Hypotheses results concerning competitor response

Hypothesis	Expected	Upgrade	Downgrade	Hypothesis supported?
H1: Brokerage House Brand Score				
Brand Score	+	ns	-	Disconfirmed for downgrades
H2: Brokerage House Performance				
Brokerage Awareness	+	-	-	Disconfirmed for upgrades and downgrades
H2: Brokerage House Performance				
Information Access: Investment Bank:	+	+	+	Supported for downgrades
Brokerage Error	-	-	-	Supported for upgrades and downgrades
H3: Brokerage House Reputation				
Industry Recognition	+	+	ns	Supported for upgrades

## Appendix

### Results of control variables

Control Variables	Expected Response	Competing brokerage house		Reference
		Upgrade	Downgrade	
Analyst Experience	+	ns	+	(Mikhail et al., 1997)
Analyst Boldness	+	+	+	(Clement & Tse, 2005)
Stock Coverage	-	ns	+	(Clement, 1999)
Reco Freq	+	-	-	(Ertimur et al., 2007)
Error_Difference	ns	+	-	
Reco Chg Size	+	ns	-	(Jegadeesh & Kim, 2010)
Consensus Distance	-	-	+	(Jegadeesh & Kim, 2010)
Book-to-market	-	-	-	(Loh & Stulz, 2011)
Inst. Ownership	+	ns	+	(Loh & Stulz, 2011)
Firm Size	-	-	-	(Baum et al., 2016)

+ indicates positive and significant coefficient ( $p < 0.05$ ), - indicates negative and significant coefficient ( $p < 0.05$ ) and ns indicates not significant

## Chapter 5 - Stock Mispricing and Marketing Investments



# 5 STOCK MISPRICING AND MARKETING INVESTMENTS





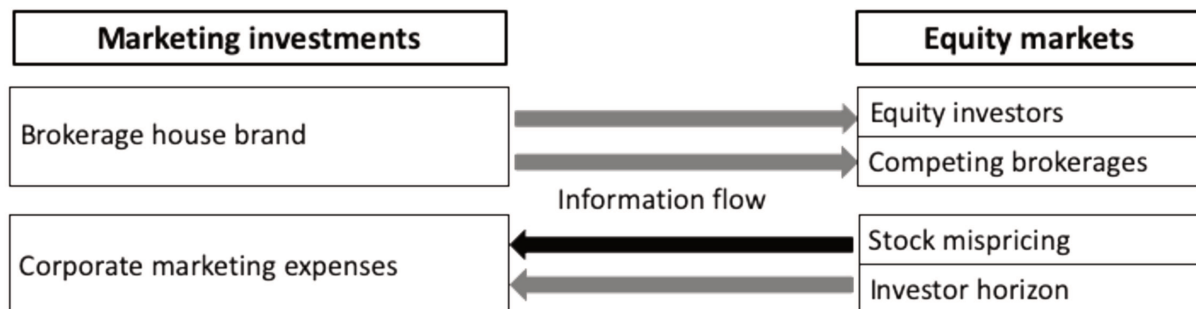
## Contribution of Chapter 5 to the thesis

The next two chapters study the effect of information flows from equity markets to marketing investments. The black bolded arrow in the figure below represents the relevant information flow from our research design for Chapter 5.

Chapter 5 assesses whether information about how investors perceive a company as reflected in its stock price (mispricing) can affect firm decisions about marketing investments. We study what happens when stock market efficiency declines, that is the effect of stock mispricing on marketing investments. We find empirically that a stock's mispricing has a strong, negative effect on marketing investments. We further find that a firm's dependence on equity markets for financing moderates the relationship between stock mispricing and marketing investments.

### How information in stock prices affects marketing investments (Chapter 5)

**Chapter 5: information flows coming from stock mispricing and going to corporate marketing expenses**





# WHEN STOCK PRICES MATTER: THE EFFECT OF STOCK MISPRICING ON ADVERTISING AND R&D EXPENDITURE DECISIONS

**Andrew Zylstra**

## Abstract

The issue of whether stock prices simply reflect expectations about future cash flows or whether stock prices convey information that influences corporate investment decisions has received a lot of attention in recent years. This paper studies whether the way the market prices a firm affects its advertising and R&D expenditure decisions. We find empirically that a stock's mispricing has a strong and negative impact on advertising and R&D expenditures. We verify the robustness of our results using three measures of mispricing. We test the effect of a moderator that should prompt managers to care more about the stock price, i.e., a firm's equity dependence. We find that equity dependence moderates the relationship between mispricing and advertising and R&D expenditures. Our results contribute to the literature on the determinants of advertising and R&D expenditures by showing that cuts in expenditures may be due to stock mispricing. We also show that stock prices may convey irrational information that affects marketing expenditures.

**Key words:** institutional investors, investment horizons, marketing resource allocation, top executives' compensation, advertising spending, myopic management

## 5.1 Introduction

Do stock prices merely reflect expectations about future cash flows? Or do stock price have a real effect on corporate decisions, i.e., they affect the cash flows they are supposed to reflect? These questions have received a lot of attention in financial economics (e.g. P. Bond et al., 2012). Purely passive market prices having no effect on real decisions would be hard to reconcile with the level of attention devoted to stock market prices, the importance lavished on stock prices by managers and the press and the role the stock market plays in many areas of the modern economy. One key reason why stock market prices may have a real effect on managerial decisions is the transmission of information (Baumol, 1965). Stock prices aggregate diverse pieces of information from the various players in the stock market and managers may use this information to guide their real decisions. Whether stock prices influence real decisions becomes important when stock prices are not informationally efficient and do not fully reflect a firm's fundamentals. We believe it is important to examine whether the market's pricing of the firm's stock influences advertising and R&D expenditures to better understand the factors that determine marketing investment decisions.

Investments in R&D and advertising play a key role in marketing activities such as product innovation, brand building, and customer satisfaction. The marketing literature has shown that R&D and advertising contribute to firm growth and value creation, however research into the financial drivers of advertising and R&D expenditure decisions is relatively scarce. (Joseph & Richardson, 2002) consider the influence of free cash flow and agency costs on advertising expenditure. (Mizik & Jacobson, 2007) show that a firm may adopt myopic marketing management of marketing expenditures when undertaking a seasoned equity offering. (Currim, Lim, & Kim, 2012) show that the structure of executive compensation has a strong impact on advertising and R&D expenditures. (Malshe & Agarwal, 2015) show that financial leverage is negatively related to customer satisfaction. Our main contribution is to study the real effect of

stock prices on advertising and R&D. Specifically, we examine whether the way a firm is valued by financial markets affects its advertising and R&D expenditure decisions. In this respect, our paper is related to (Markovitch et al., 2005)'s study showing that the stock underperformance and outperformance of firms in the pharmaceutical industry may affect product portfolios and distribution, and (Chakravarty & Grewal, 2011)'s paper that suggests that past stock returns and volatility of firms in the high-technology industry may affect R&D and marketing budgets. Compared to the two aforementioned papers, the main novelty is that we focus on the influence of a firm's mispricing, i.e., the component of a firm's valuation that is not related to fundamentals.

Growing evidence in the finance literature indicates that market prices can deviate from their fundamental values for prolonged periods of time (Shiller, 2000; Shleifer, 2000). This stock price deviation from its fundamental value is the definition of mispricing. A vast empirical literature shows that market prices deviate from fundamentals due to elements that are unrelated to future cash flows. For instance, market prices respond to investor demand for securities (Greenwood, 2005; Mitchell, Pulvino, & Stafford, 2004; Wurgler & Zhuravskaya, 2002), securities with the same fundamentals may not trade at the same price (Froot & Dabora, 1999; Lamont & Thaler, 2003; Mitchell, Pulvino, & Stafford, 2002), and security returns are predictable in ways that are unrelated to risk (Barberis & Thaler, 2003; Fama, 1998; Fama & French, 2007). Moreover, the market cannot arbitrage away all mispricing. While, theoretically, rational investors should buy undervalued firms and sell overvalued firms so that firm's valuation corrects towards its fundamental value, institutions, and intermediaries do not always have the required capital reserves and the incentives to ensure that prices reflect fundamentals (Brunnermeier & Pedersen, 2005; Shleifer & Vishny, 1997). As a result, mispricing may last long enough to influence real decisions. If stock prices are not fully efficient and do not accurately reflect the fundamental value of the firm, the relative

inefficiency of market prices potentially leads to an inefficiency of real decisions. Several studies have examined the effect of a firm mispricing on different corporate decisions such as financing, M&A activities and investments (Baker, Stein, & Wurgler, 2003; Campello & Graham, 2013; Hau & Lai, 2013). However, relatively little is known about whether stock mispricing has an effect on advertising and R&D expenditure decisions.

Our first research question is whether the mispricing of a firm's stock price affects advertising and R&D expenditure decisions.

[Insert Figure 1 about here]

Second, we are interested in whether the relation between mispricing and advertising and R&D expenditure is moderated by a firm's need for external equity to finance its investments (See Figure 1 - Conceptual Framework). The moderating effect of this variable deserves some explanations. The effect of the stock mispricing on marketing investments should be stronger in firms where management is forced to focus on the firm's current stock price. The moderator may influence the extent to which managers care about the firm's current stock price enough for it to affect their investment decisions. Mispricing is likely to matter more to firms that need external equity to finance new expenses or investments (Baker et al., 2003; Stein, 1996).

To measure stock mispricing, we follow the literature on the real effects of mispricing and use three residual book-to-market variables as proxies for mispricing (Hoberg & Phillips, 2010; Rhodes Kropf, Robinson, & Viswanathan, 2005). These variables capture the difference between observed book-to-market and fundamental book-to-market, indicating when mispricing may be present. We find that all our mispricing proxies have a strong and negative impact on advertising and R&D expenditures. Our results are both statistically and

economically highly significant. Furthermore, we show that the relation between mispricing and advertising and R&D expenditure is moderated by the level of a firm's equity-dependence (measured using the K-Z index from (Kaplan & Zingales, 1997)).

The contributions of our paper are two-fold. First, we contribute to the literature on the determinants of advertising and R&D expenditure decisions by showing that reductions in marketing expenditures may be driven by a temporary mispricing. We add to the non-marketing drivers of R&D and advertising decisions such as CEO compensation (Currim et al., 2012), managerial myopia (Mizik, 2010; Mizik & Jacobson, 2007), analyst coverage (Chakravarty & Grewal, 2016), stock performance (Markovitch et al., 2005) and previous stock returns (Chakravarty & Grewal, 2011). Second, while recent papers document that stock price changes carry rational information used by managers to take marketing decisions (Chakravarty & Grewal, 2011; Markovitch et al., 2005), this paper shows that also the irrational portion of a firm's market pricing also influences marketing decisions.

## 5.2 Conceptual Framework and Expectations

### 5.2.1 Real effect of mispricing

Corporate investment and the stock market are positively correlated, both over time and across firms. The traditional explanation for this relationship is that stock prices reflect the marginal product of capital (Furstenberg, Lovell, & Tobin, 1977; Tobin, 1969). (Keynes, 1936) suggests a different explanation. He argues that stock prices contain an important element of irrationality and that the causality could be reversed, i.e. mispricing generates changes in corporate investment. Building on Keynes' insight, the finance literature postulates that the market might price firms away from their fundamental value, that the market is not able to arbitrage away the mispricing and that managers use opportunistically this mispricing to take decisions by catering to the market mispricing (Baker, 2009; Jensen, 2005; Stein, 1996). So, if the market



grants an irrational premium to dividend-paying firms or to low-price firms, managers respond by paying more dividends or by supplying shares at a lower price (Baker, 2009; Baker & Wurgler, 2004).

The same reasoning applies to stock over or undervaluation. Some finance studies document a link between investment and mispricing. For example, (Chirinko & Schaller, 2001) used market bubbles in Japan to show that stock overpricing affects adversely business fixed investments. (Gilchrist, Himmelberg, & Huberman, 2005) identify the bubble component in Tobin's Q in the 1990s using the variance of analysts' earnings forecasts and find that orthogonalized shocks to dispersion have positive and statistically significant effects on Tobin's Q, net equity issuance, and real investment. (Campello & Graham, 2013) further document that high stock prices affect corporate policies (capital investment, stock issuance and cash savings) by relaxing financing constraints. They show that during the 1990s-technology bubble, constrained non-tech firms' investment responded strongly to "high stock prices" by issuing more stock to finance current or future investments. Using mutual fund redemptions as an instrument for price changes (Edmans, Goldstein, & Jiang, 2012) document that an interquartile decrease in valuation leads to a seven percentage point increase in acquisition likelihood, relative to a 6% unconditional takeover probability. (Hau & Lai, 2013) provide evidence for a causal effect of equity prices on corporate investment and employment. They use fire sales by distressed equity funds during the 2007–2009 financial crisis to identify substantial exogenous underpricing and show that firms whose stock is most underpriced have considerably lower investment and employment than industry peers not subject to any fire sale discount. Taken together, these results indicate that mispricing affects management decisions in general.

Hypothesis 1: A higher undervaluation will be associated with a decrease in the allocation to advertising (R&D) as a percentage of sales.

### 5.2.2 Equity financing dependence

We identify in the literature a relevant channel that might moderate the effect of mispricing on advertising and R&D expenditure, i.e., capital market financing needs. When a firm needs access to capital market to finance new advertising and R&D expenses, weaker markets play a limiting role (Baker et al., 2003; Stein, 1996). Because seasoned equity offerings are rarely used to finance investment, (Polk and Sapienza 2009) believe it is important to assess whether firms change their investment policies according to the valuation of their stock, even if they are not issuing equity to finance investments. They argue that, the stronger the focus of the manager on the short-term stock price appreciation, the more she will cater to the market mispricing, i.e. act according to what the market values better, even if it is not related to firm fundamentals (Baker, 2009; Baker & Savaşoglu, 2002; Baker & Wurgler, 2004).

As argued by (Keynes, 1936), because of mispricing, the effective cost of external equity sometimes diverges from the cost of other forms of capital. This affects the pattern of equity issues and in turn corporate investment. This “equity financing channel” has been further studied by (Blanchard, Rhee, & Summers, 1993; Bosworth, Hymans, & Modigliani, 1975; Fischer & Merton, 1984; Morck, Shleifer, Vishny, Shapiro, & Poterba, 1990; Stein, 1996). (Stein, 1996) argues that those firms that are in need of external equity finance will have investment that is more sensitive to the non-fundamental component of stock prices. Intuitively, a firm with no debt and high cash can insulate its investment decisions from irrational gyrations in its stock price. But an “equity-dependent” firm needs equity to fund its marginal investments. (Baker et al., 2003) empirically test several implications of this financing channel. They rank firms according to this proxy for equity dependence and find that stock prices have a stronger impact on the investment of “equity-dependent” firms. The literature suggests that equity funding dependence will influence corporate investments overall.

**Hypothesis 2:** Equity financing dependence will moderate the effect of mispricing on advertising and R&D expenditure as a percentage of sales.

## 5.3 Sample and Data

### 5.3.1 Sample construction and data source

We construct our sample as follows. We begin with all publicly traded U.S. firms in CRSP and Compustat between 1980 and 2014. We keep U.S. operating firms defined as firms with CRSP share codes of 10 or 11. We drop firms that are financials or utilities. We then restrict our sample to firms for which we have available or extrapolated data for advertising and R&D. This leaves our sample of 40,966 firm-years comprising 5,785 unique firms between 1980 and 2014. Stock trading data are from CRSP, accounting data are from Compustat, and investor portfolio data are from Thomson's 13f filings. We winsorize all continuous variables at the 1st and 99th percentiles. Table 1 presents summary statistics for all of our variables.

[Insert Table 1 about here]

### 5.3.2 Advertising and R&D expenditures

Our main dependent variable is advertising expenditure as a share of sales. Like in (Malshe & Agarwal, 2015), to impute missing values of advertising on Compustat, we use a combination of the estimates used in prior literature. For each firm reporting advertising, we compute the ratio of advertising to sales, general, and administrative (SG&A) expenses each fiscal year. Next, we obtain the yearly average advertising-to-SG&A ratio for every industry. The values of our main dependent variable range between 0 and 1, giving a limited dependent variable.

We follow (Currim et al., 2012) to avoid problems associated with directly using a limited dependent variable in a regression, so we perform a logit transformation on the limited dependent variable. We also do these two steps for R&D expenditure as a share of sales.

### 5.3.3 Measuring Mispricing

For our purposes, we define mispricing simply as the deviation of observed stock prices from their fundamental values. Though there is no consensus on what constitutes a stock's fundamental value, the literature indicates five factors that drive a stock's fundamental value: a firm's age, whether it pays dividends, the amount of debt, the volatility of total returns and a firm's profitability as measured by return on equity. To estimate a firm's mispricing, our models first capture the effect of these factors on a stock's price. Once these factors are accounted for, what is left is a firm's mispricing, i.e., the difference between observed book-to-market and fundamental book-to-market.

The three proxies we use in this paper differ in their specification of fundamental book-to-market. For our first proxy (Mispricing\_PV), we follow (Pástor and Pietro Veronesi 2003a): each year, we regress book-to-market on age, dividend payer status, leverage, total return volatility, and return on equity. We use the residuals from these regressions as our first mispricing proxy.

For our second proxy (Mispricing\_RK), we follow (Rhodes Kropf et al., 2005): each year and for each industry, we regress book-to-market on size, return on equity if return on equity is negative, and leverage. We use the residuals from these regressions as our second mispricing proxy.

For our third mispricing proxy (Mispricing\_HP), we follow (Hoberg & Phillips, 2010), in that we use the same specification as (Pástor and Pietro Veronesi 2003a) but we run regressions by

year and industry like (Rhodes Kropf et al., 2005). We use the residuals from these regressions as our third mispricing proxy.

We add as a control a fourth proxy for mispricing, the pure book-to-market ratio to ensure our results are robust.

#### 5.3.4 Equity financing dependence

A good measure of equity financing dependence should capture a combination of frictions that makes certain firms more reliant on outside equity financing at the margin. Standard corporate-finance considerations suggest that equity-dependent firms will tend to be young, and to have high leverage, low cash balances, and cash flows, high cash flow volatility (and hence low incremental debt capacity), and strong investment opportunities (Baker et al., 2003). The measure that satisfies most of these criteria is a an index based on the work of (Kaplan & Zingales, 1997), who carried out an in-depth study of the financial constraints faced by a sample of 49 low-dividend manufacturing firms. Using both subjective and objective criteria, they rank these firms on an ordinal scale, from least to most obviously constrained. Most useful for our purposes, they then estimate an ordered logit regression that relates their qualitative ranking to five Compustat variables. This regression attaches positive weight to Q and leverage, and negative weight to operating cash flow, cash balances, and dividends. The parameters of this regression allow the creation of a synthetic “KZ index” of financial constraints for a broader sample of firms.

One disadvantage of this index is that the model’s concept of equity dependence requires a proxy for investment opportunities that is distinct from mispricing. Of the five variables in the index, both low dividends and high values of Q can be thought of as proxies for strong investment prospects. However, Q will also contain information about mispricing. This dual role for Q is problematic. In light of this ambiguity, like in (Baker et al., 2003), our baseline

specifications use a modified four-variable version of the KZ index that omits Q. We denote the four-variable version of the KZ index simply by  $KZ_{it}$ :

$$KZ_{it} = -1.002 \times \frac{CF_{it}}{AT_{it-1}} - 39.368 \times \frac{Div_{it}}{AT_{it-1}} - 1.315 \times \frac{C_{it}}{AT_{it-1}} + 3.139 \times (LEV_{it})$$

where  $CF_{it}/AT_{t-1}$  is cash flow over lagged assets;  $DIV_{it}/A_{it-1}$  is cash dividends (over assets)  $C_{it}/A_{it-1}$  is cash balance over assets, and  $LEV_{it}$  is leverage.

### 5.3.5 Control variables

We control for debt because the amount of debt on the balance sheet may affect a firm's expenditures on advertising (Malshe & Agarwal, 2015). (Chakravarty & Grewal, 2011) show that idiosyncratic risk may prompt management to alter marketing budgets. Market share is relevant as a control variable because higher market share makes managers less concerned about meeting short-term targets and instead focus on long-term performance drivers such as marketing expenditures (Eberhart, Maxwell, & Siddique, 2004). Companies may opt for higher advertising expenditures to push up profit margins so we control for profit margins (Andras & Srinivasan, 2003). (Dekimpe & Hanssens, 1995) suggest that a portion of a firm's sales growth may be driven by advertising expenditures, so we control for this variable. We control for institutional ownership because institutional owners may have a short-term focus on firms with current earnings (Bushee, 1998). We control for firm size because expenditures on advertising and R&D may differ for firms of different sizes. We control for cash flow because the amount of cash a company generates may influence manager decisions about advertising and R&D expenditures.

### 5.3.6 Empirical methodology

The following model regresses the advertising share of sales for firm  $i$  at time  $t$  ( $ADVSALE_{it}$ ) as follows (1):

$$\begin{aligned} ADVSALE_{it} = & \beta_0 + \beta_1 Mispricing_{it-1} + \beta_2 Size_{it-1} + \beta_3 Leverage_{it-1} \\ & + \beta_4 Market\_share_{it-1} + \beta_5 Profitability_{it-1} + \beta_6 Sales\_growth_{it-1} \\ & + \beta_7 Inst\_own_{it-1} + \beta_8 Risk_{it-1} + \beta_9 Cash\_flow_{it-1} + \epsilon \end{aligned}$$

where  $Mispricing_{it-1}$  is our indicator of mispricing and the control variables are  $Size_{it-1}$  (log of total assets),  $Leverage_{it-1}$  (total debt over total assets),  $Market\_share_{it-1}$  (percentage of sales of the industry),  $Profitability_{it-1}$  (EBITDA over total assets),  $Sales\_growth_{it-1}$  (increase in sales relative to the preceding year),  $Inst\_own_{it-1}$  (Institutional ownership),  $Cash\_flow_{it-1}$  (cash flow over lagged assets) and  $Risk_{it-1}$  (stock average daily volatility). We control for industry and year unobservable heterogeneity by industry and year fixed effects. We further control for missing R&D and advertising variables using dummies. All of our independent variables are lagged by one-year to alleviate endogeneity concerns. We use the same model to regress R&D as a share of sales. We estimate the model parameters by means of OLS regressions. In all specifications, standard errors are robust to heteroscedasticity and clustered by firms.

