University of Southampton Research Repository

UNIVERSITY OF SOUTHAMPTON

FACULTY OF BUSINESS, LAW AND ART

Southampton Business School

Volume 1 of 1

Doctor of Philosophy

by

Xiangyun Lu

Thesis for the degree of Doctor of Philosophy

March_2017

UNIVERSITY OF SOUTHAMPTON

<u>ABSTRACT</u>

FACULTY OF BUSINESS, LAW AND ART

<u>Accounting</u>

Thesis for the degree of Doctor of Philosophy

THREE ESSAYS ON THE ROLE OF EXTERNAL GOVERNANCE MECHANISMS IN

MANAGERIAL REAL DECISIONS

Xiangyun Lu

This thesis conducts empirical examination of new factors influencing both real activities manipulation and investment efficiency based on the U.S. case, extending the extant literature exploring these issues as in response to the prevalence and the detrimental effects on firms' future values of these two firm-level real actions.

First, the thesis investigates the effect of corporate reputation as an external governance mechanism on real activities manipulation as managerial myopia, finding that there is a significantly negative relationship between corporate reputation ranking as disclosure and both real activities manipulation through sales, overproduction and discretionary expenditures and the two aggregate measures of real actions, and that corporate reputation really matters for the market response to real activities management as myopic behaviour.

Second, the thesis examines the impact of media coverage on real activities management, finding that there is significantly negative association between the level of media coverage and both real earnings management through sales, overproduction and discretionary expenditures and the one aggregate measures of real actions; that positive news reduces real activities

management through the three ways; and that the greater positive of news tone, the greater degree of reducing real earnings management.

Third, the thesis explores how media coverage affects investment efficiency. It finds comprehensive and robust evidence that media coverage improves investment efficiency. Specifically, media coverage reduces information asymmetries, alleviates financial constraints, improves external monitoring, and, by doing so, facilitates project acceptance and abandonment. The effect of media coverage on investment efficiency is more pronounced for firms characterised by more severe information and agency problems, when firms depend on external financing, and when media reports contain original news about corporate fundamentals. These findings suggest that media coverage improves investment efficiency by mitigating information asymmetries and agency problems.

Table of Contents

List of Tables

DECLARATION OF AUTHORSHIP

I, Xiangyun LU

declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

THREE ESSAYS ON THE ROLE OF EXTERNAL GOVERNANCE MECHANISMS IN MANAGERIAL REAL DECISIONS

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;

2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have consulted the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

7. [Delete as appropriate] None of this work has been published before submission [or] Parts of this work have been published as: [please list references below]:

Signed:

Date: 12/March/217

Acknowledgements

Firstly, I would like to express my sincere gratitude to my supervisor Prof. Jean Chen for the continuous support of my Ph.D study and related research, for her patience, motivation, and immense knowledge. Her guidance helped me in all the time of research and writing of this thesis. I am so fortunate and privileged to have the opportunity of studying and conducting research under such a great mentor.

Besides, I am grateful for Prof Laura A. Costanzo, for her support to my research from various perspectives.

I would like to thank my fellow doctoral students for their discussion, cooperation and of course friendship. In addition, I would like to express my gratitude to the staff of postgraduate research student office.

I cannot finish without thanking my family.

I warmly thank and appreciate my mother for her material and spiritual support in all aspects of my life.

I would like to thank my little brother, for his assistance in numerous ways.

Finally, I would thank my lovely husband, who is also my best friend, Dear Li Xie, without his support and encouragement, I could not have finished this work.

Chapter 1:   Introduction

Over the last several decades, economic theories related to the principal-agent model have suggested that the agency conflict between managers and outside investors mainly arise from informational asymmetries between them, implying that managers take actions to manipulate the information flow rather than to maximise firm value for their own interests. According to exiting literature within the finance and accounting fields, one important reflection of such manipulation is associated with two identified prevalent practices at the firm level: real earnings management (i.e. earnings management through real actions) and over- or under- investment distortion (i.e. The efficiency of corporate investment), both of which are more likely to have a negative impact on firms' future values.