#### 5.3.6.1 The moderation effect of equity financing dependence on the relationship between stock mispricing and marketing expenditures

To test the moderation effect of equity financing dependence on the relationship between stock mispricing and advertising expenditures, we introduce the KZ score variable into our regressions.

[Insert Table 2 about here]

## 5.4 Results

The results of the main model estimations are presented in Table 2. We begin with the advertising share of sales model (Column 1). Our first main result is that the effect of

mispricing on advertising expenditure as a share of sales is negative. This effect is statistically very significant ( $p < .01$ ). We comment the control variables for the first specification only. The coefficient of leverage is negative and highly significant, in line with (Malshe & Agarwal, 2015). Furthermore, company profitability has a significant impact on advertising, reflecting the link between advertising and company profitability. Furthermore, institutional ownership is positively related to advertising, perhaps reflecting the maturity of firms held by institutional owners. The dummy for replaced advertising values is significant whereas it is not significant for replaced R&D values. Cash flow is negatively related to advertising and not significant for R&D. The other control variables coefficients are not significant.

We now turn to the results of R&D as a share of sales model (Column 2). Our second main result is that the effect of mispricing on marketing expenditure as a share of sales is also negative ( $p < .01$ ). Consequently, Hypothesis 1 is supported. As reported in Table 3, we perform a series of robustness test, using three proxies of mispricing. In all specification, we find similar results.

[Insert Table 3 about here]

We now look at whether equity financing moderates the effect of mispricing on advertising and R&D expenditures as share of sales. We find that the coefficient is statistically significant, indicating that it moderates the relationship between mispricing and advertising and R&D expenditures as a percentage of sales. This result is consistent with undervaluation affecting negatively advertising and R&D expenditures because the firm is dependent on capital markets to finance new projects and maintain its marketing budgets.



## 5.5 Discussion

This paper examines the results of stock mispricing on marketing expenditures. Our main result suggests that stock mispricing affects advertising and R&D expenditures (H1). If a firm aims to maximize the long-term returns of shareholders by investing in marketing to help build brands, customer loyalty and customer satisfaction, then a firm's investors should be aware that stock mispricing may negatively affect marketing expenditures. The negative effect is driven by management opportunistically catering to stock mispricing. Investors should monitor managers to ensure that they are behaving myopically.

Our second result is that managers care more about stock mispricing in the presence of equity finance dependence. This result has implications for both the effect on marketing and marketing's relations with investors. The effect on marketing is that the focus on stock prices by the press and top management is of concern to marketers because of its negative effects on corporate marketing expenditures. To reduce the impact, marketing needs to communicate better with marketing to help reduce non-fundamental information in the stock price.

As far as we know, the findings on the impact of stock mispricing on marketing expenditures is new in the marketing literature. The importance of information in the stock price has been important for marketing in recent years (Chakravarty & Grewal, 2011; Markovitch et al., 2005), which has sought to understand how information in share prices affect marketing's ability to create value. Our results shed light on an important determinant of marketing expenditures and enhance our understanding of the impact of stock price information, which should not be considered as irrelevant to marketers.

The study has some limitations. There are different reasons for stocks to be mispriced. It could be interesting to see if some reasons affect marketing expenditures more than others such as dividend payers versus supplying shares to investors at lower prices.

**Table 1 - Summary statistics**

Variable	Mean	Std. Dev.	Min	Max
Advsale	0.03	0.04	0.00	0.38
R&Dsale	0.07	0.15	0.00	1.48
Size	5.37	1.97	0.61	10.30
Leverage	0.20	0.20	0.00	0.91
Sales growth	0.04	0.35	-0.89	5.14
Profitability	0.10	0.17	-0.95	0.40
Market share	0.11	0.20	0.00	1.00
Institutional ownership	0.44	0.28	0.00	0.97
Risk	0.04	0.02	0.01	0.13
Mispricing_PV	0.00	0.64	-2.87	3.54
Mispricing_RH	-0.00	0.52	-2.30	3.38
Mispricing_HP	0.00	0.57	-3.62	3.81
Book-to-market	0.63	.70	-1.18	3.91
Cash flow	0.07	0.15	-0.94	0.32
KZ score	-0.01	1.50	-7.06	4.12

Notes: Details of variable definitions are shown in the Appendix. To reduce the influence of outliers, all accounting variables were winsorised at the 1st and 99th percentiles.

**Table 2 – Stock mispricing and advertising and R&D expenditures**

	Advertising/Sales	RD/Sales
	(1)	(2)
Size	-0.0792*** (0.0236)	0.0450 (0.0421)
Leverage	-0.486** (0.188)	-1.169*** (0.226)
Profitability	0.576** (0.244)	-2.801*** (0.547)
Market_share	0.436*** (0.143)	-0.667*** (0.212)
Sales growth	0.0492* (0.0271)	0.0477 (0.0762)
Cash flow	-0.940*** (0.204)	0.161 (0.210)
Risk	-0.453 (1.569)	7.054*** (2.260)
Institutional ownership	-0.215 (0.128)	0.354** (0.169)
Advertising dummy	0.358*** (0.0641)	
R&D dummy		0.00830 (0.151)
Mispricing_HP	-0.241*** (0.0379)	-0.365*** (0.0573)
Observations	19,195	17,287
Adj. R-squared	0.459	0.519
YEAR FE	YES	YES
IND FE	YES	YES

Notes: This table presents panel-data regressions of the causal relation between marketing expenditures and our mispricing measure. We also include all control variables. The main dependent variable in column 1 is advertising as a percentage of sales. The main dependent variable in column 2 is R&D as a percentage of sales. The main independent variable in column 1 and column 2, our measure of mispricing, is based on the mispricing measure of (Hoberg & Phillips, 2010). We control for size, leverage, profitability, market share, sales growth, risk institutional ownership, cash flow and replaced R&D & advertising variables. All regressions include year dummy variables. We control for industry unobservable heterogeneity effects by adding industry fixed effects. Standard errors are robust to heteroscedasticity and clustered by industry. Constants are not reported. Robust standard errors are shown in parentheses. \*\*\*, \*\*, \* indicate significance at 1, 5, and 10% respectively. For more detailed information on variables see the Appendix.

**Table 3: Robustness check of the mispricing proxy**

Advertising / sales	(1)	(2)	(3)	(4)
Size	-0.101*** (0.0237)	-0.0660** (0.0246)	-0.0792*** (0.0236)	-0.0991*** (0.0233)
Leverage	-0.481*** (0.173)	-0.694*** (0.217)	-0.486** (0.188)	-0.537*** (0.175)
Profitability	0.720*** (0.244)	0.658** (0.272)	0.576** (0.244)	0.632*** (0.226)
Market share	0.351*** (0.124)	0.448*** (0.137)	0.436*** (0.143)	0.356*** (0.126)
Sales growth	0.0375 (0.0278)	0.0305 (0.0254)	0.0492* (0.0271)	0.0338** (0.0151)
Cash flow	-0.973*** (0.198)	-0.981*** (0.204)	-0.940*** (0.204)	-0.922*** (0.195)
Risk	0.263 (1.475)	0.565 (1.516)	-0.453 (1.569)	1.157 (1.417)
Institutional ownership	-0.0338 (0.127)	-0.255** (0.120)	-0.215 (0.128)	-0.0214 (0.119)
Advertising dummy	0.303*** (0.0644)	0.354*** (0.0627)	0.358*** (0.0641)	0.309*** (0.0650)
Mispricing_PV	-0.233*** (0.0351)			
Mispricing_RK		-0.218*** (0.0397)		
Mispricing_HP			-0.241*** (0.0379)	
Book-to-market				-0.233*** (0.0357)
Observations	23,719	18,683	19,195	24,975
R-squared	0.454	0.461	0.459	0.454
YEAR FE	YES	YES	YES	YES
IND FE	YES	YES	YES	YES

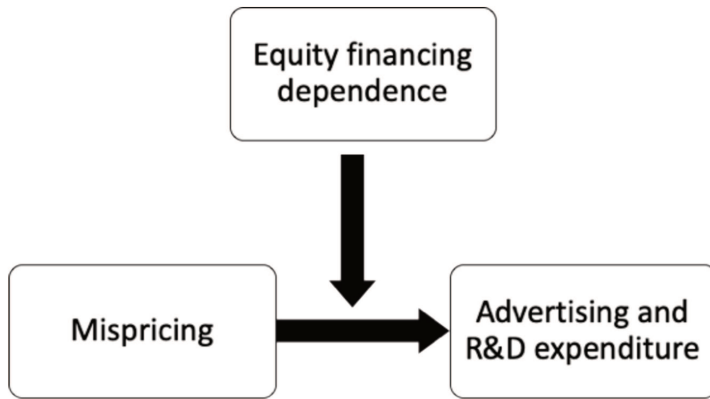
Notes: This table reports the results of our robustness checks. We check the robustness of our mispricing measure shown in column 1 in Table 2 by using two other mispricing measures from the literature and book-to-market. The dependent variable in all four regressions is advertising as a percentage of sales, like in column 1 in Table 2. We control for size, leverage, profitability, market share, sales growth, risk, institutional ownership, replaced advertising values and cash flow. All regressions include year dummy variables. We control for industry unobservable heterogeneity by adding industry fixed effects. Standard errors are robust to heteroskedasticity and clustered by industry. Constants are not reported. Robust standard errors are shown in parentheses. Column 1 shows the results of using the mispricing measure of (Pástor & Pietro Veronesi, 2003). Column 2 shows the results of using the mispricing measure of (Rhodes Kropf et al., 2005). Column 3 shows the same results as in column 1 of Table 2 to facilitate comparisons. Column 4 shows the results of using the raw book-to-market as a proxy measure. \*\*\*, \*\*, \* indicate significance at 1, 5, and 10% respectively. For more detailed information on variables see the Appendix.

**Table 4: Testing the moderating effect of equity financing dependence**

	Advert./Sales (1)	R&D/Sales (2)
Size	0.00333 (0.0358)	0.0475 (0.0421)
Leverage	0.0320 (0.207)	-0.672*** (0.229)
Profitability	-1.499*** (0.158)	-2.905*** (0.565)
Market_share	0.0788 (0.174)	-0.681*** (0.209)
Sales growth	0.0148 (0.0428)	0.0130 (0.0584)
Cash flow	-0.145 (0.179)	0.0870 (0.212)
Risk	0.853 (1.341)	8.184*** (2.166)
Institutional ownership	-0.0549 (0.128)	0.380** (0.170)
Advertising dummy	0.363*** (0.0543)	
R&D dummy		0.0104 (0.151)
<b>Mispricing_HP</b>	<b>-0.209***</b> <b>(0.0280)</b>	<b>-0.349***</b> <b>(0.0511)</b>
<b>Equity_financing</b>	<b>-0.0922***</b> <b>(0.0278)</b>	<b>-0.0962***</b> <b>(0.0205)</b>
Observations	19,080	17,209
R-squared	0.371	0.522
Year FE	YES	YES
Ind. FE	YES	YES

*Notes: This table presents panel-data regressions of the moderating effect of equity financing depending on the relation between marketing expenditures and our mispricing measure. We also include all control variables. The main dependent variable in column 1 is advertising as a percentage of sales. The main dependent variable in column 2 is R&D as a percentage of sales. The main independent variable in column 1 and column 2, our measure of mispricing, is based on the mispricing measure of (Hoberg & Phillips, 2010). The moderating effect is tested using the KZ Score (Kaplan & Zingales, 1997). We control for size, leverage, profitability, market share, sales growth, risk institutional ownership, cash flow and replaced R&D & advertising variables. All regressions include year dummy variables. We control for industry unobservable heterogeneity effects by adding industry fixed effects. Standard errors are robust to heteroscedasticity and clustered by industry. Constants are not reported. Robust standard errors are shown in parentheses. \*\*\*, \*\*, \* indicate significance at 1, 5, and 10% respectively. For more detailed information on variables see the Appendix.*

**Figure 1 – Conceptual Framework**



# Appendices

## Appendix 1: Variable Definition

Variable	Definition
Advsale	Advertising expenses ( <i>xad</i> ) / sales ( <i>sale</i> ). As in (Currim et al., 2012), we perform a logit transformation on the limited dependent variable, so we use $\ln(x/(1-x))$ .
R&Dsale	R&D expenditures ( <i>xrd</i> ) / sales ( <i>sale</i> ). As in (Currim et al., 2012), we perform a logit transformation on the limited dependent variable, so we use $\ln(x/(1-x))$ .
Size	Natural logarithm of total assets ( <i>at</i> )
Leverage	Total debt ( <i>dlc+dltt</i> ) / total assets ( <i>at</i> )
Profit Margin	Operating Income Before Depreciation ( <i>oibdp</i> ) / total assets ( <i>at</i> )
Market Share	Sales ( <i>sale</i> ) expressed as a share of industry total sales
Risk	Average stock return volatility ( <i>ret</i> ) over the last 250 days
Sales Growth	Change in sales ( <i>sale</i> ) over one year
Cash_Flow	$CFit/Ait1$ is cash flow ( <i>Item 14 + Item 18</i> ) over lagged assets ( <i>at</i> );
Mispricing_PV	Residuals from the regression of book-to-market against age, dividend payer status, leverage, total return volatility and return on equity. See (Pástor and Pietro Veronesi 2003a) for more information.
Mispricing_RH	Residuals from the regression of book-to-market on size, return on equity if negative and leverage for each year and each industry. See (Rhodes Kropf et al., 2005) for more information.
Mispricing_HP	Residuals from the regression of book-to-market against age, dividend payer status, leverage, total return volatility and return on equity for each year and each industry. See (Hoberg & Phillips, 2010) for more information.
Book-to-market	$BVit/market\_value$ is book value of equity ( <i>seq</i> ) over market value ( <i>prc*shrout</i> )
Institutional ownership	Percentage of institutional ownership ( <i>InstOwn_Perc</i> )
KZ score	$KZit = -1.002* (CFit/ATit-1) - 39.368*(DIVit/ATit-1) -1.315*(Cit/ATit-1)+3.139(LEVit)+0.283Q$ <p>where <i>CFit/Ait1</i> is cash flow (<i>Item 14 + Item 18</i>) over lagged assets; <i>DIVit/Ait1</i> is cash dividends (<i>Item 21 + Item 19</i>) over assets; <i>Cit/Ait1</i> is cash balances (<i>Item 1</i>) over assets; <i>LEVit</i> is leverage (<math>(\text{Item 9} + \text{Item 34})/(\text{Item 9} + \text{Item 34} + \text{Item 216})</math>)</p>

## Appendix 2: Estimation of Advertising and R&D Expenses Values

Advertising and R&D are required to be reported if they are not immaterial as per US GAAP rules (FASB 1974, 1993). However, many firms still choose to not disclose this data, leading to many cases of missing R&D and advertising in Compustat. I extract the data concerning R&D and advertising expenditures for all firms in Compustat between 1980 and 2014. I also look at missing SG&A, which is required to be reported and can be used as a benchmark for this analysis. The table below reports the number of missing observations for advertising (XAD), R&D (XRD) and SG&A (XSGA) from Compustat. There are 2.02 times more missing advertising expenditure observations than missing SG&A expenditures and 1.74 more missing R&D expenditure observations than SG&A expenditures.

Compustat variable	No. of Observ.	No. of Missing	
		Observations	% Missing
XAD	404,107	305,459	75.59%
XRD	404,107	264,233	65.39%
XSGA	404,107	151,149	37.40%

The table below assesses the size of firms that report advertising, R&D and SG&A relative to the average size of firms as a whole in our sample to assess whether size influences the tendency to report R&D and advertising. The firms that report R&D are much smaller on average (57.8%) relative to firms that report advertising (157.5%). The tendency for firms that report R&D to be much smaller than firms that report advertising probably reflects the relative maturity of firms, with smaller firms perhaps more likely to focus on R&D to create value while the larger firms that report advertising are more likely to focus on value appropriation.

	Average (m)	% of SG&A
Average total assets of firms reporting advertising	6396	157.5%
Average total assets of firms reporting R&D	2346.08	57.8%
Average total assets of firms reporting SG&A	4060	

Because a large number of firms with no R&D do not report it, we follow the treatment for missing values based on the literature (Hovakimian & Li, 2010). The results above show that



firms that do not report R&D tend to be smaller than other firms and there may be other differences. To ensure our results are robust, we rerun Table 2 regressions again with an indicator value set to one for firms with non-missing advertising or R&D. The overall results for regression 1 are very similar. The indicator variable for the advertising regression (regression 1) is negative and significant ( $p < 0.000$ ) whereas the indicator variable is not significant ( $p=0.21$ ) for the R&D regression (regression 2).





# 6 – INVESTOR HORIZONS AND MARKETING INVESTMENTS



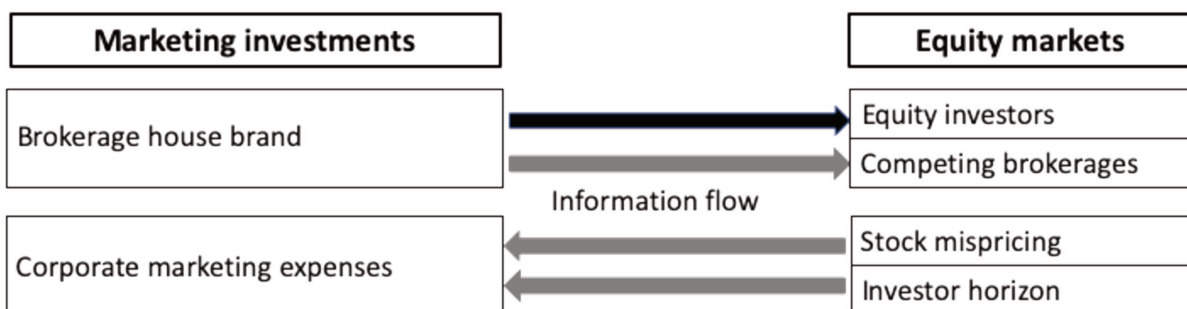
## Contribution of Chapter 6 to the thesis

Chapter 6 studies the effect of a second type of information that share prices may convey, i.e., investor horizon. It investigates how this information may impact marketing investments. The black bolded arrow in the figure below represents the relevant information flow from our research design for Chapter 6.

We investigate whether information about investor characteristics in the stock price impacts firm decisions about marketing investments. To do so, we study whether investor horizons influence marketing investments. We find that high investor turnover, our proxy for investor horizon, is associated with a higher probability of reductions in marketing investments. We find further that blockholders, a type of long-term investor, mitigates the effect of high investor turnover. However, CEO compensation does not mitigate the effect of investor horizon, suggesting that myopic management of marketing investments is more than just an issue of agency conflict.

### How investor horizon affects marketing investments (Chapter 6)

**Chapter 6: information flow coming from investor horizon and going to corporate marketing expenses**





# INVESTORS HORIZONS MATTER FOR MARKETING EXPENDITURES, EVEN WHEN CEO COMPENSATION AND BLOCKHOLDERS ARE TAKEN INTO ACCOUNT

**Andrew Zylstra**

## Abstract

This paper studies whether investor horizons influence marketing expenditures. We find that high investor turnover, our proxy for investor horizon, is associated with a higher probability to reduce marketing expenditures. We verify our results using three alternative measures of investor turnover and three alternative definitions of marketing expenditure. We test the direction of causality using a panel vector autoregressive model to ensure that our results are not driven by firms with myopic management of marketing resources attracting short-term investors. We find that blockholders mitigate the effect of high investor turnover and that CEOs with higher long-vs-short term compensation do not mitigate the effect of short-term investors. These results suggest that the existence of myopic management of marketing expenditures is more than just an issue of agency conflicts. Rewards designed to ensure long-term shareholder loyalty may help reduce the myopic management of marketing expenditures.

**Key words:** institutional investors, investment horizons, top executives' compensation, advertising spending, myopic management

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1. Marketing Strategy Leets Wall Street conference held at Singapore Management University in January 2015.
2. EMAC Conference held at Hamburg University in May 2019





## 6.1 Introduction

Myopic management, the practice of overemphasizing short-term goals at the expense of long-term strategy and performance (Stein, 1989), has become a growing concern among companies and marketing researchers. It poses an important challenge to marketers because underinvesting in marketing expenditures is one of the main effects of myopic management, which means lower long-term firm performances (S. Srinivasan & Hanssens, 2009). (Graham, Harvey, & Rajgopal, 2005) document that decreasing discretionary marketing expenditures, such as advertising and R&D, is the privileged option for 80% of CFOs of firms who seem unlikely to meet their short-term earnings target. Top executives often consider marketing expenditure as discretionary and an adjustment tool that can be used to both boost short-term performance (Deleersnyder, Dekimpe, Steenkamp, & Leeflang, 2009) and ensure for example that they reach their earnings guidance or meet analyst earnings forecasts.

A key problem of these cuts in marketing expenditures management is that it generally implies serious distortions in investment decisions away from the maximization of net present value and value creation (S. Srinivasan & Hanssens, 2009). This may be because the returns of marketing expenditures are not entirely predictable because they represent investments in intangible marketing assets (Graham et al., 2005) whose effects on firm value have not been studied enough (Rust et al., 2004). Furthermore, accounting regulations do not allow the capitalization of these intangible values on the balance sheet.

Cutting marketing expenditures hampers new product development, future product sales and brand building, which are all strong determinants of a firm's comparative advantage and long-term business performance (Krasnikov & Jayachandran, 2008; S. Srinivasan & Hanssens, 2009). In an insightful paper, (Mizik, 2010) documents the long-term consequences of myopic management. The paper shows that cutting marketing expenditures boosts short-term performance indicators but has a long-term net negative impact on firm value.

Recent research in the marketing field has highlighted the existence of myopic management in marketing strategy and its short-term and long-term effects on firm performance (Chapman & Steenburgh, 2011; Mizik, 2010; Mizik & Jacobson, 2007). This stream of research has focused on understanding what prompts firms to adopt myopic management behavior. (Mizik & Jacobson, 2007) show that seasonal equity offerings can affect marketing spending. (Malshe & Agarwal, 2015) show that higher debt impacts marketing outcomes and firm value. (Chakravarty & Grewal, 2016) look at the role analyst earnings forecasts play in management's decisions concerning marketing expenditures. Our paper focuses on another potential determinant of myopic management behavior, the characteristics of a firm's ownership and the link to myopic management of marketing expenditures.