Based on the prevalence and the detrimental effect on firms of these two firm-level practices, a line of research has been embarking on investigating a variety of factors influencing such two practices such as institutional ownership, board independence, and other governance mechanisms. This thesis extends this line of research by further exploring two new external governance mechanisms affecting or mitigating these two prevalent practices respectively, improving the current theoretical and empirical understanding of these issues and providing practitioner implications towards various

stakeholders around firms. The new external governance mechanisms are corporate reputation and media coverage.

1.1   Literature Review

Real earnings management, in contrast to accruals-based earnings management which only involves managers' intervention in the financial reporting process by exercising discretion and judgment concerning accounting number choices to obscure true economic value of firms, entails changing the firm's underlying operations with the intent to mislead some stakeholders about firms' reported financial performance for boosting current- period earnings. Roychowdhury (2006) develops the three ways of real earnings management, i.e. The ways of considering the abnormal levels of cash flow (1) from operations (i.e. by acceleration of the timing of sales through increased price discounts), (2) from production costs (i.e. by reporting lower cost of goods sold through increased production), and (3) from discretionary expenditures (by reducing discretionary expenditures including advertising, research and development (R&D), and sales, general and administrative expenses (SG&A)).

Existing literature has documented that real earnings management is more widely used when practices of discretionary accounting choices are under greater scrutiny. For example, by surveying and conducting interviews with top company executives, Graham et al. (2005) suggest that, for meeting their desired quarterly earnings targets

in the post-Enron and post-Sarbanes-Oxley- Act (SOX) world, 80% of CFOs stated that they would decrease discretionary expenditures such as advertising and R&D; 55% reported that they would delay a start of a new project; and 39% stated that they would offer incentives for customers to purchase more products in the current quarter, although these real actions might be more likely to damage the long-term economic values of firms. Cohen et al. (2008) find that there is a greater extent of real earnings management in the period after the implementation of the SOX in 2002, which causes the limitation of accrual-based earnings management.

Existing literature has also suggested that real earnings management is more likely to have a net negative impact on future firm value. For example, Darrough and Rangan (2005) suggest that managers reduce R&D expenditure in the year of an initial public offering (IPO) to increase the IPO offer price and such reductions to increase current earnings is at the expense of future earnings. Bhojraj et al. (2009), and Mizik (2010) document that companies that reduce discretionary spending to beat earnings targets show long-term underperformance. Mizik and Jacobson (2008) and Cohen and Zarowin (2010) find that companies that engage in real earnings manipulation prior to seasoned equity offerings (SEO) have poorer future operating performance. Kothari et al. (2016) also find that real earnings management by reduction in expenditures on R&D and SG&A is the main reason for post-SEO stock market underperformance when compared with accruals-based management. Based on the prevalent practices and the

detrimental effects on firms of real earnings management, a line of research has investigated factors influencing real activities management i.e. various governance mechanisms mitigating such real actions, such as institutional ownership (Bushee, 1998), employment agreement (Chen et al., 2015), and internal governance (Cheng et al., 2016). Facing the popular use of real earnings management and its potential negative consequences, however, it is vital to further explore potential factors or disincentives affecting or alleviating real activities management, which is able to offer new theoretical and practitioner implications towards various stakeholders.

Thus, the first task of this thesis is to extend this line of research by exploring two new governance mechanisms which limit the extent of real earnings management, respectively. First, this research empirically investigates the impact of corporate reputation as an external governance mechanism on real earnings management based on the U.S. case. This investigation is motivated by the two main aspects in terms of prior research. One the one hand, real activities management has been identified in the literature as a type of managerial myopic behaviour that managers who focus on short-term goals such as current earnings targets overemphasise strategies with immediate payoffs at the expense of strategies with superior but more distant payoffs (Mizik, 2010). This myopic behaviour is mainly caused by informational asymmetries between managers and outsiders of firms (Mizik, 2010); and it is such informational asymmetries that cause signal-jamming behaviour that firms with bad types to attempt to mimic the

behaviour of good-type firms for fooling investors in the stock market into believing that they are facing good prospects (Grant et al. 1996). In the context of real activities management, managers within bad-type firms might be more likely to engage in signal jamming by manipulating real activities to meet desired current earnings targets or report favourable earnings and therefore to show they have good prospects.