We have two research questions. First, does the investment horizon of a firm's shareholders influence marketing expenditures? Second, does the influence of investor horizon persist when we take into account executive compensation and blockholders? We find that the investment horizon of shareholders is closely related to the existence of cutting marketing expenditures. More precisely, firms with a higher (lower) turnover percentage of institutional investors are more (less) likely to cut marketing expenditures.

To ensure our results are not driven by our measure of investor horizon, we use three measures of investor turnover identified in the finance and accounting literature. We find that an increase in the percentage of investor turnover has a strong positive impact on presence of myopic management of marketing expenditures. Our investor turnover proxies are lagged to alleviate concerns of endogenous variables. We further use three definitions of marketing expenditure to ensure that the definition of the dependent variable is not driving our results.

One concern is the direction of the causality in that investors may choose firms with myopic management instead of myopic management being the product of investor turnover. We therefore test the direction of the causality between marketing expenditures and investor

turnover using a panel vector autoregressive model (e.g. Holtz-Eakin, Newey, & Rosen, 1988).

The results indicate that investor turnover drives marketing expenditures and not vice versa.

We then test using sample splits the impact of two other factors that the literature has identified as alleviating the impact of a high proportion of short-term investors, managerial compensation and blockholders. We study managerial incentives by assessing the link between the structure of executive compensation and myopic management. (Currim et al., 2012) show that the horizon of CEO compensation measured by the equity/bonus ratio is an important determinant of advertising and R&D spending but finance research has shown that well-designed top-management compensation reduces agency costs. (Bergstresser & Philippon, 2006) use the incentive ratio to test whether the use of discretionary accruals to manage earnings is higher at firms where CEO compensation is more closely linked to the value of stock and option holdings. We use the two measures in examining the effect of investor horizons on marketing expenditure. We find that the negative effect of short-term investors on marketing expenditures is concentrated in firms where managers are not already incentivized to adopt myopic behavior. This finding indicates that even if managerial incentives are properly designed, myopic management may still arise as a consequence of the short-term horizon and preferences of some shareholders.

We study the impact of blockholders because financial research has shown that blockholders can mitigate myopic management behavior and are a possible solution to agency problems (Shleifer & Vishny, 1997). We find that the presence of blockholders mitigates the effect of short-term investors on marketing expenditures. This finding indicates that the presence of long-term shareholders may be a desirable outcome for the long-term performance of firms. Our findings have the potential to benefit marketing managers, firms, shareholders and consumers. Our results show that the existence of myopic management is not necessarily a

symptom of weak governance or agency conflicts between managers and shareholders but may reflect the short-term orientation of some shareholders.

Our results have important implications for executives and marketers concerning the solutions to curb myopic management of resources. Indeed, in line with theories on short-termism behavior by managers in financial economics (Stein, 1989), myopic marketing management has been viewed as an opportunistic behavior that arises against the wishes and interests of shareholders (Currim et al., 2012; Mizik, 2010). This view of myopic management has led to researchers considering its mitigation principally through the lens of agency theory and to propose solutions such as providing long-term incentives to managers (Currim et al., 2012). Furthermore, our research identifies a new boundary condition to help shareholders identify determinants of myopic management of marketing expenditures (Chakravarty & Grewal, 2016).

Our results support the idea that changing the structure of executive compensation is certainly desirable. However, our results concerning the effect of blockholders also indicate that myopic management may very well persist even if manager incentives are better aligned with shareholder interests but could be mitigated by favoring the creation of a committed base of long-term shareholders. This long-term shareholder base should ensure that the presence of short-term shareholders does not lead to unproductive cuts in marketing expenditures, which in turn reduce the contribution of marketing expenditures to the firm's long-term performance (S. Srinivasan & Hanssens, 2009). The better firm long-term performance would ensure managers generate better long-term stock returns, managers have less pressure to use marketing expenditures counterproductively and consumers benefit from an economy built on strong, long-term firm performances. From this perspective, initiatives to reward long-term investors such as the loyalty-shares proposed by (Bolton & Samama, 2013) or encouraging other types

of ownership such as blockholders (Edmans, 2009) may be of interest to offset myopic management of marketing expenditures.

The rest of the paper is organized as follows. In the next section, we review the literature on investor horizon and its potential impact on marketing expenditures. In section 3, we develop our theoretical framework and set out our hypotheses. Section 4 presents the empirical methodology. Section 5 describes our data. In section 6, we present our empirical results. We conclude and discuss the implications of our results in section 7.

## 6.2 Theoretical Framework and Hypothesis Development

### 6.2.1 Institutional Investor Investment Horizons

The theory and the practical consequences of myopic management have received a lot of attention in recent marketing literature (Currim et al., 2012; Mizik, 2010). (Mizik, 2010) establishes that abnormally cutting marketing and R&D expenses has a negative impact on firm value over the long term. Given the well-documented existence and severe consequences of myopic management, we believe it is worthwhile to go one step further and assess factors likely to influence the existence and apparition of myopic management. We focus our literature review on how the nature of a firm's ownership has been shown to affect management decisions. We then look at the role of one potential determinant, the investment horizon of institutional investors.

Institutional investors are by far the largest owners of US firms, with average total institutional holdings at 75% as of 2009 (Bena, Ferreira, Matos, & Pires, 2017), reflecting strong growth over the past 50 years from just 16% in 1965 {Useem:1996tb}. Their large holdings give them a key role in the governance of firms where they are present. This strong growth is accompanied by strong heterogeneity with institutional investors differing considerably in terms of trading frequency, competitive pressures, fiduciary responsibility and investment style. Historically,

researchers classified institutions by their legal type. This classification of investors by legal type however masks considerable differences in terms of investment horizons and sensitivity to short-term earnings news (Bushee 2004). Institutional investors have different investment horizons, some of them being more focused on the short-term stock performance of firms in their portfolios. This focus stems from a variety of factors.

The first key determinant of investment horizon is the nature of liabilities and funding drive short-term investing. For example, in an open-ended fund, redemptions are carried out upon request, which means that a fund manager might be required to liquidate a position at short notice. The fund manager is therefore reluctant to take long positions because he might be forced to sell at any point in time, even when the share price is very low.

Secondly, the investment horizon of clients of institutional investors affects the investment horizons of institutional investors. (Cella, Ellul, & Giannetti, 2013) underline that the more fund flows are sensitive to fund performance the more the fund manager turns over its portfolio. Thirdly, even if clients have a long-term horizon, institutional investor performance evaluation and remuneration practices might shorten their money managers' investment horizons (short evaluation period, short maturity of remuneration). (Cella et al., 2013) document that funds with a greater share of long-term remuneration present significantly lower turnover ratios. Fourth, if the fund manager expects to stay in post for just a few years, he might also overly concentrate on the short-term performance of the fund. Fifth, different investment horizons might also simply result from different trading strategies. Whereas investing in value firms is considered to be more long-term oriented, momentum investing is short-term oriented (Warren, 2014).

Other factors may also play a role in prompting investors to favor a short-term or long-term investment horizon. They include broker incentives to regularly change recommendations, the trend towards portfolio management based on hedging and diversification, fiduciary

responsibilities based on quarterly returns, the fair value valuation of investor assets and new technologies lowering transactions costs and accelerating the response of investors to news have further contributed to shorten institutional investors investment horizons (Porter, 1992).

### 6.2.2 The impact of differing investor horizons

Differences in investor horizons may matter for markets. Short-term investors have been associated with some market inefficiencies. Short-term investors might drive a firm's stock price from its fundamental price either because they herd on the same irrelevant information (Froot, Scharfstein, & Stein, 1992) or because they focus on earnings, near-term cash flows, relative value and technical analysis rather than long-term discounted cash flows analysis (Bushee, 1998; Rappaport, 2005). Further, stocks held by short-term investors suffer larger declines during financial crises (Cella et al., 2013). Long-term institutional ownership, however, has a stabilizing role (e.g. contrarian strategies).

Differences in investor investment horizons matter for corporate behaviors too. (Bushee, 1998) finds that firms with transient institutional investors (defined as high portfolio turnover and following momentum trading strategies) reduce R&D expenditures to increase short-term earnings. (Koh, 2007) documents that transient institutional ownership is associated with aggressive earnings management. The importance of transient institutional investors ownership is also positively related to the likelihood and magnitude of financial restatements such as misreporting (Burns, Kedia, & Lipson, 2010). (Brochet, Loumiot, and Serafeim 2013) report a positive association between high portfolio turnover of institutional investors and a proxy of short-termism present in managerial discourse.

### 6.2.3 The effect of institutional investors on corporate policies

(Markovitch et al., 2005) highlight how changes in firm stock prices in the pharmaceutical industry may influence management decisions. In the case of undervalued firms, managers



should cater more to short-term investors than long-term investors (Polk & Sapienza, 2008). Indeed, whereas long-term investors might wait till the mispricing disappears, investors with a short-term investment horizon are more interested in a swift correction. As a result, when short-term investors are dominant in the firm's ownership, managers are under strong pressure to increase the stock price in the short-run. In line with this theoretical insight, (Derrien, Kecskés, & Thesmar, 2014) find that when a firm is undervalued, a predominantly short-term investor ownership is associated with lower investment and higher payouts to shareholders.

#### 6.2.4 How blockholders may mitigate the impact of myopic marketing management

Academics usually identify two kinds of long-term investors, blockholders and the remaining long-term investor ownership (Derrien et al., 2014). Blockholders take sizeable stakes in firms. Research in finance indicates that blockholders may be a potential solution to agency problems (Shleifer & Vishny, 1986) and have a sizeable impact on corporate policies (Cronqvist & Fahlenbrach, 2009). Blockholders have more incentive to monitor managers (Gaspar et al., 2005) because they are more likely to be affected by managerial misbehavior that affect stock prices over the long term. They may also have more ways to acquire information used to monitor managers because the costs of acquiring information can be absorbed over time. Furthermore, they benefit from monitoring if it builds value over the long term (Shleifer & Vishny, 1986). If they are unhappy with management, they can voice their concerns to management (Hirschman, 1970). So blockholders may mitigate the effect of short-term investors on myopic marketing management.

#### 6.2.5 How CEO compensation may influence marketing expenditures

Research in finance and accounting has highlighted how executive compensation influences firm expenditures. (Bergstresser & Philippon, 2006) studied the impact of executive compensation on the use of discretionary accruals to manage earnings. (Currim et al., 2012)

highlight the impact of executive compensation on marketing expenditures and stock market returns. Agency theory (Jensen & Meckling, 1976) says that management interests are not aligned in some situations with shareholder interests. To better align management interests with shareholder interests, executive compensation can be structured so management interests are better aligned with shareholder interests and thus generate long-term value for shareholders. So executive compensation should be designed so that the long-term components of executive compensation (stock and options) is higher than the short-term components (bonus).

### 6.2.6 Hypotheses

When the investment horizons of a firm's shareholders differ, manager faces the dilemma of whether they should strive to please shareholders with long-term or short-term horizons (Froot et al., 1992). To illustrate this point, let us consider a simplified example wherein a firm manager wants to maximize the firm's market value.

If the firm's shareholders are exclusively composed of long-term oriented investors, the firm stock price reflects the fundamental value of the firm. In this situation, launching a new project that requires large marketing expenditures now but that will generate large cash flows (additional sales, new products) at some point in the future will positively impact the firm's stock price by an amount equal to the net present value of the expected cash flows generated by the project. Under these circumstances, behaving myopically (in our case abnormally cutting long-term marketing expenditures) for a manager is counterproductive because it should impact negatively its firm market value and thus the share price.

However, if the firm's ownership is exclusively composed of short-term investors, a manager might increase firm market value by behaving myopically. Short-term shareholders might cause firm stock price changes unrelated to fundamental news (unrelated to changes in expected project cash flows). For instance, if reported earnings are above analyst forecasts,

short-term oriented investors might buy additional shares, which will push up the firm's market value even though the fundamental value of the firm has not changed. Under these circumstances, to maximize the share price in the short term, a manager might engage in myopic management, pushing up current earnings and the stock price (at the expense of marketing expenditures and long-term performance).

Given this reasoning, we expect firms with a mainly short-term oriented ownership to encourage myopic management. Although short-term institutional investors know that the overall impact of myopic management on the firm's value might be negative over the long run, they benefit from the short-term stock price increase that myopic behavior causes and they will not face the ensuing long-term loss in firm value.

An alternative explanation that encourages myopic management is that short-term oriented investors do not encourage myopic management but are less able to prevent myopic management than long-term oriented investors because they dispose of less information, knowledge and a shorter investment timeframe to monitor managers.

In this paper, we make the hypothesis that shorter investor horizon generates myopic management of marketing resources. Marketing expenditures both reduce reported earnings and takes time to materialize in higher expected cash-flows, and thus are not immediately fully priced by the market. As such, marketing expenses are likely to suffer from managerial myopic decisions aiming to inflate current earnings and firm stock price over the short-run.

**Hypothesis 1:** Investor turnover encourages myopic management of marketing resources

Yet the pressure coming from short-term investors for boosting the firm short-term stock price and over focusing on short-term earnings performance might be counterbalanced by lengthier investment horizon of other key stakeholders of the firm. Our second hypothesis is that the

presence of institutional blockholders mitigates the effect of investor turnover. Blockholders are more likely than other shareholders to oppose management myopic decisions. They might use their informational edge to infer the detrimental consequences for long-term firm value of a myopic management of marketing resources today. Furthermore, they have the means to make management change its behavior, either through voice (Baker et al., 2003) or exit threat (Barber, Odean, & Zheng, 2000; Derrien et al., 2014; Gaspar, Massa, Matos, Patgiri, & Rehman, 2012; Hotchkiss & Strickland, 2003). Formally, we predict that the presence of blockholders mitigates the negative effect of investor turnover on marketing expenditures.

**Hypothesis 2:** The presence of blockholders mitigate the effect of investor turnover on marketing expenditures

We expect that investor turnover does not encourage myopic management of marketing resources in firms where managerial compensation already overemphasizes short-term results in the sense of (Currim et al., 2012), i.e., higher share of cash bonus compensation relative to equity compensation. In this case, the manager already has an important incentive to behave myopically because he directly profits from higher short-term results through higher cash bonuses and is less reluctant to take myopic decisions because a lower share of his compensation depends on the long-run firm market value. For robustness, we also test the effect using the incentive ratio measure of (Bergstresser & Philippon, 2006).

**Hypothesis 3:** The negative effect of investor turnover on marketing expenditures should be concentrated in firms where manager short-term compensation relative to long-term compensation is relatively low.

## 6.3 Empirical methodology

### 6.3.1 Measuring marketing expenditures

Our main dependent variable is advertising spending as a share of total assets. Like (Currim et al., 2012), to avoid problems associated with directly using a limited dependent variable in a regression, we perform a logit transformation on the limited dependent variable (see Appendix for more details). For robustness, we use two alternative measures to proxy for marketing expenditures. The first is advertising spending this time as a share of total sales to ensure our scaling factor is not influencing our results. The second is marketing expenditures defined as (SG&A – R&D) as a share of total assets used by (Mizik, 2010).

### 6.3.2 Measuring an Institutional Investor's Investment Horizon

We measure investor investment horizon using an investor's portfolio turnover (Derrien et al., 2014). For each investor of our sample, we measure its average turnover, the fraction of its portfolio that has been sold on average over the 12 last quarters. To compute the average turnover, we calculate, for each investor  $j$ , each quarter  $t$ , and each firm  $i$ , the fraction of shares of  $i$  held by  $j$  at date  $t-12$  (three years previously) that has been sold at date  $t$ . We then weight this reduction in the position in firm  $i$  by the weight of  $i$ 's stock in  $j$ 's portfolio taken at  $t-12$ , and sum it over all the firms held in  $j$ 's portfolio as of  $t-12$ .

$$Turnover_{j,t} = \sum_{i=1}^N \frac{SharesHeld_{i,t} - SharesHeld_{i,t-12}}{SharesHeld_{i,t-12}} * \alpha_{i,t-12}$$

Where:

- $Turnover_{j,t}$  is the turnover ratio of the investor  $j$  at quarter  $t$ .
- $SharesHeld_{i,t}$  is the number of shares of firm  $i$  that is held in the investor  $j$  portfolio at quarter  $t$ .

- $\alpha_{i,t-12}$  is the weight of shares of firm  $i$  in investor  $j$  portfolio at quarter  $t-12$ . We set it to zero if the change in shares held does not correspond to a reduction in position.
- $N$  stands for the number of firms in the portfolio of investor  $j$ .

To reduce the influence of one quarter with a high turnover, we compute for investor  $j$  its mean portfolio turnover over the previous four quarters (from  $t$  to  $t-3$ ). This measure lies between 0 and 1.

$$ATurnover_{j,t} = \sum_{q=0}^{q=3} \frac{ATurnover_{j,t-q}}{4}$$

At the firm level we aggregate the horizon of institutional investors, weighted by institutional investors' shares and obtain the firm investor turnover.

For robustness, we also use two other measures of investor horizon. The first alternative measure of investor horizon is the investor churn ratio, which is similar to the turnover measure we use as our main proxy for investor horizon but also includes buys as well as sales of stocks in the calculation of investor turnover (Gaspar et al., 2005). Our second alternative measure of investor horizon is (Bushee, 1998)'s classification, which computes the percentage of a firm's institutional investors who are transient investors. (Bushee, 1998) use portfolio characteristics to classify investors. He divides investors across three factor variables: portfolio turnover, portfolio concentration and trading sensitivity to current earnings. He identifies three clusters of data along those three factors. "Transient investors" have the highest turnover and the highest use of momentum strategy.

### 6.3.3 Control variables

We control for debt because the amount of debt a firm carries on the balance sheet may influence a firm's investments in advertising and marketing (Malshe & Agarwal, 2015). Research shows that idiosyncratic risk may prompt management to modify marketing budgets

(Chakravarty & Grewal, 2011). We control for market share because research shows that higher market share makes managers less concerned about meeting short-term targets and thus will continue to invest in long-term performance drivers such as marketing expenditures (e.g. Eberhart et al., 2004). Companies may choose to spend more on advertising to generate high profit margins so we control for profit margins (Andras & Srinivasan, 2003). A portion of a firm's sales growth may be linked to advertising expenditures so we control for this variable (Dekimpe & Hanssens, 1995). We control for size because firm expenditures on advertising may differ according to their size.

#### 6.3.4 Data

To test the three hypotheses, we construct our sample as follows. We begin with all publicly traded U.S. firms from CRSP (Center for Research in Securities Prices) and Compustat between 1980 and 2014. The advantage of using these databases is their large size and long historical data. We keep U.S. operating firms defined as firms with CRSP share codes of 10 or 11. We drop firms that are financials or utilities. We then restrict our sample to firms for which we have available data for advertising expenses in Compustat. We take CEO compensation data from Execucomp. The Execucomp database includes historic and total compensation data on CEOs for US firms in the S&P 500, the S&P 400 MidCap and the S&P 600 Small Cap. We use yearly data to ensure there is coherence between the Compustat and Execucomp data described below. This leaves a sample of 40,962 firm-years comprising 5,784 unique firms between 1980 and 2014. All investor data used to measure investor turnover and blockholders is taken from Thomson's 13f filings. All data for the control variables comes from Computstat with the exception of Risk, which comes from CRSP. We winsorize all continuous variables at the 1st and 99th percentiles. The winsorization reduces the likelihood that extreme values in the sample influence the results.

("Insert Table 1 about here")

Table 1 presents summary statistics for all of the variables used in this paper. The smaller number of firms present in the Execucomp database reduces the number of observations available to test for the effect of executive compensation.

## 6.4 Results

(“Insert Table 2 about here”)

The results from our first empirical model are reported in Table 2. We test, using a logit panel regression with robust standard errors and firm and year fixed effects, to see if advertising as a share of assets is linked to investor turnover. We use year and firm fixed effects to control for unobserved heterogeneity that is constant over time at the firm and year levels in all specifications to ensure our results are robust. Our first main result is that the advertising expenditure in year  $t$  is negatively associated with investor turnover in year  $t-1$  in all estimated versions of the model. So, Hypothesis 1 is therefore validated, supporting the idea that considering shareholder turnover is important to understand the causes of myopic management of marketing resources. The negative coefficient suggests that an increase in investor turnover results in a decrease in advertising spending as a percentage of assets. The impact is statistically very significant ( $p < 0.01$ ). An investor with a short-term horizon will not support the long-run consequences of myopic management of marketing expenditures and may have incentives to prompt or at least not deter this behavior, all the more since myopic management is associated with higher stock performance over the short-run (Rhodes Kropf et al., 2005). The results remain significant when taking into account firm size, leverage, risk, market share, profit margin and sales growth.

(“Insert Table 3 about here”)

Table 3 shows the results of our robustness tests for Hypothesis 1. All specifications include all control variables. The first and second show results using two alternative measures of



marketing expenditures, advertising divided by sales and marketing expenditures (SG&A-R&D) divided by total assets. The results remain highly significant ( $p < 0.01$ ). The change in dependent variable does, however, affect the coefficients of some control variables. For instance, when we scale advertising by sales, the effect disappears. This may be due to the use of sales as the scaling factor. The effect of risk disappears when we take advertising divided by sales as the dependent variable.

To ensure that our measure of investor turnover is not driving our results, we use two other lagged measures of investor turnover defined by the finance and accounting literature in the robustness tests. The third and fourth specifications contain the results of using the two other investor turnover measures. The results remain significant for the two alternative measure of investor horizon. Also, the results are weakest for (Bushee, 1998)'s measure of transient investors but nonetheless remain significant.

#### 6.4.1 Causality

One concern regarding our results is that causality might run from marketing expenditures to shareholder investment horizon if firms managing myopically marketing resources attract short-term investors. To address this issue, we run a test of causality between the choice of marketing expenditures and investor turnover. We estimate the following panel vector autoregressive model (Holtz-Eakin et al., 1988):

$$ADVAT_{i,t} = ADVAT_{i,t-1} + ATURNOVER_{i,t-1} + X_{i,t} + v_i + \varepsilon_{i,t} \quad (1)$$

Where  $ADVAT_{i,t}$  denotes advertising expenses scaled by total assets,  $ADVAT_{i,t-1}$  denotes lagged advertising expenses scaled by total assets,  $ATURNOVER_{i,t-1}$  is the lagged investor horizon,  $X_{i,t}$  is a matrix of control variables,  $v_i$  represents firm-specific effects and  $\varepsilon_{i,t}$

represents serially uncorrelated idiosyncratic errors. Indices  $i$  and  $t$  represent firms and years, respectively.

The specification assumes that the dynamics of the endogenous variables are such that it takes no more than one year for the past values of endogenous variables to affect their future values. We use first differences to eliminate the firm-specific effect (whose correlation with the lagged dependent variable renders least-squares estimation inconsistent), obtaining:

$$\Delta T_{i,t} = \beta_1 \Delta ADVAT_{i,t-1} + \beta_2 \Delta ATURNOVER_{i,t-1} + \beta_3 \Delta X_{i,t} + \varepsilon_{i,t} \quad (2)$$

$$\Delta ATURNOVER_{i,t} = \beta_1 \Delta ADVAT_{i,t-1} + \beta_2 \Delta ATURNOVER_{i,t-1} + \beta_3 \Delta X_{i,t} + \Delta \varepsilon_{i,t} \quad (3)$$

Each equation is estimated individually using a generalized-method-of-moments (GMM) dynamic panel data estimator to accommodate the correlation between the first-differenced errors and the lagged differences of the endogenous variable implicit in (2)-(3). The first two observations for each firm in the panel are lost to lags and differencing. Arellano and Bond (1991) use the lagged levels of the endogenous variables to obtain the moment conditions. This approach suffers from a weak instrument problem if the autoregressive parameter  $\phi$  is close to one, i.e. if the dependent variable exhibits severe persistence (Blundell & Bond, 1998; Blundell, Bond, & Windmeijer, 2001). The Blundell and Bond estimator therefore adds to the instrument matrix moment conditions that utilize the lagged differences of the endogenous variables of the equation in levels. These moment conditions are enough to identify the parameters of interest  $\phi$  and  $\beta$ .

Table 4 presents our results focusing only on the parameter estimates of the endogenous variables. The table also reports two diagnostic tests. First, we test if the differenced residuals are first-order negatively autocorrelated and second-order serially uncorrelated, as required by the assumptions of the GMM estimator (Arellano & Bond, 1991) (the table shows the p-value of the latter test). Second, the Hansen test of over-identifying restrictions is reported along with our results to ensure that the instruments are appropriately chosen. Results indicate that the causality runs from investor horizon to marketing expenditures rather than the other way around. Whereas lagged investor turnover has a strongly significant negative effect on advertising expenses, lagged advertising expenses do not affect investor turnover. These results support the interpretation that investment horizons affect marketing expenditures but not the opposite.

(“Insert Table 4 about here”)

The results from Table 2, Table 3 and Table 4 largely support our hypothesis 1 and the direction of the relationship, showing the influence of investor turnover on myopic management.

In Table 5 we report the results of tests for Hypothesis 2 and Hypothesis 3. We use sample splits to test whether blockholders (specifications 1 and 2) mitigate the effect of investor turnover and whether the effect of investors on marketing expenditures is concentrated in firms with managers whose short-term compensation is low relative to long-term compensation (specifications 3, 4, 5 and 6).

To test Hypothesis 2, we split our sample of firms into two regressions, the first being firms without blockholders (specification 1) and the second being firms with blockholders (specification 2). Specifications 1 shows that for firms with no blockholders, investor turnover influences marketing expenditures. Specification 2 shows that for firms with blockholders

present, investor turnover is not significant. The results show, consistent with the literature, that myopic management is less likely to appear as the proportion of blockholders increases.

In specifications 3, 4, 5 and 6, we test Hypothesis 3 about the impact of CEO compensation on the effect of investor turnover on marketing expenditures using two measures. (Currim et al., 2012) shows that the structure of CEO compensation affects marketing expenditures. More specifically, (Currim et al., 2012) shows that the long-versus-short term compensation of CEOs affects marketing expenditures. The first measure (specifications 3 and 4) is taken from (Currim et al., 2012) and the second measure (specifications 5 and 6) from (Bergstresser & Philippon, 2006).

To test the Equity/Bonus measure from (Currim et al., 2012), we split the sample into firms where CEOs are incentivized to make myopic decisions due to the long-vs-short term compensation structure. Specification 3 shows that for firms where CEOs are not incentivized to make myopic decisions concerning marketing expenditures, investor turnover influences marketing expenditures. Specification 4 shows that for firms where CEOs are incentivized to make myopic decisions due to the higher proportion of bonus relative to equity in their compensation, investor turnover does not affect marketing expenditures.

To test the Incentive Ratio measure from (Bergstresser & Philippon, 2006), we split the sample into firms where the Incentive Ratio is below the median (Specification 5) and above the median (Specification 6). Specification 5 shows that for firms where CEOs are less incentivized to make myopic decisions concerning marketing expenditures, investor turnover influences marketing expenditures. Specification 6 shows that for firms where CEOs are more incentivized to make myopic decisions, investor turnover does not affect marketing expenditures.

To summarize, the results for Specifications 3, 4, 5 and 6, the negative effect of a shorter horizon of shareholders on marketing expenditures is concentrated in firms where CEOs are not incentivized to make myopic decisions.

All told, the results validate Hypothesis 2 and 3.

(“Insert Table 5 about here”)

#### 6.4.2 Additional Analysis

We measure the impact of investor turnover on the short-term management behavior of marketing expenditures. A partial adjustment model enables us to measure the inertia in marketing expenditures and the annual speed of adjustment. We use OLS regressions with standard errors adjusted for heteroskedasticity and firm-level clustering to calculate the adjustment speed because firm fixed effects models with lagged dependent variables on the right-hand side lead to biased coefficient estimates (Hovakimian & Li, 2010). Our regression results indicate an annual speed of adjustment of 0.35 ( $p < 0.01$ ).

### 6.5 Conclusion and Discussion

Our investor horizon results have implications for a firm’s management and investor relations departments concerning marketing expenditures and the firm’s long-term performance. Our first result (H1) shows that investor horizons impact marketing expenditures. If a firm has the goal of generating strong long-term performances for investors by investing continuously in marketing to build brands and innovate, then a firm’s management and investor relations department should be aware that a short-term investor horizon may restrain marketing expenditures. The restraint is driven by short-term investors influencing management through the implicit threat of rapidly selling their shares if the short-term performance declines. Marketing expenditures are further restrained by the long-term nature of their performance as

they generate value over several years. Short-term horizons investors will not see the full benefits of the investments so they are less interested in marketing expenditures.

One way to address the drivers restraining marketing expenditures is to create a committed base of long-term shareholders. The beneficial effect of long-term shareholders is supported by our second main result that the presence of blockholders mitigates the effect of high shareholder turnover on marketing expenditures (H2). The creation of a large long-term shareholder base could be achieved through the development of loyalty schemes that consist of firm shareholders receiving a reward after having held their shares for a specified period of time (loyalty period). The reward might be extra dividends or voting rights. The increase in investor horizon prompts firms to adopt a longer-term outlook and increase marketing expenditures despite the returns from such expenditures taking several years to be fully realized. If a long-term investor base is not created, then managers who are responsible for determining marketing expenditures may choose to restrain marketing expenditures because any expenditures they propose must be approved by top management and therefore present plans that converge with the top management's interests (Fama & Jensen, 1983; Joseph & Richardson, 2002). The pressure on managers to focus on marketing expenditures that generate short-term returns hinders the firm's long-term performance from marketing actions such as product innovation and building customer satisfaction.

Promising alternative ways of rewarding long-term shareholders are still waiting to be more broadly implemented. Initiatives to reward long-term investors such as the loyalty-shares proposed by (Bolton & Samama, 2013) or encouraging other types of ownership such as blockholders (Edmans, 2009) may be of interest to offset myopic management of marketing expenditures.

Our third result (H3) shows that structuring CEO compensation so that the CEO's interests are in line with shareholders may not be enough. The structure of CEO compensation and notably

equity-based compensation has long been considered as an efficient tool to reduce agency costs and to orientate managerial decisions towards the long-term interest value of the firm (Fama & Jensen, 1983; Jensen & Meckling, 1976) and in particular away from myopic marketing management (Currim et al., 2012). We show that investor horizon can influence marketing expenditures even when CEO compensation is well structured. Indeed, our results show that when CEOs have an incentive to focus on the short term due to their compensation prompting such behavior, investor horizon does not affect marketing expenditures. CEOs with a higher proportion of long-term compensation relative to short-term compensation, however, may behave myopically due to investor turnover.

To the best of our knowledge, the findings on the impact of shareholder turnover on marketing expenditures, even in the presence of greater long-vs-short term compensation CEO compensation, is a new finding in the marketing literature. Myopic management represents an important issue for academic research in marketing, which has sought to assess the consequences of myopic management, understand its determinants and find mechanisms that could remedy it. Our results shed light on an important determinant of myopic management, namely shareholder turnover, and deepen our understanding of this behavior, which should not be considered as a mere agency conflict or opportunistic behavior arising against the wishes of shareholders.

This study has some limitations. Changes in the makeup of a firm's investors can lead to changes in a firm's strategy. For instance, the arrival of an activist shareholder could prompt the firm to change its strategic orientation. There are also other forces at work that influence marketing expenditures. Management's need to meet earnings guidance target could prompt the firm to cut marketing expenditures. A temporary increase in competition intensity in a sector could also lead to increased spending on promotions at the expense of advertising and R&D. Further research could strive to define the effects of different levels of horizons and what

is a suitable level of long-term ownership. The antecedents of changes in a firm's ownership could also prove interesting subjects for research and how they affect marketing expenditures.



**Table 1: Summary Statistics**

Variable	N	Mean	SD	Min	Max
ADVAT	19816	-4.09	1.56	-12.59	-0.52
ADVSALE	19810	-4.19	1.43	-13.66	-0.78
MARKTINGAT	13140	-0.80	1.07	-3.26	2.56
SIZE	19816	5.65	2.04	0.51	10.61
LEVERAGE	19816	0.21	0.21	0.00	0.94
PROFIT MARGIN	19816	0.10	0.16	-0.87	0.42
MARKET SHARE	19816	0.12	0.22	0.00	1.00
RISK	19816	0.04	0.02	0.01	0.12
SALES GROWTH	19816	0.05	0.34	-0.82	5.16
ATURNOVER	18897	0.45	0.10	0.15	0.77
ACHURNRATIO	18910	0.25	0.06	0.13	0.47
BUSHEETRA	18917	0.18	0.18	0.00	0.89
NB BLOCKHOLDERS	18917	1.80	1.62	0.00	6.00
EQUITY INCENTIVE	4148	0.24	0.61	0.00	4.03
INCENTIVE RATIO	3498	0.30	0.26	0.01	0.98

Notes: Details of variables definitions are in the Appendix. Study sample includes all available firms over the 1980-2014 period. To reduce the influence of outliers, 1% of extreme values were set to missing for each accounting variable in the analysis.

**Table 2: Marketing Expenditures and Investor Horizon**

ADVAT	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ATURNOVER	-0.272*** (0.0693)	-0.275*** (0.0683)	-0.280*** (0.0684)	-0.267*** (0.0684)	-0.269*** (0.0684)	-0.251*** (0.0682)	-0.222*** (0.0675)
SIZE		-0.260*** (0.0153)	-0.257*** (0.0155)	-0.244*** (0.0158)	-0.250*** (0.0161)	-0.234*** (0.0160)	-0.213*** (0.0161)
LEVERAGE			-0.118** (0.0549)	-0.155*** (0.0557)	-0.152*** (0.0557)	-0.229*** (0.0564)	-0.239*** (0.0557)
RISK				2.013*** (0.467)	2.014*** (0.467)	1.310*** (0.467)	1.168** (0.463)
MARKET SHARE					0.165** (0.0797)	0.179** (0.0794)	0.137* (0.0801)
PROFIT MARGIN						-0.576*** (0.0779)	-0.532*** (0.0768)
SALES GROWTH							0.233*** (0.0257)
Observations	19,845	19,845	19,845	19,845	19,845	19,825	19,816
R-squared	0.883	0.887	0.887	0.887	0.887	0.888	0.890
YEAR FE	YES	YES	YES	YES	YES	YES	YES
FIRM FE	YES	YES	YES	YES	YES	YES	YES

This table reports stepwise panel-data regression of marketing expenditures management on investor horizon variables and control variables. The main dependent variable is *ADVAT*, advertising expenses scaled by total assets. The main independent variable is *ATURNOVER*, the one-year-lagged weighted average of a firm's institutional investor portfolio turnover. We control for firm size, leverage, book-to-market, institutional ownership, risk, market share, profitability and sales growth. All regressions include year dummy variables. We control for firm unobservable heterogeneity by adding firm fixed effects. Standard errors are robust to heteroskedasticity and clustered by firms. Constants are not reported. Robust standard errors are shown in parentheses. \*\*\*, \*\*, \* indicate significance at 1, 5, and 10% respectively. For more detailed information on variables see the Appendix.

**Table 3: Marketing expenditures and Investor Horizon: Robustness Checks**

	ADVSALE	MKTAT	ADVAT	ADVAT
SIZE	0.0433*** (0.0153)	-0.496*** (0.0134)	-0.216*** (0.0162)	-0.215*** (0.0161)
LEVERAGE	-0.127** (0.0524)	-0.189*** (0.0458)	-0.226*** (0.0553)	-0.234*** (0.0556)
RISK	0.691 (0.442)	1.149*** (0.398)	1.212*** (0.465)	1.162** (0.461)
MARKET SHARE	-0.102 (0.0759)	0.134* (0.0772)	0.166** (0.0819)	0.153* (0.0811)
PROFIT MARGIN	-1.402*** (0.0742)	-0.754*** (0.0649)	-0.537*** (0.0766)	-0.533*** (0.0762)
SALE GROWTH	0.00103 (0.0235)	0.280*** (0.0224)	0.231*** (0.0258)	0.234*** (0.0255)
ATURNOVER	-0.185*** (0.0661)	-0.212*** (0.0526)		
ACHURNRATIO			-0.240** (0.120)	
BUSHEETRA				-0.0693* (0.0373)
Observations	19,810	13,216	19,740	19,901
R-squared	0.878	0.912	0.890	0.890
YEAR FE	YES	YES	YES	YES
FIRM FE	YES	YES	YES	YES

Notes: This table reports the results of our robustness checks. Specifications 1-2 show our tests with two alternative measures of marketing expenditure. Specification 1 shows our regression with advertising divided by sales. Specification 2 contains another measure of marketing expenditure from the literature (Mizik, 2010). We also verify our measure of investor horizon by adding two alternative measures of investor horizon identified in the literature. Specification 3 uses the churn ratio to measure investor horizon (Gaspar et al., 2005). Specification 4 reports the results using the transient investor measure of (Bushee, 1998). \*\*\*, \*\*, \* indicate significance at 1, 5, and 10% respectively. For more detailed information on variables see the Appendix.

**Table 4: Marketing Expenditures and Investor Horizon: Causality Analysis**

Dependent Variable:	ADVAT	ATURNOVER
L.ADVAT	0.748*** (28.40)	0.002 (0.73)
L.ATURNOVER	-0.458*** (-2.87)	0.486*** (23.35)
N	19,796	19,796
P-value of AR(2) test	0.35	0.19
P-value of Hansen test of overidentified restrictions	0.23	0.14

This table presents dynamic panel estimates of the causal relation between marketing expenditures in the form of advertising expenses scaled by total assets and investor turnover. We use the generalized-method-of-moments dynamic panel data estimator of Blundell and Bond (1998). This method assumes that there is no autocorrelation in the idiosyncratic errors and requires the initial condition that the panel-level effects be uncorrelated with the first difference of the first observation of the dependent variable. Please refer to Appendix for details on variable construction. In column 1, the dependent variable advertising expenses scaled by total assets, is regressed on its lag and on lagged Investor Turnover. In column 2, the dependent variable is Investor Turnover which is regressed on its lag and on lagged advertising expenses scaled by total assets. All control variables of our basic specification (cf. Table 2) are used (parameter estimates not shown). The table shows the p-value of the hypothesis test that the first-differenced residuals are autocorrelated of order 2, and the p-value of the Hansen test of the null hypothesis of validity of the over-identifying moment conditions. T-statistics are reported in parentheses and the symbols \*\*\*, \*\*, \* denote significance at 1%, 5% and 10%.

**Table 5: Marketing expenditures and Investor Horizon: Splits**

ADVAT	NB BLOCKHOLDERS		EQUITY (ST/LT) =0	BONUS RATIO >0	INCENTIVE RATIO CR	
	=0	>0			<m	>m
L.ATURNOVER	-0.261** (0.127)	-0.140 (0.0905)	-0.594** (0.268)	-0.380 (0.315)	-0.616*** (0.236)	-0.501 (0.371)
SIZE	-0.267*** (0.0403)	-0.216*** (0.0205)	-0.216*** (0.0572)	-0.305*** (0.0643)	-0.199*** (0.0590)	-0.218*** (0.0823)
LEVERAGE	0.0230 (0.143)	-0.303*** (0.0671)	-0.551*** (0.150)	-0.475** (0.199)	-0.320* (0.163)	-0.186 (0.177)
RISK	0.235 (0.908)	1.266** (0.612)	0.575 (1.707)	2.637 (2.198)	-0.119 (1.160)	0.911 (3.122)
MARKET SHARE	0.164 (0.176)	0.151 (0.116)	-0.166 (0.210)	-0.604* (0.345)	0.221 (0.245)	-0.542 (0.522)
PROFIT MARGIN	-0.570*** (0.157)	-0.537*** (0.104)	-0.350 (0.317)	0.427 (0.576)	-0.00907 (0.229)	-0.640 (0.552)
SALES GROWTH	0.164*** (0.0638)	0.252*** (0.0325)	0.472*** (0.0760)	0.306*** (0.0904)	0.368*** (0.0579)	0.391*** (0.0648)
Observations	4,954	13,963	2,381	1,767	1,749	1,749
R-squared	0.913	0.898	0.963	0.939	0.956	0.950
YEAR FE	YES	YES	YES	YES	YES	YES
FIRM FE	YES	YES	YES	YES	YES	YES

Notes: This table reports the results of our tests of Hypothesis 2 and 3. To test the effect of blockholders (Hypothesis 2), we split our sample of firms into two parts, those without blockholders (=0) and those with blockholders (>0). Specification 1 shows the results without blockholders and Specification 2 the same regression for firms with blockholders. Specifications 3, 4, 5 and 6 show our results for tests of Hypothesis 3. We use two measures of executive compensation and whether it mitigates the effect of investor horizon. Specifications 3 and 4 split the sample into two parts using the measure of (Currim et al., 2012). Specification 3 shows results for CEO compensation containing more long-term compensation than short-term compensation (=0) and those with a greater portion of short-term compensation relative to long-term compensation (>0). Specifications 5 and 6 split the sample using an alternative measure of CEO compensation (Bergstresser & Philippon, 2006) called the incentive ratio. Specification 5 contains the results for CEOs below the median incentive ratio (<m) and Specification 6 shows the results for CEOs with incentive ratios above the median (>m). We use year and firm fixed effects in all specifications. ). \*\*\*, \*\*, \* indicate significance at 1, 5, and 10% respectively. For more detailed information on variables see the Appendix.

## Appendix: Variable Definition

Words in *italics* refers to data code in COMPUSTAT, Execucomp, Thomson Reuters 13f and

CRPS database

Variable	Definition
ADVAT	Advertising expenses ( <i>xad</i> ) / total assets ( <i>at</i> ). As in (Currim et al., 2012), we perform a logit transformation on the limited dependent variable, so we use $\ln(x/(1-x))$ .
ADVSALE	Advertising expenses ( <i>xad</i> ) / sales ( <i>sale</i> ). As in (Currim et al., 2012), we perform a logit transformation on the limited dependent variable, so we use $\ln(x/(1-x))$ .
MARKTINGAT	Marketing expenditures: ( <i>xsga-xrd</i> )/ <i>at</i> . As in (Currim et al., 2012), we perform a logit transformation on the limited dependent variable, so we use $\ln(x/(1-x))$ .
SIZE	Natural logarithm of total assets ( <i>at</i> )
LEVERAGE	Total debt ( <i>dlc+dltt</i> ) / total assets ( <i>at</i> )
PROFIT MARGIN	Operating Income Before Depreciation ( <i>oibdp</i> )/ total assets ( <i>at</i> )
MARKET SHARE	Sales ( <i>sale</i> ) expressed as a share of industry total sales
RISK	Average stock return volatility ( <i>ret</i> ) over the last 250 days
SALES GROWTH	Change in sales ( <i>sale</i> ) over one year

Percentage of portfolio stocks that have been sold over the last 12 quarters averaged over all the firm's institutional shareholders and weighted by the number of shares held. In more details, for one investor, we compute portfolio turnover of investor *j* at quarter *t*, composed of *i* firms as:

$$ATURNOVER = \sum_{i=1}^N \frac{SharesHeld_{i,t} - SharesHeld_{i,t-12}}{SharesHeld_{i,t-12}} * \alpha_{i,t-12}$$

Where  $\alpha_{i,t-12}$  is the weight of shares of firm *i* in investor *j* portfolio at quarter *t-12*. We set it to zero if the change in shares held does not correspond to a reduction in position.

We then average it over the four last quarters, and aggregate the turnover of a firm's institutional investors at the firm level.

ACHURNRATIO Percentage of portfolio stocks that have been sold or bought over the last 12 quarters averaged over all the firm's institutional shareholders and

weighted by the number of shares held. See (Gaspar et al., 2005) for a detailed explanation of the variable computation.

BUSHEETRA	Bushee (1998) use portfolio characteristics to classify investors He divides investors across three factor variables: portfolio turnover, portfolio concentration and trading sensitivity to current earnings. He identifies three clusters of data along those three factors. “Transient investors” have the highest turnover and the highest use of momentum strategy. We use Bushee’s classification to compute the percentage of a firm’s institutional investors who are transient investors.
NB BLOCKHOLDERS	Number of institutional blockholders (with 1% or more ownership) in a firm’s ownership
EQUITY/BONUS RATIO	See (Currim et al., 2012). Short-term compensation (cash bonus) / long-term compensation (restricted stock and stock options)
INCENTIVE RATIO	See (Bergstresser & Philippon, 2006). This measure shows the share of a CEO’s compensation for a one percentage point increase in the equity value of the firm.