On the other hand, corporate reputation refers to the reputation effect at a corporate level, which has been identified in the literature as self-regulator mechanism which can influence firm conduct (Karpoff, 2012). From a game theoretic perspective, the reputation effect can be defined in a repeated game with information asymmetry, in which one player's type (or reputation) is shaped by the other players' perceptions of this player's past actions; all players' actions, therefore, appear to be affected by such reputation concern, based on the fact that one player's reputation affects others' reactions, which is referred to as the reputation effect (Kreps et al., 1982; Kreps and Wilson, 1982). The reputation effect at a corporate level is a set of attributes ascribed to a firm, inferred from the firm's past actions (Weigelt and Camerer, 1988). Furthermore, corporate reputation is the result of signaling activity (Shapiro, 1983), implying that the other players' perceptions of this player's type based on his previous actions serve as a signal of this player's current type supported by his current actions. Specifically, a ranking of corporate reputation as a disclosure has separated firms with higher types (i.e. higher reputation) from those with lower type (i.e. lower reputation);

and a firm with good reputation (type) signals its competitive edge by attracting customers to the company's products and services, investors to its securities, high quality employees to its jobs, suppliers' and distributors' offer of excellent contract terms, and favorable capital access, among other benefits (Fombrun, 1996; Deephouse, 2000; Rindova et al., 2005). Thus, a firm with higher reputation ranking has been more favorable current stock price, and might be less in need of engaging in myopic behavior at the expense of the long-term profits, such as real activities management to report favorable current earnings. I therefore hypothesise that corporate reputation as a disclosure may be a disincentive for reputable firms to engage in real activities management as myopic behaviour.

Second, this research empirically examines the effect of media coverage as the other external governance mechanism on real activities management based on the U.S. case. Based on the identification of real earnings management as managerial myopia mainly caused by informational asymmetries between managers and firms' outsiders, my focus on media coverage as the other factor alleviating real earnings management is mainly due to its positive roles played in capital markets according to extant literature. For example, prior research has suggested that the media play a role by reducing the cost of information collection (e.g., Merton, 1987), and by affecting key decision-makers' reputational concerns (e.g., Dyck and Zingales, 2002) and consequently improving corporate governance (e.g., Dyck et al., 2008; Joe, Louis, and Robinson, 2009). Based on

this review, the media reduce information asymmetries and monitor managerial behaviors. In addition, the media play a crucial, albeit intermediate, role in forming a firm's public image and reputation, mainly because media coverage is a vital component of corporate communication which largely determines corporate image, identity, or reputation (Wartick, 1992; Gray and Balmer, 1998). According to these positive roles of the media, therefore, I hypothesise that media coverage mitigates real activities management as managerial myopia.

The third task of the thesis is to empirically examine whether media coverage improves investment efficiency (i.e. alleviates over- or under- investment distortion) based on the U.S. case. Such examination is motivated by the two main aspects according to existing literature. First, capital investments represent one major source of firms' value creation (McConnell and Muscarella, 1985) and significantly contribute to economic growth (De Long and Summers, 1991; McLean, Zhang, and Zhao, 2012). Thus, it is crucial to further explore potential factor influencing the efficiency of investment decisions, which is able to extend the current theoretical and empirical understanding of this important issue. Second, based on the fact that informational asymmetries and agency problems are the most pervasive and important factors influencing the efficiency of corporate investment (Stein, 2003), my focus on media coverage as such potential factor is mainly because

(1) the media can reduce the cost of information collection and information asymmetry between outsiders and insiders and across investors, by collecting, aggregating, analyzing and broadly disseminating market, industry and firm- specific information (Merton, 1987, Dyck et al., 2008; Tetlock, 2010; Bushee et al., 2010); and (2) media coverage can improve external monitoring of (self- interested) managers and controlling shareholders, by exposing managerial misdeeds (e.g., empire building, shirking or excessive perquisite) and other governance problems (e.g., Miller, 2006; Dyck, Morse, and Zingales, 2010). I, therefore, hypothesise that media coverage improves firm-level investment efficiency. The intended contributions of this thesis to the current literature include the following. First, the thesis extends the line of research which examines factors influencing real activities management by empirical investigation of the effects of both corporation reputation ranking and media coverage as the two sources of information disclosure on real earnings management as managerial myopia, exploring new factors mitigating earnings management through real actions and thus highlighting the important role of such information disclosure for improving information environment around companies as implications for investors.