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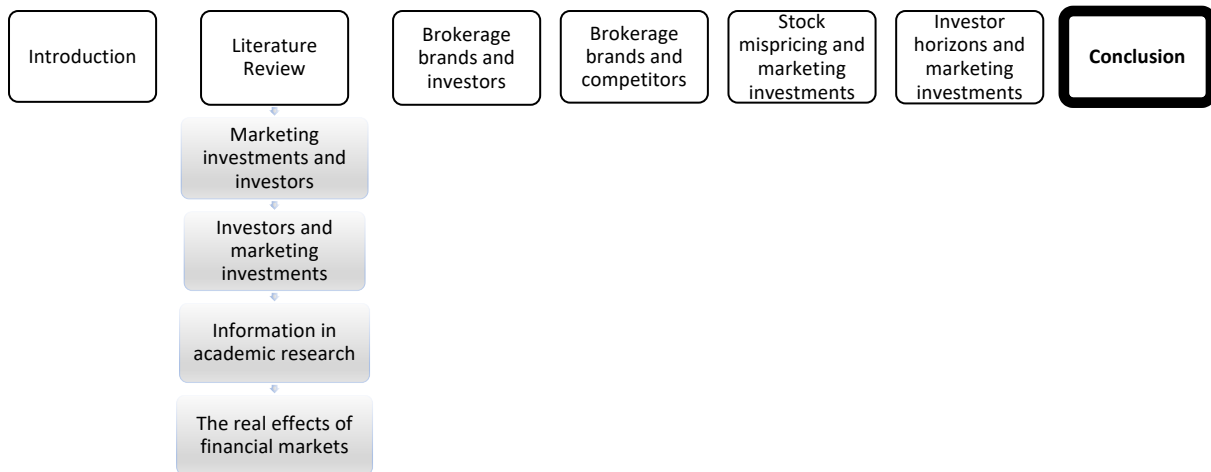
## Chapter 7 - Conclusion





# 7 CONCLUSION





## 7.1 Summary of results

This thesis seeks to answer the general research question of whether the information in stock prices flow bidirectionally between marketing investments and equity markets. Chapter 2 reviews the relevant literature and Chapters 3, 4, 5 and 6 contain four studies that investigate the bidirectional information flows. Chapters 3 and 4 look at information flows from marketing investments to equity markets while Chapters 5 and 6 investigate the effect of information flows from equity investors to marketing investments.

Chapter 3 seeks to answer the first research sub-question, i.e., whether the information in brokerage house brands matter for investors by looking at the relationship between marketing investments and brokerage houses in the context of US markets. The study focuses on one particular marketing investment, the brokerage house brand, and the role it plays in incorporating information into stock market prices. The study finds that brokerage house brand signals convey information to investors that influences the impact of brokerage houses.

Chapter 4 seeks to answer the second research sub-question of whether the information in brokerage house brands matter for competitors, a second player of equity markets in addition

to investors studied in Chapter 3. To do so, we use the same model and empirical methodology used in Chapter 3. It does so by looking at the influence of brokerage house brands on competitors in the US market. The findings suggest that brokerage house brands are used by competitors as signals when deciding how to respond to recommendation changes of brokerage houses.

Chapters 5 and 6 study the information flow from equity markets to firms. Chapter 5 seeks to answer the third research sub-question of whether a stock's mispricing affects marketing investments. We find that stock mispricing (i.e. stock prices that reflect information not related to firm fundamentals) affects marketing investments. We show that mispricing has a strong and negative impact on advertising and R&D expenditures. We find further that a firm's equity dependence moderate the relationship between mispricing and marketing investments. Our results indicate that stock prices may convey irrational information that affects marketing investments.

Chapter 6 seeks to answer the fourth research sub-question about whether information about investor horizons affect marketing investments. We find that shorter investor horizons are associated with a higher probability to reduce marketing investments. We further confirm our results using a causality test. We find further that two factors, blockholders and CEO compensation, moderate the relationship between investor horizon and marketing investments. Our results indicate that information about investor horizons influence marketing investments.

To sum up, Chapters 3 and 4 show that information flows from marketing investments influence equity markets, giving an affirmative response to research sub-questions one and two. Chapters 5 and 6 show that information flows from equity markets influence marketing investments, giving an affirmative response to research sub-questions three and four. Our general research question is whether the information in stock prices flow bidirectionally between marketing investments and equity markets. Overall, the results of the sub-research

questions confirm that information in stock price plays a bidirectional role between marketing investments and equity markets.

This thesis argues that the information flows in both directions, in line with the ‘real effects of financial markets’ perspective. In light of the affirmative responses to our four research sub-questions and the general research question, we conclude that the ‘real effects of financial markets’ perspective is relevant for the marketing-finance interface research area.

## 7.2 Contributions

This thesis contributes to the literature on the effects of stock price information in the relationship between marketing investments and financial markets and more generally to the literature in the marketing-finance interface. In this thesis, we posit that combining the two directions of information flows makes for a better theoretical framework of the relationship between marketing investments and equity markets. We make two points. First, we argue that the ‘real effects of financial markets’ perspective should be integrated into the marketing-finance interface. This integration would reflect how stock prices both convey and reflect information that is used in corporate decisions concerning marketing investments. Second, incorporating the feedback effect into the marketing-finance interface opens up new possibilities for research, which we discuss in 7.4.

### 7.2.1 Theoretical contributions

- i. By studying the bidirectional nature of information flows, this thesis shows that marketing investments and equity markets are closely linked in a two-way relationship as suggested by the ‘real effects of financial markets’ perspective. Within this perspective, marketing plays a key role in a firm's relationship with financial markets, both as sender of information and receiver of financial market information.

- ii. Our research complements the literature on the financial drivers of myopic management of marketing resources. We identify two new financial market drivers in the marketing literature, investor horizon and stock mispricing and study boundary conditions that may alter the impact of myopic behaviour.
- iii. This thesis responds to a call by (Malshe and Agarwal 2015) for research into the impact of institutional investors on a firm's marketing strategy. The studies identify two previously unstudied determinants of marketing investments, stock mispricing and investor horizon, extending previous research into the effect of investors on firms' marketing investments (Chakravarty and Grewal 2011; Markovitch, Steckel, and Yeung 2005).
- iv. We respond to a call for further study into investor biases and how they affect stock returns by showing how brokerage house brands affect investor decisions. We further show that investor biases, as reflected through investor horizon and mispricing, may affect marketing investments.
- v. We extend research into security analysts by showing the importance of brokerage house brands (Hong & Kubik, 2003; Womack, 1996)
- vi. The thesis adopts a multidisciplinary approach to study the role played by marketing investments in financial markets, a neglected area of research in marketing

### 7.2.2 Contributions to marketing practice

- i. This thesis helps marketing practitioners' better grasp why senior managers pay so much attention to stock prices. We show marketers the importance of the information managers glean from share prices and its influence on marketing practice.
- ii. Understanding the impact of stock mispricing and investor horizons facilitates the dialogue between the finance group and the marketing group.

### 7.2.3 Contributions to finance practice

- i. Investors can learn how brokerage house brand influence their own response and the response of competing brokerage houses to recommendation changes.
- ii. Shareholders should be aware that their biases affect the decisions of the firms they invest in.

## 7.3 Limits

Research is a difficult undertaking despite our best efforts. This thesis suffers from several weaknesses. The first and biggest limit in our opinion is that we do not test the feedback effect set out by the ‘real effects of financial markets’ perspective, focusing instead on the bidirectional nature of information flows. This is in large part because identifying and operationalizing these real effects is difficult.

A second limit is that the studies in Chapters 5 and 6 are based on yearly data. Higher frequency data such as quarterly expenditures would perhaps improve the granularity of the results but at the expense of lower availability as many US firms do not report quarterly data for some variables such as R&D because it is non-compulsory.

Furthermore, we use the marketing data that is available in databases. We lack more detailed information about other types of market investments such as the cost of promotions and the amounts spent on the marketing mix that could give a richer understanding of investor impact on firms. More detailed advertising and marketing expenditure data is available from research firms but at a high cost.

## 7.4 Future research

The ‘real effects of financial markets’ perspective applied to the marketing-finance interface opens up many opportunities for research, providing potentially deeper insights into the implication of the feedback effect between marketing investments and equity markets. The



feedback effect has consequences for marketing managers, top management teams, and the other stakeholders in firms because the actions of one player may come back to affect themselves. The literature review table in section 1.1 illustrates the rich areas of research that the ‘real effect of financial markets’ perspective can be used to study. We propose two examples below from two different areas of marketing to illustrate our call for further research into the role of the real effects of financial markets on marketing investments.

- i. Research shows that advertising expenditures affect and reflect information in stock prices. Do advertising expenditures used for the marketing of a company's products feedback to attract investors in the firm? How much do advertising expenditures contribute directly to a firm's stock market performance versus the indirect effect via investors? Can firm managers optimize the double effect of advertising expenditures on consumers and investors?
- ii. Brands both affect and reflect information in equity markets. What impact does brand equity have on investors in addition to customers? Do investments in brand equity help attract investors through a ricochet effect, which thus boosts a firm's stock performance separately from the brand's contribution to increasing a firm's cash flows?

Future research could study whether analysts moderate the effect of stock mispricing and investor horizon on marketing investments and the channels for doing so. Finally, the research subjects could be broadened to other countries to see if the effects of brokerage house brands are similar and whether cultural factors influence the impact of brokerage house brands.





# 8 RÉSUMÉ



## 8.1 Introduction

### 8.1.1 Contexte de la recherche

Les incertitudes concernant l'efficacité du marketing, l'accroissement de la pression provenant des marchés financiers sur les équipes de direction et l'impression que les dépenses marketing ne font qu'alourdir la note générale, ont incité les marketeurs à prouver la valeur des investissements dans le domaine (cf. exemple des priorités de recherche du Marketing Science Institute de 2014 à 2016), ce qui a mené à l'apparition de l'interface marketing-finance il y a environ vingt ans. Cet axe de recherche examine la condition et la manière selon lesquelles les investissements marketing ont créé de la valeur actionnariale et comment les marchés d'actions miroitent des informations sur les dépenses marketing. Ces dépenses concernent la publicité, la R&D, ainsi que les actifs marketing tels que la marque et la satisfaction client (cf. (S. Srinivasan & Hanssens, 2009) pour une revue). Le deuxième axe de recherche au niveau de l'interface marketing-finance, apparu plus récemment, étudie la manière par laquelle les participants aux marchés financiers, à l'instar des analystes, des investisseurs et des actionnaires, peuvent empêcher les investissements marketing de générer de la valeur pour les actionnaires (cf. (Chakravarty & Grewal, 2012) pour une revue).

Les deux axes de recherche étudient les investissements marketing de manière séparée. Le premier axe étudie si oui ou non les investisseurs prennent en compte les informations concernant les actions marketing telles que les dépenses publicitaires dans leurs prises de décisions. Le deuxième axe de recherche voit si oui ou non les dépenses publicitaires d'une entreprise ont une influence sur les intentions d'un investisseur et des marchés financiers. Cette scission concerne aussi les actifs comme la satisfaction client. À titre d'exemple, (Fornell, Mithas, & Morgeson, 2006) étudie l'influence des flux d'informations concernant la satisfaction client sur les sociétés, tandis que d'autres études prennent la direction opposée et étudient l'impact des créanciers obligataires sur la satisfaction client. Le Tableau 1 ci-dessous

illustre avec plus de détails la manière par laquelle les flux d'informations de différents investissements marketing ont été considérés séparément dans la littérature marketing et financière.

**La littérature de l'interface marketing-finance illustre la bidirectionnalité des flux d'information entre les investissements marketing et les marchés financiers**

Investissements marketing	Article illustratif	Acteur 1	Direction des flux	Acteur 2	Description de l'article
Marque	(Luo et al., 2013)	Sociétés	→	Marché d'actions	L'impact de la dispersion de notation sur la valeur des sociétés.
	(Schoenbachler et al., 2004)	Sociétés	←	Marché d'actions	Les investisseurs particuliers ont tendance à acheter les marques des entreprises dans lesquelles ils investissent.
Satisfaction client	(E. W. Anderson et al., 2004)	Sociétés	→	Marché d'actions	Association positive entre la satisfaction client et la valeur actionnariale.
	(Malshe & Agarwal, 2015)	Sociétés	←	Marché d'actions	Le taux d'endettement des entreprises diminue la satisfaction des clients.
Publicité	(Joshi & Hanssens, 2010)	Sociétés	→	Marché d'actions	Les dépenses publicitaires ont un effet positif sur la capitalisation.
	(Lou, 2014)	Sociétés	←	Marché d'actions	Cet article apporte des preuves sur le fait que les comités de direction font adapter la publicité de leurs produits en partie pour attirer l'attention des investisseurs.



Investissements marketing	Article illustratif	Acteur 1	Direction des flux	Acteur 2	Description de l'article
R&D	(Lev & Sougiannis, 1996)	Sociétés	→	Marché d'actions	La capitalisation R&D est associée de façon significative aux cours de la bourse et au rendement des actions.
	(Chakravarty & Grewal, 2011)	Sociétés	←	Marché d'actions	Les comités exécutifs peuvent modifier les budgets R&D en réponse aux attentes des investisseurs sur le rendement des actions sur le court-terme.
Innovation	(Moorman et al., 2012)	Sociétés	→	Marché d'actions	Les sociétés influencent leur valorisation boursière en introduisant de nouveaux produits à des moments propices.
	(Wies & Moorman, 2015)	Sociétés	←	Marché d'actions	Après leur introduction en bourse, les sociétés augmentent leur taux d'innovation mais en réduisent le risque.
Les marques	Notre thèse	Maison de courtage	→	Marché d'actions	Les maisons de courtage influencent les investisseurs et les concurrents.
Le prix erroné des stocks et l'horizon des investisseurs	Notre thèse	Sociétés	←	Marché d'actions	Les erreurs de valorisation des actions et l'horizon des investisseurs ont une influence sur les investissements marketing.

La disjonction des deux axes de recherche pose problème car l'impact des investissements marketing sur les marchés financiers est étudié sans prendre en considération l'effet de la bidirectionnalité des flux d'informations. Notre thèse soutient qu'il serait intéressant d'enquêter sur l'information qui circule dans les deux sens et intègre les flux bidirectionnels dans l'interface marketing-finance en s'appuyant sur les effets réels de la perspective des

marchés financiers. Le terme de perspective est utilisé pour les « effets réels des marchés financiers » car il existe un débat autour de l'élargissement de la théorie de l'efficacité des marchés ; il n'y a, de ce fait, pas de création d'un nouveau cadre conceptuel. Notre thèse soutient également que l'élargissement donnerait à l'interface marketing-finance une base théorique suffisamment solide et ouvrirait de nouvelles perspectives de recherche.

## 8.2 Cadre conceptuel

Depuis le célèbre article d'Akerlof en 1970 sur le marché des voitures d'occasion (« Market for Lemons ») et le rôle occupé par l'information dans les transactions, la recherche académique a considérablement enquêté sur le rôle joué par celle-ci dans la prise de décision. La recherche marketing a tenté de comprendre ce qui mène le consommateur à s'informer, ses sources d'informations, comment cette information est traitée et son impact dans les différentes étapes de sa prise de décision. Cette recherche a été élargie par l'interface marketing-finance pour comprendre comment, dans un premier temps, l'information liée aux investissements marketing est évaluée par les marchés d'actions et comment, dans un second temps, l'information sur les acteurs des marchés financiers impacte les investissements marketing. Par opposition, la recherche en finance se penche sur l'effet de l'information dans les marchés financiers, se focalisant sur les résultats au niveau de ces marchés, tels que l'efficacité informationnelle et les effets causés par sa diminution.

Récemment, la finance a opté pour une approche dérivée de l'économie de l'information qui considère que les flux d'informations pourraient être bidirectionnels. Elle étudie les effets de ces derniers sur de vraies décisions stratégiques prises par les comités exécutifs. Il en ressort que les analystes financiers voient traditionnellement la hausse et la baisse du prix de l'action comme étant un indicateur des attentes des investisseurs sur les flux de trésorerie futurs de l'entreprise. Quel que soit le prix de l'action, celui-ci peut refléter l'accord ou le désaccord des investisseurs avec les décisions managériales. Cette information propre aux investisseurs qui

est reflétée dans le cours de la bourse peut alors affecter à son tour les décisions qui sont prises par les comités exécutifs. La perspective des « effets réels des marchés financiers » étudie la manière par laquelle les flux d'informations sont bidirectionnels entre les entreprises et les marchés financiers, en particulier les marchés secondaires. Suivant cette perspective, le prix des actions reflète à la fois l'information sur les attentes des investisseurs et transmet de l'information aux comités exécutifs. On applique la perspective de « l'effet réel des marchés financiers » afin de mieux comprendre la relation entre les investissements marketing et les marchés financiers. Afin d'explorer cette perspective, nous adoptons une approche multidisciplinaire, qui combine la recherche en marketing et la recherche en finance.

### 8.3 Questions de recherche

Le point de départ de notre thèse est l'information communiquée par le cours de la bourse, prise en considération par la recherche académique depuis 50 ans (Akerlof, 1970; Fama, 1970; Rappaport, 1987). La communication de l'information a mené à la théorie de l'efficacité des marchés selon laquelle les cours de la bourse agrègent toute l'information disponible (Fama, 1970). Notre thèse se base sur le rôle du cours de la bourse en tant qu'agrégateur de l'information pour enquêter sur l'influence de ce phénomène au niveau de la relation entre les investissements marketing et le marché d'actions. Nous préférons le terme « investissements marketing » dans notre thèse à celui d'action marketing (ex. : dépense publicitaire) ou d'actif marketing (ex. : la marque) car le terme « investissement » englobe 1/ l'action ou le processus d'investir de l'argent qui générera de la richesse dans un temps futur et 2/ le résultat créé par cette action d'investir qui générera de la richesse dans le futur ou, en d'autres termes, les actifs marketing que les dépenses marketing créeront.

Notre thèse soutient que la relation entre les investissements marketing et les marchés financiers est une relation bidirectionnelle où l'information est véhiculée par les cours de la bourse. Les flux bidirectionnels reflètent l'émergence du corps de la recherche dans les effets

réels des marchés financiers (P. Bond et al., 2012). Les auteurs avancent que la théorie de l'efficience informationnelle des marchés devrait être élargie pour inclure les flux directionnels de l'information entre tous les acteurs des marchés, ce qui aiderait à avoir une meilleure idée des effets réels des marchés d'actions, en particulier l'effet des marchés secondaires sur les sociétés. Nous soutenons que la recherche sur l'interface marketing-finance devrait inclure les flux bidirectionnels d'information que les chercheurs actuels examinent séparément. Elle devrait aussi être fondée sur la perspective des « effets réels des marchés financiers ». De ce fait, l'interface marketing-finance obtient une base conceptuelle plus grande, ce qui a pour effet d'ouvrir de nouvelles possibilités de recherche.

La problématique reflète notre argument sur l'application des effets réels des marchés financiers aux deux axes de recherche de l'interface marketing-finance en considérant si oui ou non les flux d'informations sont bidirectionnels entre le marketing et le marché d'actions : Suivant cette optique, est-ce que l'information du cours de la bourse circule de façon bidirectionnelle entre les investissements marketing et le marché d'actions ?

Dans les quatre études de notre thèse brièvement décrites ci-dessous, nous enquêtons sur quatre sous-questions de recherche. Le groupement de sous-questions des deux premières études évalue la condition selon laquelle les flux d'informations sur les investissements marketing ont un impact sur le marché d'actions. Le groupement de sous-questions des deux dernières études évalue si l'information provenant des investisseurs a une influence sur les investissements marketing ou pas. Les quatre sous-questions ont pour but de déterminer si ou non les flux d'informations entre les investissements marketing et le marché d'actions sont bidirectionnels.

### 8.3.1 Sous-question de recherche 1 (Étude 1, chapitre 3)

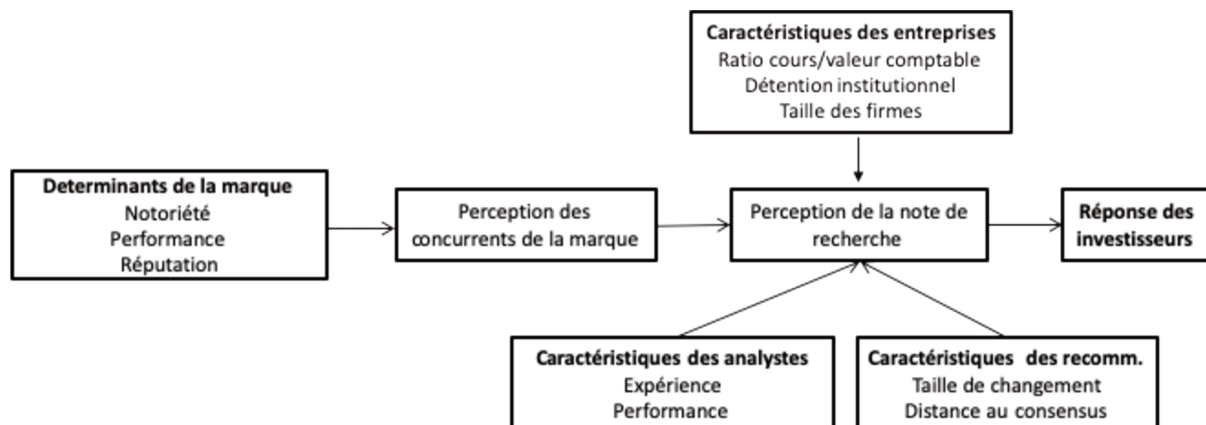
La première sous-question de recherche se focalise sur l'impact des marques des maisons de courtage – un type d'investissement marketing – sur les investisseurs d'actions. Nous

cherchons à confirmer si oui ou non l'information contenue dans le signal de la marque des maisons de courtage a une influence sur les décisions des investisseurs. Nous voulons répondre dans l'étude 1 à la sous-question suivante :

L'information contenue dans le signal de la marque des maisons de courtage impacte-t-elle les investisseurs d'actions ?

Pour répondre à cette question, le modèle de signal de la marque (Erdem & Swait, 1998) qui est basé sur l'économie de l'information dans le contexte d'une étude d'événements sera utilisé. Nous cherchons à déterminer l'impact de l'information dans les signaux de la marque sur les investisseurs. La figure 1 ci-dessous montre le cadre conceptuel utilisé pour répondre à cette question au niveau de l'étude 1.

**Figure 1 - Cadre conceptuel pour l'étude 1 (Chapitre 3)**



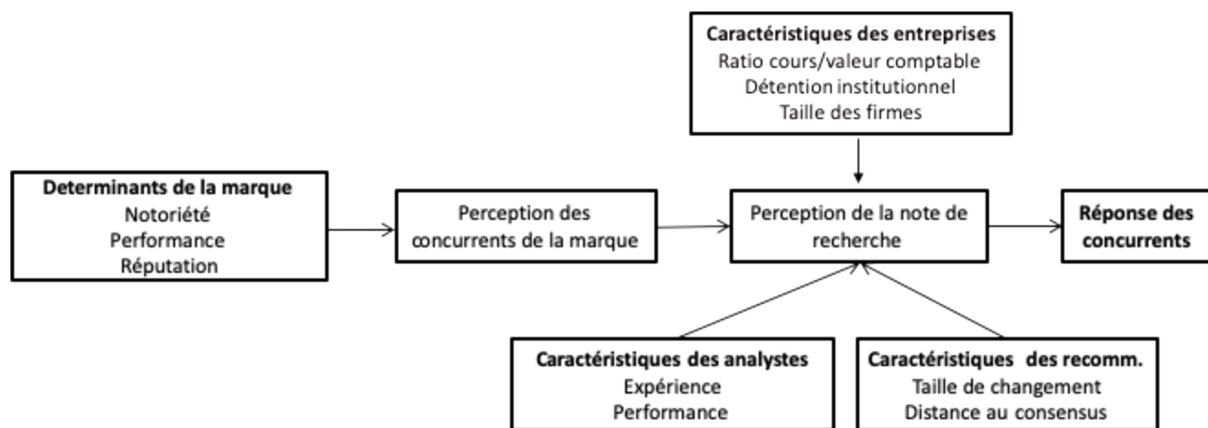
### 8.3.2 Sous-question de recherche 2 (Étude 2, chapitre 4)

Cette étude considère l'impact de la marque des maisons de courtage sur leurs concurrentes. Ce sujet étudie la manière par laquelle l'information dans les signaux de la marque de la maison de courtage affecte une maison concurrente en plus des investisseurs d'actions pris en compte dans l'étude 1. Nous voulons répondre dans l'étude 2 à la sous-question suivante :

L'information dans les signaux de la marque des maisons de courtage influence-t-elle les maisons de courtage concurrentes ?

Nous étendons le cadre conceptuel des maisons de courtage (Erdem & Swait, 1998) du chapitre 2 pour étudier les effets de l'information dans les signaux de la marque et leurs impacts sur le statut de meneur d'une maison de courtage. La Figure 2 contient le cadre conceptuel de l'étude 2.

**Figure 2 - Cadre conceptuel pour l'étude 2 (Chapitre 4)**



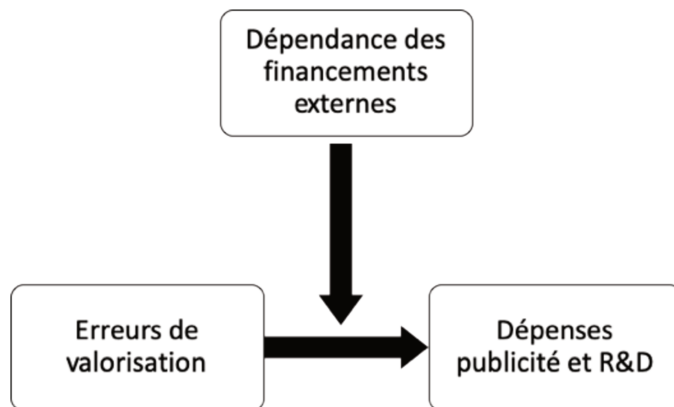
### 8.3.3 Sous-question de recherche 3 (Étude 3, chapitre 5)

Nous nous concentrons maintenant sur la direction inverse des flux d'informations, c'est-à-dire depuis les investisseurs d'actions vers les investissements marketing. Pour ce faire, nous menons une enquête pour savoir si les erreurs de valorisation des actions affectent les investissements marketing. Nous voulons répondre dans l'étude 3 à la sous-question suivante :

L'information sur les erreurs de valorisation des actions affecte-t-elle les investissements marketing ?

Pour ce faire, nous utilisons quatre mesures d'erreurs de valorisation des actions pour voir si elles ont un impact sur les investissements marketing (publicité et dépenses R&D). Nous utilisons le cadre conceptuel exposé dans la figure 3 pour répondre à cette question.

**Figure 3 - Cadre conceptuel pour l'étude 3 (Chapitre 5)**



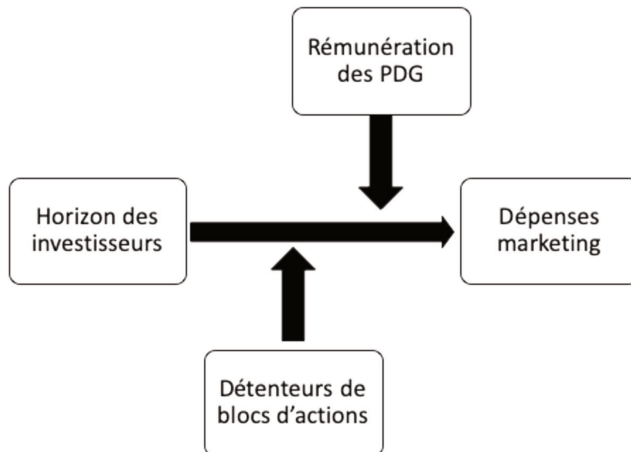
#### 8.3.4 Sous-question de recherche 4 (Étude 4, chapitre 6)

Cette étude explore un deuxième type d'informations qui est représenté dans les cours de la bourse des actions et qui pourrait influencer les dépenses marketing. Plus précisément, nous examinons la condition selon laquelle l'information à propos des horizons d'investissement dans les cours de la bourse influence les dépenses marketing. Nous tentons de répondre dans l'étude 4 à la sous-question suivante :

L'information sur les horizons d'investissement contenue dans les cours de la bourse a-t-elle un impact sur les investissements marketing ?

Pour ce faire, nous observons les fins suivant lesquelles les horizons des investisseurs influencent les dépenses marketing. Nous tentons de savoir si la rémunération du PDG et la présence ou non de détenteurs de blocs d'actions atténuent les effets de l'horizon des investisseurs sur les dépenses marketing. La Figure 4 montre le cadre conceptuel de l'étude 4.

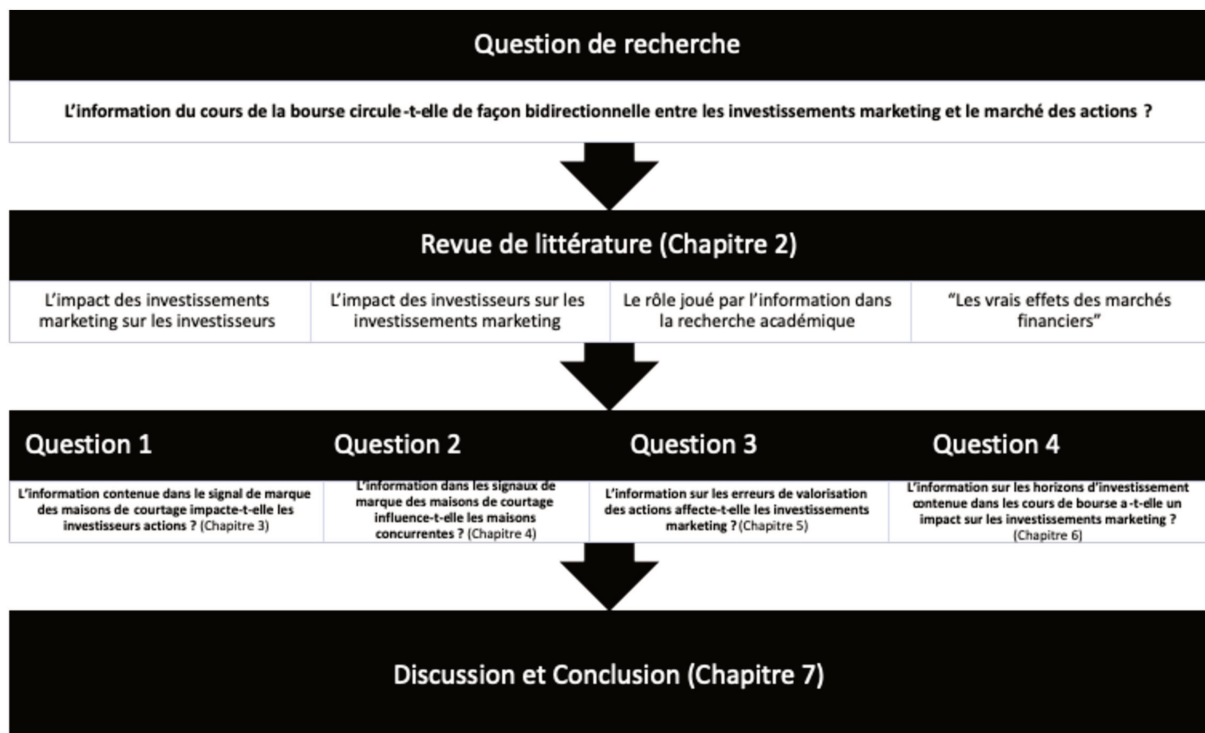
**Figure 4 Le cadre conceptuel de l'étude 4 (Chapitre 6)**



### 8.4 Organisation de la thèse

Le Tableau 2 et le Tableau 3 ci-dessous apportent un regard d'ensemble sur la structure de la thèse. Le Tableau 2 met en relief la relation entre l'organisation de la thèse et la manière par laquelle notre question de recherche est examinée. Le Tableau 3 contient l'ensemble empirique de cette thèse.

**Tableau 2 - Structure de la thèse**





**Tableau 3 - Survol empirique des études de la thèse**

	Étude 1 (Ch. 3)	Étude 2 (Ch. 4)	Étude 3 (Ch. 5)	Étude 4 (Ch. 6)
Titre	La marque des maisons de courtage compte-t-elle pour les marchés d'actions ?	La marque des maisons de courtage compte-t-elle pour leurs concurrents ?	Les erreurs de valorisation des actions et les investissements marketing.	L'horizon des investisseurs et les dépenses marketing.
Variable dépendante	Les rendements anormaux cumulés.	Statut de leader.	Dépenses marketing et dépenses R&D.	Dépenses publicitaires et dépenses marketing.
Variable indépendante	Score de marques des maisons de courtage, performance, expérience, réputation, notoriété.	Score de marques des maisons de courtage, performance, expérience, réputation, notoriété.	Valorisation PV, valorisation RH, valorisation HP, Index KZ, ratio cours de bourse/valeur comptable.	Horizon des investisseurs : détenteurs de blocs d'actions et rémunération des PDG.
Sources de données	IBES, CRSP, Compustat, WSJ, Carter-Manaster, Thomson-Reuters, Institutional Investor Survey	IBES, CRSP, Compustat, WSJ, Carter-Manaster, Thomson-Reuters, Institutional Investor Survey	CRSP, Compustat, Thomson-Reuters 13F Filings	CRSP, Compustat, Execucomp, Thomson-Reuters 13F Filings
Variables de contrôle	Caractéristiques des analystes, sociétés et recommandations.	Caractéristiques des analystes, sociétés et recommandations.	Taille, croissance des ventes & bénéfices, parts de marché, détention institutionnelle, risque idiosyncratique.	Taille, croissance des ventes & bénéfices, parts de marché, détention institutionnelle.
Méthode	Moindres carrés ordinaires.	Régression logit.	Régression panel.	Régression panel logit.
Taille de l'échantillon d'étude	47 345 changements de recommandations.	30 619 changements de recommandations.	40 966 observations.	40 962 observations.
Temps d'étude	2000-2014	2000-2014	1980-2014	1980-2014

Afin d'étudier nos sous-questions de recherches, nous utilisons des cadres théoriques, des données financières et des méthodologies provenant de la littérature en marketing et finance.

## 8.5 Résultats et contributions

Notre thèse entreprend de déterminer si les flux d'informations entre les investissements marketing et les investisseurs sont bidirectionnels. Cet aspect des flux d'informations a jusqu'à présent été négligé par les chercheurs en interface marketing-finance. Nous soutenons que la perspective des « effets réels des marchés financiers » apporte un cadre conceptuel capable à la fois d'expliquer l'influence des flux d'informations bidirectionnels et d'ouvrir de nouvelles possibilités de recherche pour délimiter les effets des informations allant dans les deux sens.

Les études 1 et 2 se penchent sur les effets qu'ont les flux d'informations provenant des investissements marketing sur les marchés d'actions. L'étude 1 démontre que l'information des marques de maisons de courtage, un type de dépenses marketing, a une influence sur les investisseurs en actions. De plus, nous exposons quatre caractéristiques de maisons de courtage qui influencent la réaction des investisseurs par rapport à la marque de ces dernières. Ainsi, nous faisons la démonstration suivante : la marque des maisons de courtage influence le prix des sociétés. Nous développons par conséquent une méthodologie pour estimer le score de la marque d'une maison de courtage.

L'étude 2, une extension de l'étude 1, montre qu'en plus d'avoir un impact sur les investisseurs, la marque des maisons de courtage a un impact sur les maisons de courtage concurrentes. De plus, nous montrons la manière suivant laquelle les caractéristiques d'une maison de courtage influencent ses concurrentes. Une marque de maison courtage contient de l'information pour ses concurrents sur son statut de leader au niveau d'une action donnée. La caractéristique d'une maison de courtage contribue également à son statut.

Combinés, les résultats des études 1 et 2 suggèrent que les investissements marketing influencent les marchés d'actions. Ils suggèrent aussi que les maisons de courtage concurrentes perçoivent les marques différemment des investisseurs et la marque impacte tout aussi différemment les investisseurs et les maisons concurrentes.

Les études 3 et 4 analysent les flux d'informations provenant des investisseurs et allant vers les dépenses marketing. L'étude 3 démontre que la manière dont les investisseurs influencent le prix d'une action affecte les investissements marketing. Nous explicitons empiriquement que l'erreur de valorisation des cours de la bourse impacte négativement les dépenses publicitaires et R&D. De plus, la dépendance d'une société au financement de ses capitaux propres a un impact sur cette relation. Nous développons et démontrons que les erreurs de valorisation des actions peuvent mener à la réduction des dépenses marketing, et que l'irrationalité des prix des actions peut avoir un effet sur les investissements marketing.

L'étude 4 détermine si l'information sur les horizons des investisseurs dans les cours de la bourse influence les investissements marketing. Nous montrons que le roulement des investisseurs est associé à une plus forte probabilité de réduction de dépenses marketing. Nous montrons aussi que la rémunération du PDG n'atténue pas les effets, ce qui suggère que l'existence de la myopie managériale est plus qu'un simple conflit d'agence.

Prises dans leur ensemble, les études 3 et 4 démontrent que les informations circulent à partir des marchés d'actions vers les investissements marketing.

Ces quatre études combinées démontrent la nature bidirectionnelle des flux d'informations entre les investissements marketing et le marché d'actions. Les implications de ce résultat, les limites et les suggestions pour la recherche future sont présentes dans la conclusion.

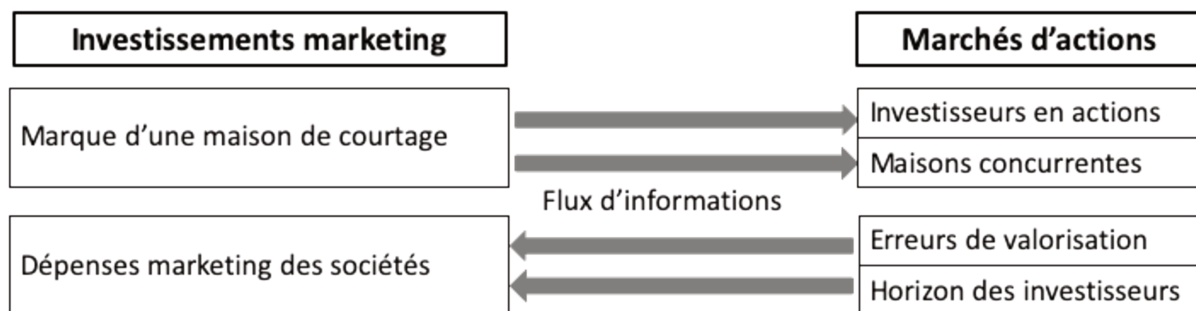
## 8.6 Structure de la recherche

La structure générale de la recherche représentée dans la Figure 5 contient des flèches qui montrent les directions pertinentes sur les flux d'informations entre les investissements marketing et les investisseurs. La flèche du haut représente les flux d'informations allant des investissements marketing aux marchés d'actions. La flèche du bas indique les flux

d'informations allant du marché d'actions vers les investissements marketing. Les acteurs que nous étudions dans chaque cas sont indiqués à côté du numéro de chapitre.

### Figure 5 - Structure générale de la recherche

#### Bidirectionnalité des flux d'informations entre les investissements marketing des sociétés et les marchés des action



Une clarification sur la sélection des acteurs des marchés étudiés dans notre thèse est en ordre. En théorie, les transmetteurs de l'information des études 1 et 2 devraient être les receveurs des informations des études 3 et 4 et *vice versa*. Nous n'étudions pas les sociétés comme transmetteurs d'informations dans les études 1 et 2, ce sujet ayant déjà été examiné dans de nombreuses recherches (cf. Tableau 1 de la section 1.1 pour des exemples). Concernant les flux d'informations provenant des investissements marketing vers les marchés d'actions, les acteurs que nous observons dans cette thèse sont les maisons de courtage et non pas les sociétés. Nous nous concentrons sur les maisons de courtage car bien que la recherche précédente ait établi la prise en compte des investisseurs en actions du capital de marque des sociétés (S. Srinivasan et Hanssens 2009) quand ils décident d'investir, elle ne démontre pas si les investissements marketing des intermédiaires de l'information affectent directement la prise de décision.

Dans notre thèse, ce choix signifie concrètement que ceux qui transmettent l'information aux investisseurs sont les maisons de courtage (la flèche du haut). Cependant, les receveurs des

informations contenues dans les cours des bourses (flèche du bas) sont bien les sociétés et non les maisons de courtage.

Dans la structure générale de la recherche ci-dessus, le chapitre 3 étudie la relation entre les maisons de courtage et les investisseurs. Le chapitre 4 étudie la relation entre une maison de courtage et ses concurrentes. Les chapitres 5 et 6 étudient les effets de la relation entre les investisseurs et les investissements marketing des sociétés.

Les études 1, 3 et 4 sont présentées en tant qu'articles. L'étude 1 a été soumise au journal *International Journal of Research in Marketing*. Les deux autres études le seront bientôt. L'étude 2 (Chapitre 4) n'est pas présentée sous forme d'article car elle représente une extension du cadre conceptuel et méthodologie empirique utilisés dans l'étude 1.

## 8.7 Épistémologie

Lorsque nous étudions un objet d'étude, les difficultés les plus manifestes sont : 1) la meilleure manière d'aborder le sujet et 2) le format sous lequel représenter la thèse au mieux : clairement démontrer l'intérêt du sujet, présenter les choix théoriques, expliquer le choix de méthodologie, justifier les résultats et principalement, la manière adéquate pour rendre notre thèse aussi cohérente que possible.

Afin de prendre en compte toutes ces considérations, notre choix s'est donc porté sur un format de thèse par études. Chaque étude (mis à part le Chapitre 4 qui est dépourvu de cadre conceptuel et de cadre empirique propres) adopte la forme de l'hypothèse, de la collection des données, de l'analyse des données et des résultats. Notre thèse prend alors une approche hypothético-déductive.

Toute recherche donne lieu à des questions épistémologiques. Notre thèse adopte un paradigme positiviste pour deux raisons :

Elle est mue par les questions « pourquoi ? » et « pour quelle raison ? ». En d'autres termes, si et comment le cours de la bourse transmet des informations entre les investissements marketing et le marché d'actions, plutôt que le paradigme interprétativiste qui pose des questions dans les termes de « pour quelle raison est-ce que les acteurs... ? » ou le paradigme constructiviste qui demande « pour quel motif ? ».

Les critères de validité de cette thèse correspondent au paradigme positiviste : vérifiabilité, confirmabilité et réfutabilité.

## 8.8 Organisation de la thèse

Notre thèse commence par un chapitre d'introduction, suivi d'une revue de la littérature (chapitre 2), puis de quatre études empiriques (chapitres 3, 4, 5 et 6) et se termine par une conclusion (chapitre 7). Le résumé en français de la thèse est en chapitres, suivi par les références et les annexes.

Le chapitre 2 est une revue de la littérature relative à cette thèse. Il commence par une introduction non numérotée, puis les deux axes de l'interface marketing-finance qui reflètent les deux directions des flux d'informations étudiées en marketing (2.1 et 2.2), la façon dont cette information a été étudiée dans la littérature académique (2.3) et, pour finir, la manière par laquelle la recherche en comptabilité et en finance analyse le rôle de l'information dans les marchés financiers et la perspective des « effets réels des marchés financiers » (2.4).

Les chapitres 3, 4, 5 et 6 sont présentés dans le format d'une étude académique, avec une introduction, un cadre théorique, une analyse empirique, des résultats et une discussion.

Le chapitre 3 porte sur la façon dont les marques, un type d'investissement marketing, contribuent à l'information dans le prix du marché d'actions en se servant d'un objet d'étude.

Le chapitre 4, une extension du chapitre 3, analyse la manière par laquelle les marques contribuent à l'efficacité de l'information du marché d'actions en utilisant le statut d'une

maison de courtage. Le chapitre 5 étudie l'impact de l'information sur le prix des actions qui mène à la mauvaise évaluation des prix et les conditions selon lesquelles cela affecte les investissements marketing. Le chapitre 6 étudie l'impact de l'horizon des investisseurs dans le prix des actions sur les investissements marketing.