Second, the thesis contributes to the corporate reputation literature. Empirical studies have well documented the effect of reputation on firm conduct.

Reputation can not only encourage good firm behaviour (e.g., Beatty et al. 1998; Cao et al. 2015), but also can discipline bad behaviour (Karpoff, 2012). In this thesis I

investigate association between corporate reputation and real activities manipulation, showing that reputation effect can alleviate such myopic behaviour as one of most important agency problems.

Third, the thesis contributes to the literature related to the effect of the media in financial markets. The main effort of existing literature focuses on the effect of the media on stock price and corporate governance by selecting, certifying, and repackaging information (Dyck, Volchkova, and Zingales, 2008, Tetlock ,2010) as well as undertaking original investigation and analysis (Miller, 2006). However, there is limited direct evidence on the real effects of media coverage. The thesis fills the void in the literature by examining the impact of media coverage on both earnings manipulation through real actions and the efficiency of investment decisions, respectively, facilitating the current understanding of the important role of the media in the finance and accounting fields.

Fourth, by providing robust evidence of positive media effects on firms' investment efficiency for a broad sample of firms, the thesis extends prior research that documents that accounting information/disclosure, firm-specific information embodied in stock price (see Bond et al. (2012) for a summary of this literature), investor protection (Wurgler, 2000), access to debt market (Harford and Uysal, 2014) and governance (Billett et al. 2011; Gao, Harford, and Li 2013) have an impact on firms' investment efficiency.

1.2　Organisation of the Thesis

This thesis consists of five chapters. After the introduction chapter, the rest chapters are structured as below:

Chapter 2: In this chapter, it empirically investigates the effect of corporate reputation on real earnings management as managerial myopia based on the U.S. firms.

Chapter 3: In this chapter, it empirically explores the impact of media coverage on real earnings management as managerial myopia based on the U.S. firms.

Chapter 4: In this chapter, it empirically examines how media coverage affects firm's investment decision i.e. investment efficiency based on the U.S. firms.

Chapter 5: This chapter summarises the findings in previous empirical chapters and concludes the thesis.

Chapter 2:   The Effect of Corporate Reputation on Earnings Management Behaviour: Evidence from U.S. Companies

2.1   Introduction

Earnings management can be categorised into two forms: accruals-based management and real activities management. In contrast to accruals-based earnings management which only involves the timing of earnings recognition to obscure true economic value, real activities management changes the firm's underlying operations for boosting current-period earnings, which has suboptimal business consequences (Graham et al., 2005; Roychowdhury, 2006).

In this chapter I explore the association between corporate reputation and real activities management as myopic behaviour. This study is motivated by the two main aspects according to prior research. First, since the financial scandals of the early 2000s involving firms such as Enron and WorldCom, real activities management has become a more popular means than accruals-based management for manipulating short-term earnings after the passage of the Sarbanes-Oxley Act (SOX) in 2002[1]. Moreover, real

---

[1] Sarbanes-Oxley Act aims to improve the value relevance of financial reports by enhancing the auditors' independence, strengthening the role of audit committees and reducing discretionary accruals (Li et al. 2008).

activities management has been identified as myopic behaviour of management (Mizik, 2010), because its characteristics of changing the firm's underlying operational practices directly trades off current earnings against future (Kothari et al., 2016). One of main potential consequences of such myopic behaviour is its negative impact on the long-term firm value. Prior research such as Darrough and Rangan (2005), Cohen and Zarowin (2010), and Kothari et al. (2016) has investigated such negative potential consequence of real activities management based on the capital market incentives, and the other research has examined factors influencing real activities management as myopic behaviour, such as institutional investors by Bushee (1998) and internal governance by Cheng et al. (2016). Facing the popular use of such myopic behaviour and its negative potential consequences, it is important to further explore potential factor or disincentive which affects or alleviates real activities management as myopic behaviour for developing new theoretical and practitioner implications towards various stakeholders.