Le chapitre 7 enfin, présente les résultats, les contributions théoriques et managériales ainsi que les limites de la recherche future.

## 8.9 Chapitre 2 : Revue de littérature

Ce chapitre décrit les principaux cadres théoriques présentés dans cette thèse où nous explorons la littérature spécifique. Nous commençons par étudier les deux axes de recherche de l'interface marketing-finance, c'est-à-dire la manière dont les marchés financiers réagissent aux investissements marketing (section 2.1) et comment les marchés financiers impactent les investissements marketing (section 2.2). Viennent ensuite l'étude de l'information en marketing (section 2.3), la perspective des « effets réels des marchés financiers » (section 2.4) et enfin, la conclusion (section 2.5).

- i. **Section 2.1** : Le premier cadre de l'interface marketing-finance étudie les conditions selon lesquelles le prix des actions reflète l'information des marchés financiers qui impactent les investissements marketing. Nous analysons la manière à travers laquelle les questions posées sur la capacité du marketing à générer de la valeur pour les actionnaires a mené à l'émergence de l'interface marketing-finance en tant qu'axe de recherche indépendant en marketing. Nous étudions ensuite comment les investissements marketing contribuent au rendement des actionnaires, et terminons avec une description des principales méthodes empiriques utilisées dans ce cadre. Nous nous concentrons particulièrement sur la méthode des études d'événements puisque nous utilisons cette approche dans le chapitre 3.
- ii. **Section 2.2** : Le deuxième axe de l'interface marketing-finance analyse la manière par laquelle l'information provenant des marchés financiers affecte les investissements marketing. Nous étudions la façon dont la nature discrétionnaire des dépenses marketing les rend vulnérables à la manipulation par les dirigeants. Enfin, nous réfléchissons à trois conditions, regroupées en trois thèmes, qui pourraient pousser les dirigeants à des comportements myopes concernant les investissements marketing : 1/ le REAM, real earnings management (gestion réelle des résultats), 2/ le financement



des entreprises et 3/ le lien entre l'information contenue dans les cours d'actions et les investissements marketing.

- iii. **Section 2.3 :** Nous examinons comment l'information a été étudiée dans la recherche marketing. Nous considérons d'abord la manière par laquelle l'information imparfaite et asymétrique crée de l'incertitude quant à la qualité de la recherche des maisons de courtage, ensuite nous étudions la façon dont les consommateurs se procurent l'information et l'utilisent pour prendre leur décision d'achat. Enfin, nous examinons la façon dont les signaux aident les consommateurs à résoudre leur incertitude sur la qualité d'un produit, puis nous nous penchons sur la recherche concernant les marques en tant qu'information, d'abord en général puis dans les services ; ces derniers étant le secteur sur lequel nous nous focalisons dans les chapitres 3 et 4.
  
- iv. **Section 2.4 :** Nous étudions la manière à travers laquelle la perspective des « effets réels des marchés financiers » impacte la théorie sur l'efficience informationnelle des marchés. Ensuite, nous nous concentrons sur les stratégies adoptées par les dirigeants et les marchés financiers pour contribuer aux effets réels. Nous étudions aussi trois théories qui expliquent pourquoi les dirigeants réagissent aux informations contenues dans les cours de la bourse, à savoir leur motivation personnelle, le désir de se conformer aux exigences des investisseurs et l'apprentissage des erreurs passées (learning). Nous nous attachons par la suite à l'information contenue dans les cours de la bourse provenant des limitations de l'arbitrage, des attentes des investisseurs, de la veille que font les investisseurs sur les actions managériales et les besoins de financements externes de l'entreprise. Enfin, nous nous concentrons sur la littérature concernant les erreurs de valorisation et les horizons des investisseurs que nous étudions dans le contexte des investissements marketing dans les chapitres 5 et 6.

- v. **Section 2.5** : Nous concluons et expliquons le choix des sujets et le niveau des analyses incluses dans cette thèse.

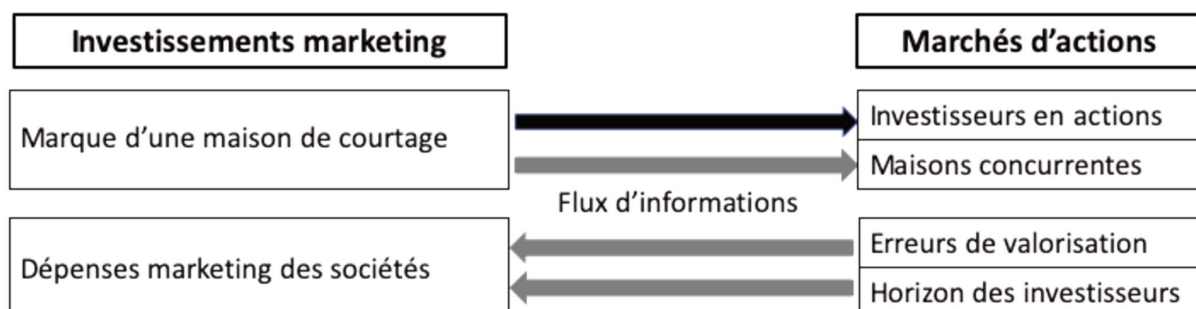
## 8.10 Contribution du chapitre 3 à la thèse

Le chapitre 3 étudie l'impact des flux d'informations des investissements marketing en direction des investisseurs. La flèche en gras dans la figure ci-dessous représente les flux d'informations de notre schéma de recherche pertinents pour le chapitre 3.

Afin d'étudier cette relation, nous utilisons le signal de la marque développé par (Erdem & Swait, 1998; 2016) pour explorer la façon dont l'information des signaux de la marque d'une maison de courtage peut affecter la réaction des investisseurs au changement de recommandation de cette même maison de courtage. Nous étudions trois déterminants qui pourraient contribuer aux effets de la marque sur les investisseurs. Nous développons plus en profondeur une mesure d'évaluation de la marque (brand score). Nous testons ensuite les déterminants de la marque et les évaluations empiriques pour voir s'ils influencent la réponse des investisseurs aux changements de recommandation d'une maison de courtage. Nous en concluons que la marque d'une maison de courtage influence les investisseurs et validons aussi les trois déterminants de la marque proposés.

### Comment les investissements marketing affectent les investisseurs en action (chapitre 3)

#### Chapitre 3 : Flux provenant de la marque d'une maison de courtage et allant vers les investisseurs actions



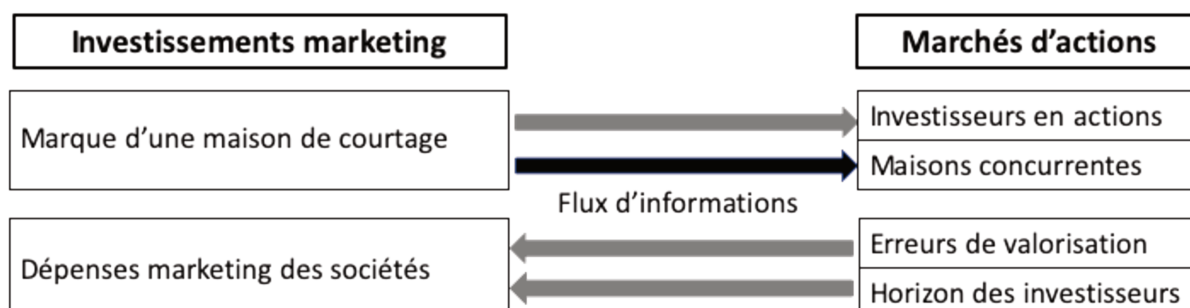
### 8.11 Contribution du chapitre 4 à cette thèse

Le chapitre 4 élargit le périmètre du modèle du signal de la marque utilisé dans le chapitre 3. Nous regardons plus précisément si l'information contenue dans les signaux de la marque d'une maison de courtage influence la réponse des maisons de courtage concurrentes. Élargir le périmètre du modèle du chapitre 3 nous permet de mieux saisir l'impact des marques sur le marché des actions en incorporant un deuxième acteur-clé des marchés financiers, les maisons de courtage concurrentes. Seul le régulateur, le troisième et dernier acteur-clé, n'a pas été pris en compte. La flèche en gras dans la figure ci-dessous représente les flux d'informations de notre schéma de recherche pertinents pour le chapitre 4.

Nous utilisons le même cadre conceptuel, les mêmes variables indépendantes et les mêmes variables de contrôle que pour le chapitre 3. Nous calculons une mesure de la réponse des maisons de courtage concurrentes aux changements de recommandation d'une maison de courtage leader. Cette mesure s'appelle « statut de leader » et devient alors notre variable dépendante. Nous testons empiriquement l'effet de l'évaluation de la marque de la maison de courtage et ses déterminants par rapport à la réponse des concurrents. Nous aboutissons sur l'assertion suivante : les maisons de courtage concurrentes réagissent différemment des investisseurs à la marque d'une maison de courtage. De plus, la performance et la réputation, deux des déterminants d'une marque, ont une influence positive sur les concurrents alors que la notoriété a une influence négative. Nous pensons que des facteurs spécifiques au secteur peuvent expliquer que les déterminants de la marque d'une maison de courtage n'influencent pas ses concurrents de la même manière que les investisseurs.

## Comment les investissements marketing affectent les concurrents (chapitre 4)

### Chapitre 4 : Flux provenant de la marque d'une maison de courtage et allant vers les maisons de courtage concurrentes



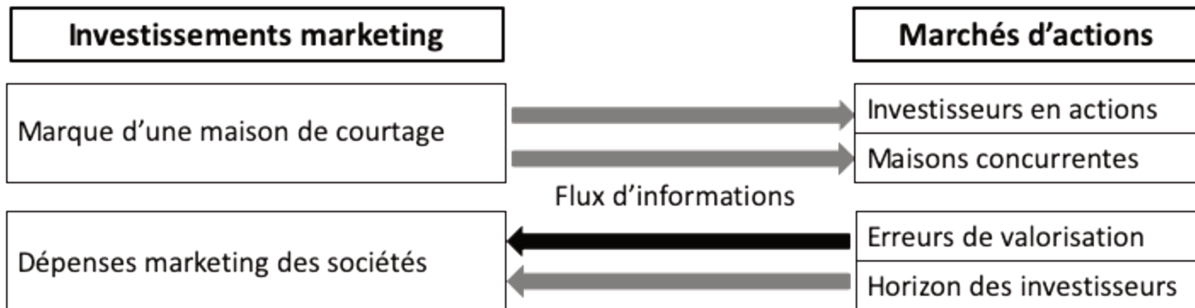
## 8.12 Contribution du chapitre 5 à cette thèse

Les deux chapitres qui suivent étudient l'effet des flux d'informations provenant des marchés d'actions et allant vers les investissements marketing. La flèche en gras dans la figure ci-dessous représente les flux d'informations de notre modèle de recherche pertinent pour le chapitre 5.

Le chapitre 5 détermine si l'information sur la manière par laquelle les investisseurs perçoivent une entreprise, perception reflétée dans les erreurs de valorisation de son action, peut impacter les décisions que prend cette entreprise concernant ses investissements marketing. Nous étudions ce qui se passe quand l'efficacité du marché d'actions baisse, c'est-à-dire l'effet produit par une mauvaise valorisation des actions sur les investissements marketing. Nous trouvons de manière empirique que les erreurs de valorisation ont un fort impact négatif sur les investissements marketing. Nos résultats montrent également que plus une société dépend du marché d'actions pour son financement plus les erreurs de valorisation ont un impact négatif sur les investissements marketing et inversement.

**Comment les erreurs de valorisation affectent les investissements marketing (chapitre 5)**

**Chapitre 5 : Flux provenant des erreurs de valorisation et allant vers les dépenses marketing des sociétés**



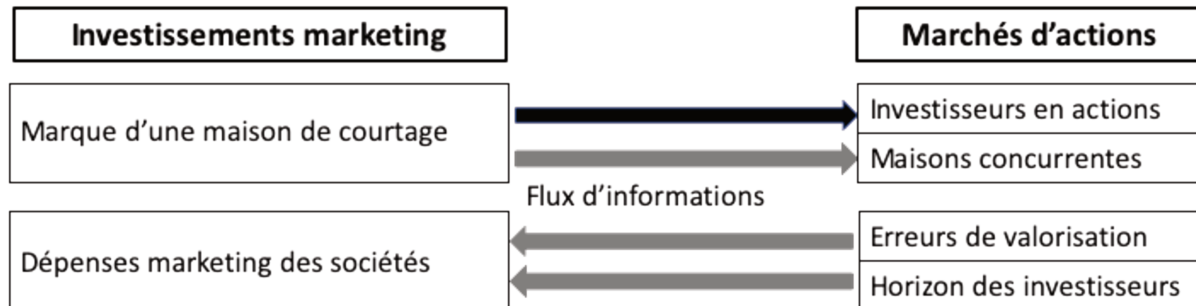
**8.13 Contribution du chapitre 6 à cette thèse**

Le chapitre 6 étudie un second type d'information que le prix des actions peut transmettre, à savoir l'horizon des investisseurs et leur impact sur les investissements marketing. La flèche en gras dans la figure ci-dessous représente les flux d'informations de notre modèle de recherche pertinents pour le chapitre 6.

Nous cherchons à savoir si l'information sur les caractéristiques des investisseurs contenue dans le prix des actions impacte les décisions d'une entreprise concernant ses investissements marketing. Pour ce faire, nous observons si les horizons des investisseurs influencent les investissements marketing. Nous constatons que le taux de rotation élevé des investisseurs, notre mesure pour l'horizon des investisseurs, est associé à une plus grande probabilité de réduction des investissements marketing. Nous constatons également que les détenteurs de blocs d'actions, un type d'investisseurs à long terme, atténuent les effets d'une rotation élevée des investisseurs. Cependant, la rémunération du PDG n'affaiblit pas les effets de l'horizon des investisseurs, ce qui suggère que la gestion myope des investissements marketing n'est pas seulement due qu'à un conflit d'agence.

## Comment l'horizon des investisseurs affecte les investissements marketing (chapitre 6)

### Chapitre 6 : Flux provenant de l'horizon des investisseurs et allant vers les dépenses marketing des sociétés



## 8.14 Chapitre 7 : Conclusion

### 8.14.1 Résumé des résultats

Cette thèse a pour but de voir si l'information contenue dans le prix des actions circule bien de façon bidirectionnelle entre les investissements marketing et les marchés d'actions. Le chapitre 2 revoit la littérature spécifique et les chapitres 3, 4 5 et 6 contiennent 4 études qui analysent les flux d'informations. Les chapitres 3 et 4 ont examiné les flux d'informations en provenance des investissements marketing vers le marché d'actions tandis que les chapitres 5 et 6 ont enquêté sur les effets des flux d'informations en provenance des marchés d'actions sur les investissements marketing.

Le chapitre 3 a entendu répondre à la première sous-question de recherche, c'est-à-dire de savoir si l'information contenue dans les marques des maisons de courtage compte pour les investisseurs en examinant la relation entre les investissements marketing et les maisons de courtage dans le cadre des marchés américains. Les résultats suggèrent que la marque d'une maison de courtage est utilisée par les investisseurs comme signal pour décider comment répondre à un changement de recommandation.

Le chapitre 4, qui est une application pratique du modèle développé dans le chapitre 3, visait à répondre à la deuxième sous-question de recherche, à savoir si l'information dans les marques de maisons de courtage est importante pour les concurrents, un deuxième acteur des marchés boursiers en plus des investisseurs étudiés dans le chapitre 3. Ceci est fait en examinant l'influence des marques de maisons de courtage sur ses concurrents sur le marché américain. Les résultats suggèrent que les caractéristiques d'une marque de maison de courtage sont en effet prises en compte par ses concurrents dans leur prise de décision de changement de recommandation. Cependant, les concurrents et les investisseurs sont impactés par la marque d'une maison de courtage de manière différente. Ainsi, les investisseurs et les concurrents sont bien tous les deux influencés positivement par la réputation et la performance mais ils réagissent de manière contraire à l'expérience, de manière positive pour les investisseurs et négative pour les concurrents.

Les chapitres 5 et 6 étudient les flux d'information allant du marché d'actions vers les sociétés. Le chapitre 5 tente de répondre à la troisième sous-question de recherche, à savoir si la mauvaise évaluation des prix affecte les investissements marketing. Nous découvrons que les erreurs de valorisation des cours de la bourse (c'est-à-dire le prix des actions qui reflète l'information qui n'est pas fondamentalement liée aux sociétés) affectent les investissements marketing. Nous constatons que les erreurs de valorisation des cours de la bourse ont un fort impact négatif sur les dépenses publicitaires et R&D. Nous avons aussi déduit que la dépendance des sociétés sur le marché pour leur financement modère la relation entre les erreurs de valorisation et les investissements marketing. Nos résultats indiquent que le prix des actions peut transmettre de l'information irrationnelle qui affecte les investissements marketing.

Le chapitre 6 cherche à répondre à la sous-question de recherche, à savoir si l'information à propos de l'horizon des investisseurs a un impact sur les investissements marketing. Nous



découvrons que les horizons les plus courts des investisseurs sont associés à une plus grande probabilité de réduction d'investissements marketing. De plus, nous remarquons deux autres facteurs : les détenteurs de blocs d'actions et la rémunération du PDG modèrent la relation entre les horizons des investisseurs et les investissements marketing. Nos résultats indiquent que l'information spécifique aux horizons des investisseurs influence les investissements marketing.

Les chapitres 3 et 4 montrent que les flux d'informations provenant des investissements marketing influencent le marché d'actions, donnant une réponse positive aux sous-questions de sous-recherche une et deux. Les chapitres 5 et 6 démontrent que les flux d'informations venant des marchés d'actions ont un impact sur les investissements marketing, ce qui donne une réponse positive aux sous-questions de recherche trois et quatre.

Ces réponses aux quatre sous-questions confirment que l'information dans le prix des actions a un lien bidirectionnel entre les investissements marketing et les marchés d'actions et permettent donc de répondre de manière positive à notre question générale, à savoir si l'information du prix des actions circule de façon bidirectionnelle entre les investissements marketing et le marché d'actions. Cette thèse soutient que l'information circule dans les deux sens, ce qui est en accord avec la perspective des « effets réels des marchés financiers ».

En lien avec les réponses affirmatives à nos quatre sous-questions de recherche et à la question de recherche générale, nous concluons que la perspective des « effets réels des marchés financiers » est importante pour la zone de recherche de l'interface marketing-finance.

#### 8.14.2 Contributions

Cette thèse contribue à la littérature sur le rôle joué par l'information dans la relation entre le marché d'actions et les investissements marketing, et plus généralement à la littérature sur l'interface marketing-finance. Dans notre travail, nous soutenons que la combinaison des deux

directions des flux d'informations crée un meilleur cadre théorique sur la relation entre les investissements marketing et le marché d'actions. Nous faisons deux remarques. Premièrement, nous avançons que la perspective des « effets réels des marchés financiers » devrait être intégrée à l'interface marketing-finance. Cette intégration permettrait une meilleure prise en compte des effets des flux d'informations sur la relation entre les cours de la bourse et les prises de décisions des sociétés concernant les investissements marketing. Deuxièmement, nous pensons que le fait d'incorporer l'effet feedback dans l'interface marketing-finance ouvrirait la voie à de nouvelles possibilités de recherches dont nous discuterons dans la section 8.14.3.

#### Contributions théoriques

- i. En étudiant la nature bidirectionnelle des flux d'informations, cette thèse montre que les investissements marketing et le marché d'actions sont étroitement liés dans une relation bidirectionnelle, telle qu'elle est suggérée par la perspective « des effets réels des marchés financiers ». Dans cette perspective, le marketing joue un rôle-clé dans la relation d'une société avec les marchés financiers, à la fois en tant qu'émetteur et récepteur de l'information des marchés financiers.
- ii. Notre recherche complète la littérature sur les raisons financières de la gestion myope des ressources marketing. Nous distinguons deux nouveaux moteurs venant des marchés financiers dans la littérature marketing : l'horizon des investisseurs et les erreurs de valorisation des cours de la bourse, ainsi que des conditions qui peuvent modérer l'impact d'un comportement myope.
- iii. Cette thèse répond à la demande de (Malshe & Agarwal, 2015) pour plus de recherches sur l'impact des investisseurs institutionnels sur la stratégie marketing d'une société. L'étude identifie deux déterminants jusque-là non-étudiés des investissements

marketing : les erreurs de valorisation des cours de la bourse et l'horizon des investisseurs. Elle contribue également à la recherche sur les effets des investisseurs sur les investissements marketing d'une société (Chakravarty & Grewal, 2011; Markovitch et al., 2005).

- iv. Nous répondons à la demande pour plus de recherches sur les préjugés dont font preuve les investisseurs et sur la manière dont ils affectent les rendements des actions en montrant la manière avec laquelle les marques des maisons de courtage affectent les décisions des investisseurs. De plus, nous montrons que ces préjugés des investisseurs concernant leurs horizons d'investissement et leurs erreurs de valorisation des actions peuvent avoir un effet sur les investissements marketing.
- v. Nous élargissons notre recherche aux analystes financiers en démontrant l'importance de la marque d'une maison de courtage (Hong & Kubik, 2003; Womack, 1996).
- vi. Cette thèse adopte une approche multidisciplinaire afin d'étudier le rôle des investissements marketing dans les marchés financiers, un sujet délaissé par les recherches en marketing.

#### Contributions managériales pour le marketing

- i. Cette thèse aide les professionnels du marketing à mieux comprendre la raison pour laquelle les comités de directions attachent autant d'importance au prix des actions. Nous leur montrons l'importance de l'information que les dirigeants peuvent obtenir à partir des cours des actions et l'influence que cela peut avoir sur leur département.
- ii. La compréhension de l'impact des erreurs de valorisation et de l'horizon des investisseurs facilite le dialogue entre le département marketing et le département finance des grandes sociétés.

#### Contributions managériales pour la finance

- i. Les investisseurs peuvent se rendre compte à quel point la marque d'une maison de courtage affecte leur réponse et la réponse des maisons de courtage concurrentes aux changements de recommandations.
- ii. Les actionnaires devraient être conscients du fait que leurs préjugés influent sur les décisions des entreprises dans lesquelles ils investissent.

Faire de la recherche n'est pas chose aisée. Cette thèse a plusieurs limites. La première d'entre-elles et la plus importante selon nous, est que nous n'avons pas testé l'effet feedback mis en avant par la perspective des « effets réels des marchés financiers ». Nous nous concentrons plutôt sur la nature bidirectionnelle des flux d'informations. Cela est dû en grande partie au fait qu'identifier ces effets réels et les rendre opérationnels est difficile.

Une deuxième limite de notre thèse est que les chapitres 5 et 6 sont fondés sur des données annuelles. Une plus grande fréquence de données telles que des dépenses trimestrielles aideraient peut-être à améliorer l'ensemble des résultats. Malheureusement, la plupart des sociétés américaines ne partagent pas leurs données trimestrielles pour certaines variables, telles que la R&D, parce que ce n'est pas obligatoire.

De plus, nous utilisons les données marketing disponibles dans des bases de données. Nous n'avons pas d'informations plus détaillées à propos des autres types d'investissements du marché, tels que le coût des promotions ou la somme dépensée sur un mix marketing qui pourraient nous donner une compréhension plus fine de l'impact des investisseurs sur les sociétés. Des données de dépenses de la publicité et du marketing plus détaillées sont disponibles auprès des sociétés de recherche marketing, mais à un prix très élevé.

### 8.14.3 Perspectives de recherche

La perspective des « effets réels des marchés financiers » appliquée à l'interface marketing-finance ouvre la voie à de nombreuses opportunités de recherche, donnant ainsi accès à une

plus grande vision des implications de l'effet feedback entre les investissements marketing et le marché d'actions. L'effet feedback impacte directement les directions marketing, les dirigeants et les autres parties prenantes dans les entreprises, leurs actions pouvant potentiellement se retourner contre eux. La revue de littérature de la table 1 section 1.1 montre la richesse des secteurs de recherche. Nous proposons deux exemples ci-dessous provenant de deux secteurs de marketing afin d'illustrer notre appel à plus de recherche dans le rôle joué par les effets réels des marchés financiers sur les investissements marketing.

- i. La recherche montre que les dépenses marketing affectent et reflètent simultanément l'information du prix des actions. Les dépenses marketing utilisées pour commercialiser les produits d'une entreprise permettent-elles aussi d'attirer les investisseurs ? À quel point les dépenses publicitaires contribuent-elles directement à la performance du marché d'actions d'une société, par rapport à l'effet indirect produit par les investisseurs ? Les dirigeants des sociétés peuvent-ils optimiser le double effet des dépenses publicitaires sur les consommateurs et les investisseurs ?

Les marques reflètent et influencent en même temps l'information du marché d'actions. Quel impact l'image de la marque a-t-elle sur les investisseurs ? Les investissements dans le capital de la marque aident-ils, par ricochet, à attirer les investisseurs, ce qui renforcerait ainsi la performance des actions d'une entreprise, indépendamment de la contribution de la marque, et augmenterait les flux de trésorerie de l'entreprise ?

De la recherche ultérieure pourrait déterminer si les analystes modèrent l'effet des erreurs de valorisation et les horizons d'investisseurs sur les investissements marketing et les canaux employés pour ce faire. Enfin, les objets d'étude pourraient être élargis à d'autres pays pour voir si les effets des maisons de courtage seraient similaires et si les effets culturels influenceraient l'impact des maisons de courtage.





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## APPENDICES

### Appendix 1: Investor response to marketing assets

<i>Marketing Metric</i>	<i>Illustrative Metrics</i>	<i>Characteristics</i>	<i>Illustrative Studies</i>	<i>Empirical Findings</i>
1. Brand equity	<p><i>Financial World's</i> measure of brand equity</p> <p>Young &amp; Rubicam's Brand Asset Valuator</p>	<p>Brand's strength is determined by five components.</p> <p>Based on consumer self-reports on five brand asset pillars—relevance, vitality, esteem, knowledge, and differentiation.</p> <p>Available only for large firms.</p> <p>Not always publicly available to investors (e.g., Young &amp; Rubicam).</p>	<p>Barth et al. (1998)</p> <p>Simon and Sullivan (1993)</p> <p>Madden, Fehle, and Fournier (2006)</p> <p>Rao, Agarwal, and Dahlhoff (2004); Joshi and Hanssens (2008)</p> <p>Mizik and Jacobson (2007)</p>	<p>Stock returns are positively related to brand valuation.</p> <p>A substantial fraction of the valuation of consumer goods companies and even some high-technology firms is based on brand equity.</p> <p>Strong brands deliver greater stock returns and do so with lower risk.</p> <p>Impact of branding on firm valuation is moderated by type of branding strategy: corporate branding, house of brands, or mixed branding.</p> <p>Changes in a firm's brand assets are associated with changes in financial market valuation.</p>
2. Customer satisfaction	American Customer Satisfaction Index (ACSI)	<p>Publicly available ACSI data but not at the firm level.</p> <p>ACSI scores are updated only annually.</p> <p>Disaggregate firm/product data available for certain industries (e.g., auto from J.D. Power and Associates).</p>	<p>Ittner and Larcker (1998)</p> <p>Anderson, Fornell, and Mazvancheryl (2004)</p> <p>Gruca and Rego (2005)</p> <p>Fornell et al. (2006); Mittal et al. (2005)</p> <p>Gupta and Zeithaml (2006)</p> <p>Luo and Bhattacharya (2006)</p>	<p>A 5-unit increase on a 0–100 scale (roughly one standard deviation from its mean) in the ACSI was associated with a 1% increase in CARs.</p> <p>A 1% change in ACSI is associated with a 1.016% change in Tobin's q.</p> <p>A 1-point increase in the ACSI generates an additional growth in cash flows and a decrease in cash flow variability.</p> <p>Highly satisfied customers generate positive returns.</p> <p>There is a strong link among customer satisfaction, firm profitability, and market value.</p> <p>Customer satisfaction partially mediates the relationship between corporate social responsibility and firm market value.</p>
3. Customer metrics	<p>Customer lifetime value</p> <p>Customer equity</p>	Customer metrics data tend to be proprietary.	Gupta, Lehmann, and Stuart (2004)	<p>Valuing customers makes it feasible to value firms because customer equity moves in parallel with market value for three of the five companies.</p> <p>Retention is more important than margin or acquisition cost because a 1% improvement in retention can improve profitability by approximately 5%, while a similar improvement in margin and acquisition cost improves profits by 1.1% and .1%, respectively.</p>
4. Product quality	<p>Equitrend Perceived Quality</p> <p>J.D. Power and Associates Perceived Appeal and Quality</p> <p>Product Review (e.g., LexisNexis)</p>	<p>Customer-driven measures.</p> <p>Amenable to event study analysis.</p> <p>Time-intensive data collection (e.g., product review data).</p>	<p>Aaker and Jacobson (1994); Mizik and Jacobson (2003)</p> <p>Srinivasan et al. (2009)</p> <p>Tellis and Johnson (2007)</p>	<p>Perceived quality is associated with changes in stock returns, and thus investors view quality signals as providing useful information about future prospects of the firm.</p> <p>New product introductions that enjoy more positive consumer perceptions of quality and product appeal lead to systematically higher returns.</p> <p>Ratings of quality in published reviews influence investors' evaluation of the quality of the firm's products. Firms with good-quality reviews enjoy a gain of 10% in stock returns over the same period, while firms with poor-quality reviews suffer a drop of returns of approximately 5%.</p>

## Appendix 2: Investor response to marketing actions

<i>Marketing Metric</i>	<i>Illustrative Metrics</i>	<i>Characteristics</i>	<i>Illustrative Studies</i>	<i>Empirical Findings</i>
1. Advertising	Advertising dollars (e.g., COMPUSTAT) Advertising dollars (e.g., TNS Media)	COMPUSTAT provides aggregate firm-level quarterly data, but it is widely available. TNS Media provides disaggregate data at the brand/category level, and data interval is monthly. Data are expensive.	Frieder and Subrahmanyam (2005); Grullon, Kanatas, and Weston (2004); Joshi and Hanssens (2008); Barth et al. (1998); Rao, Agarwal, and Dahlhoff (2004)	Advertising directly affects stock returns beyond the indirect effect of advertising through lifting sales revenues and profits. Advertising has a direct effect on firm value through two mechanisms: spillover and signaling. Investors cognizant of the benefits of increased advertising through enhanced brand equity may look beyond a firm's current cash flows and translate the long-term effects of advertising into firm valuation.
			Mathur and Mathur (2000); Mathur, Mathur, and Rangan (1997)	Advertising may act as a signal of the firm's financial well-being or competitive viability.
			Grullon, Kanatas, and Weston (2006)	Firms that raise significant amounts of equity capital increase their advertising significantly more than firms with higher financial leverage (i.e., higher levels of debt relative to equity capital).
			McAlister, Srinivasan, and Kim (2007)	Advertising lowers its systematic market risk.
			Srinivasan et al. (2009)	Communicating the differentiated added value created by product innovation yields higher firm value effects of these innovations, especially for pioneering innovations.
2. Price promotions	Promotional expenditures (e.g., J.D. Power and Associates)	Disaggregate, weekly, brand-/category-level data, but data tend to be proprietary.	Pauwels et al. (2004)	Price promotions diminish long-term firm value, even though they have positive effects on revenues and, in the short run, on profits. A policy of aggressive new product introductions acts as an antidote for excessive reliance on consumer incentives.
3. Distribution channels	Channel additions (e.g., newspaper search of Internet channel additions)	Amenable to event study analysis. Internet data collection is time intensive.	Geyskens, Gielens, and Dekimpe (2002)	Investors perceive the expected gains of the added channel as outweighing its costs. However, the negative stock returns are observed for established firms that may be hurt by Internet channel cannibalization.
			Gielens et al. (2008)	Entry of large retailers can have negative and positive effects on firm value of other retailers.
4. New products	Product preannouncements (e.g., LexisNexis) New product introductions (e.g., J.D. Power and Associates)	Amenable to event study analysis. Researcher needs to control for considerable delay in preannouncement date and introduction.	Chaney, Devinney, and Winer (1991)	New product announcements generate small excess stock market returns for a few days.
			Sorescu, Shankar, and Kushwaha (2007)	Financial returns from preannouncements are significantly positive in the long run.
			Kelm, Narayanan, and Pinches (1995)	Additional excess returns can be created when the new product is subsequently launched.
			Pauwels et al. (2004)	New product introductions increase long-term financial performance and firm value, but promotions do not. Moreover, investor reaction to new product introduction occurs over time, indicating that useful information unfolds in the first two months after product launch.
			Srinivasan et al. (2009)	Pioneering (new-to-the-world) innovations have a higher stock return impact than nonpioneering innovations.

### **Appendix 3: the marketing of brokerage houses**

Full-service brokerage houses, which we study in this thesis, offer a range of services. Their main historic service is the execution of trades on the stock exchange on behalf of clients. They represent intermediaries through which all trades must pass. Brokerage houses traditionally charge a fee or commission for executing buy and sell orders submitted by investors.

The second main service is the production of equity research. Most brokerage houses employ analysts with specialized knowledge in certain industries who follow firms within these industries. These analysts write research reports on the firms they follow that include forecasts of future earnings, information about the company's markets and products and ultimately investment recommendations. The research guides the actions of portfolio managers.

For a long time, the commissions were fixed so brokers competed on the basis of services and relationships. Legislative and regulatory amendments in the US and Europe over the last 30 years has made the business much more competitive, prompting the erosion of the traditional commission-based fees and prompting the introduction of negotiated commissions. Furthermore, technology and a radical change in market structure have altered the market considerably. Electronic trading has increased trading volumes and cut costs. Furthermore, exchanges were demutualized, so liquidity has become fragmented among alternative trading platforms, lit and dark pools, etc. Market-making, which used to provide a lucrative secondary cash stream for brokerage houses has almost disappeared.

Brokerage house clients, the so-called 'buy-side' or asset managers, drive demand. Their business has also been experiencing stiff competition due to a changing business environment. Traditional active managers who charged clients hefty fees (1-2% of assets

under management) could afford to pay full commission for full services of brokerage houses, which include the execution and equity research.

However, the traditional asset manager has been losing ground to low-cost passive asset managers. The passive asset managers charge asset-management fees, meaning they cannot afford to pay as much for traditional brokerage services. So, they opt for low-cost execution and do not use traditional research. The result is increased pressure on the buy-side.

The result of this competition has prompted brokerage houses to specialize. Brokerage firms may pursue large or small capitalization stocks. Or they may focus on certain sectors such as technology or utilities. And they may pursue more certain types of buy-side clients, such as quants or traditional active investors.

Advertising expenditures of brokerage houses are modest, mainly for ads in the specialized press of the type shown on the next page. Some advertising is carried out via scholarships and sponsoring of charity events, etc. The marketing focus is more on marketing assets such as brands and customer relationships.

**French press article describing the key marketing points of a brokerage house**

This excerpt highlights the various arguments that brokerage houses put forward in their advertising. The press release stresses the broad geographical coverage of stocks, the importance of size, the brand, the services offered and awards won and employee expertise, all important factors to attract and retain institutional investors.

**Excerpts of article concerning French brokerage house Exane BNP Paribas that highlights the marketing policies of brokerage houses**

"Exane BNP Paribas est classée dans le Top 10 de l'intermédiation actions européennes"

Sous la marque Exane BNP Paribas, créée en 2004 à l'issue de l'accord de partenariat avec BNP Paribas, le groupe Exane propose aux institutionnels des services incluant la recherche, la vente et l'exécution sur les actions européennes, peut-on lire par ailleurs sur son site Internet : "Exane BNP Paribas est classée dans le Top 10 de l'intermédiation actions européennes, notamment grâce au développement d'une importante plateforme à Londres qui a été le moteur de sa stratégie européenne."

Avec plus de 500 valeurs européennes suivies (dont 70 % non françaises), 80 analystes et 80 vendeurs et sales-traders, Exane BNP Paribas "bénéficie d'une taille critique et d'une expertise reconnue dans ce métier où il mène une politique d'investissement ambitieuse, régulière et soutenue", lit-on encore sur son site. Exane BNP Paribas sert plus de 1.200 institutionnels à travers le monde en s'appuyant sur huit implantations (Paris, Londres, Genève, Francfort, Milan, Zürich, New York, et Singapour).

Source : <http://trends.levif.be/economie/banque-et-finance/actions-exane-bnp-paribas-ouvrira-une-succursale-a-bruxelles/article-normal-188685.html>



## Services offered by financial market players

SEGMENT		DEFINITION	EXAMPLES
<b>TRADITIONAL BROKERS</b>	Full-service global securities firms	Global firms, active in all areas of the securities business: investment banking, research, brokerage, sales and trading and asset management	Goldman Sachs, JP Morgan, Bank of America Merrill Lynch, Barclays, Citi, UBS, Credit Suisse, <u>Jefferies</u>
	US "regional" securities firms	Firms focused on a geographical region. Typically serve small and medium cap issuers and regional investors	Raymond James, Baird, William Blair, Piper Jaffray
	Sector specialists	Firms focused on an industry or sector e.g. high tech, health care, financials	<u>Sandler O'Neill (financials)</u> , Cowen (health care and tech), FBR (financials)
	Global investment specialists	Firms focused on serving global investors by providing "local research"	<u>Auerbach Grayson</u>
<b>EXECUTION / QUANTS</b>	Quantitative traders/liquidity providers/market makers High Frequency Traders	Firms focused on trading. Usually driven by "quants" using high-tech trading software and algorithms	<u>Interactive Brokers</u> , Investment Technology Group (ITG), GETCO/Knight, Susquehanna
<b>RESEARCH</b>	Research firms	Firms focused on producing high quality, "high touch" investment research; usually staffed by top analysts, with access to company managements	<u>Bernstein</u> , International Strategy and Investment (ISI)
	Expert networks	Securities firms focused on collecting expert-based information on companies and industries – typically serve hedge funds	Subscription Model: Coleman, GLG, Vista Broker Model: De Matteo Monness,
	"Neutral", "quant", research firms	Securities firms focused on producing investment research based on quantitative models	Value Line, Argus, Ford, Factset
<b>SERVICE PROVIDERS</b>	Clearing firms	Securities firms focused on offering clearing and settlement services to other securities firms (typically smaller firms)	Pershing (BNY)
	Trading services providers	Securities firms provide trading support for asset managers (typically small)	CF Global, Bank of New York Mellon (BNY), State Street Bank
	Soft dollar firms	Firms that provide services paid via soft \$	FinTech, Instinet
	Technology providers	Firms that provide trading room technology (Order Management Systems, Execution Management Systems, Transaction Cost Analysis, etc.)	Sungard, Blackrock (Aladdin), Charles River
<b>"Disintermediator"</b>		Firms that disintermediate the "sell-side" by providing the buy-side various services: Anonymous trade-matching services, Buy-side research pooling	<u>Liquidnet</u>

Source: <http://blogs-images.forbes.com/advisor/files/2014/05/halah-one.png>

## Marketing examples of brokerage houses

Example award granted by Morgan Stanley

### **Morgan Stanley AFA Award**

**Morgan Stanley- American Finance Association Award for Excellence in Finance**

**The Award**  
AFA has established a new bi-annual finance award to be granted based on an individual's career achievements in outstanding thought leadership in the field of financial economics. The Award will be granted by AFA beginning in 2008 and continuing for 5 bi-annual periods. There shall only be one recipient of the Award in any bi-annual period.

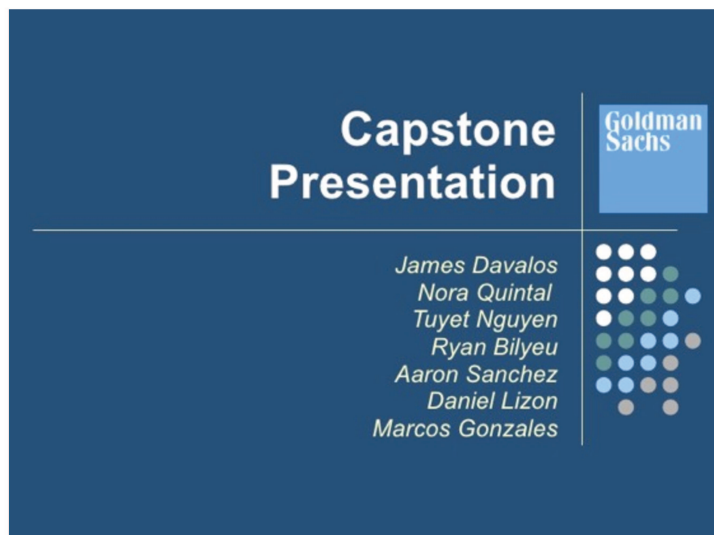
**Award Criteria**  
AFA shall be solely responsible for the selection of the Award Recipient using the following selection criteria:

**Selection of Award Winner**  
At its annual meeting the Executive Committee of the AFA will nominate and the AFA Board will approve a selection committee, to be chaired by the outgoing President. The committee will evaluate candidates for the award based on the impact of the candidates' research along several dimensions.

Source: <http://www.afajof.org/details/page/2866301/Morgan-Stanley-AFA-Award.html>

## Branding strategies of brokerage houses

Brand logos figure prominently on research reports issued by the brokerage houses. This is an example logo that figures on research notes of Goldman Sachs. The logo combines the brokerage house brand and the names of the security analysts that drew up the research note. This co-presentation illustrates the prominence of brokerage house brands in equity research.





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## La superposition de la perspective des « effets réels des marchés financiers » à l'interface marketing-finance

Résumé :

Afin d'approfondir les connaissances sur la relation entre le marketing et le marché des actions, cette thèse questionne l'éventualité selon laquelle la perspective des « effets réels des marchés financiers » (P. Bond et al., 2012) est adaptée à la fusion des deux courants de l'interface marketing-finance. Les quatre études de cette thèse font la démonstration suivante : les flux d'informations transmis par les cours des actions sont bidirectionnels entre les investissements marketing et les marchés secondaires. Les deux premières études (chapitres 3 et 4) montrent de façon empirique l'impact des flux d'informations provenant des investissements marketing sur les marchés secondaires, tandis que les troisième et quatrième études (chapitre 5 et 6) montrent de la même manière l'impact des flux d'informations provenant du marché des actions sur les investissements marketing. Réunies, ces quatre études attestent que l'information circule de façon bidirectionnelle entre les investissements marketing et les marchés secondaires, ce qui met en relief les débats autour de la perspective « des effets réels des marchés financiers ».

Nous présentons deux conclusions relatives à ce résultat. Dans un premier temps, nous soutenons l'idée selon laquelle la perspective des « effets réels des marchés financiers » devrait être superposée à l'interface marketing-finance car elle améliore notre compréhension de ces deux axes. Elle nous apporte également un cadre théorique adéquat pour examiner la manière par laquelle les investissements marketing reflètent et impactent les informations du marché des actions. Dans un second temps, la superposition de la perspective des « effets réels des marchés financiers » à l'interface marketing-finance ouvre la voie à de nombreuses possibilités de recherche permettant d'en savoir plus sur les interactions bidirectionnelles entre les investissements marketing et le marché des actions.

## Transposing the 'real effects of financial markets' perspective onto the marketing-finance interface

Abstract

To obtain deeper insights into the relationship between marketing and equity markets, this thesis investigates whether the 'real effects of financial markets' perspective (P. Bond et al., 2012) is suitable for integrating the two streams of the marketing-finance-accounting interface research area. The four studies in this thesis highlight the bidirectional flows of information in stock prices between marketing investments and equity markets. The first two studies (Chapters 3 and 4) show empirically the impact of information flows from marketing investments to equity markets while the third and fourth studies (Chapters 5 and 6) show empirically the inverse flow of information from equity markets to marketing. Together, the four studies suggest that information flows bidirectionally between marketing investments and equity markets, reflecting the contentions of the 'real effects of financial markets' perspective.

We make two arguments based on this finding. First, we contend that the 'real effects of financial markets' perspective should be transposed onto the marketing-finance interface because it enhances our understanding of the two research streams of the marketing-finance interface and provides a suitable theoretical framework to account for how marketing investments both affect and reflect information in equity markets. Second, transposing the 'real effects of financial markets' perspective onto the marketing-finance interface opens up many research possibilities to generate new insights into the two-way interactions between marketing investments and equity markets.