Second, corporate reputation has been identified in the literature as self- regulatory mechanism which can influence firm conduct (Barnett and Pollock, 2012). A firm's reputation arises when the firm's stakeholders trust that the firm will uphold its explicit and implicit contracts/claims, and will not act opportunistically to their detriment, which can encourage good behaviour and discipline bad behaviour (Karpoff, 2012). On the one hand, firms with higher reputation have benefits. For example, reputable investment banks obtain higher fees for their services (Beatty et al. 1998). Firms with higher reputations enjoy a lower cost of equity capital (Cao et al. 2015). On the other

hand, corporate reputation could discipline firm misconduct. Karpoff (2012) reviews the empirical studies on the costs to firms from misconduct that affects various stakeholders based on the reputation mechanism, suggesting that various types of misconduct including financial and non-financial misconduct are associated with significant share value and reputational losses. However, whether corporate reputation could discipline myopic behaviour such as real activities management is an unsolved empirical question.

Thus, in this chapter I answer the questions that whether corporate reputation affects real activities manipulations as myopic behaviour of management. I hypothesize that corporate reputation as a disclosure may be a disincentive for reputable firms to engage in real activities management as myopic behaviour. I measure corporate reputation based on company scores from Fortune's America's Most Admired Companies (AMAC) list, which has been extensively used in the reputation-related research (Walker, 2010; Cao et al., 2012). Higher scores based on this list imply better reputation.

The empirical tests are based on a sample of 1153 firm-year observations from the AMAC list during the time period from 2006-2012 with data availability. I first test the association between corporate reputation and real activities manipulations, after controlling variables such as costs of real earnings management firm characteristics based on prior research. Real activities manipulations are achieved by sales, overproduction and discretionary expenditures, respectively. I find that the corporate reputation is significantly and negatively related to both the three ways of real manipulation and the two aggregate measures of real activities management, indicating

that with the increase in firms' reputation score, their managers are less likely to manage earnings upward by promoting sales, reducing product cost by overproduction, and cutting expenditures.

I second test the immediate market reaction and whether an additional valuation adjustment occurs in the future because of real activities management as myopic behaviour, when considering the reputation effect on such myopic behaviour. Following Mizik (2010), I find that market participants have insignificant immediate reaction and future valuation adjustment for firms with higher reputation, whereas they have significantly negative immediate reaction and future valuation adjustment for firms with lower reputation. In addition, I further investigate the total long-term consequences of real activities manipulation as myopic behaviour by assessing the future market reaction to such myopic behaviour. I find that, to some extent, market participants have significantly negative future valuation adjustment for firms with lower reputation when they value the long-term consequences of firms engaging in myopic behaviour. All these findings suggest that both firms with higher reputation engage less in real activities manipulation as myopic behaviour and higher corporate reputation makes market participants have positive perceptions or images of firms due to their competitive edge.

I make several contributions to the literature. First, this paper contributes to the reputation literature. Empirical studies have well documented the effect of reputation on firm conduct. Reputation can not only encourage good firm behaviour (e.g., Beatty

et al. 1998; Cao et al. 2015), but also can discipline bad behaviour (Karpoff, 2012). In this chapter I examine association between corporate reputation and real activities manipulation, showing that reputation effect can alleviate such myopic behaviour as one of most important agency problems.

Second, this paper contributes to studies which examine factors influencing real activities management and the earnings management literature. Bushee (1998) examines the association between institutional investors on R&D cuts as myopic behaviour to reverse a decline in earnings, showing the monitoring role of institutional investors in reducing pressures for myopic behaviour. Cheng et al. (2016) investigate the impact of internal governance, proxied by both the number of years to retirement of key subordinate executives and their compensation relative to CEO compensation, on real activities manipulation. In the study, I identify corporate reputation as disclosure to alleviate firms' real activities management as myopic behaviour, which extends the understanding of factors affecting earnings management.

The remainder of the paper is organized as follows. Section 2 reviews the related literature and develop hypothesis. Section 3 offers sample selection and research design. Section 4 exhibits the main empirical results. Section 5 concludes.

2.2   Related literature and hypothesis development

2.2.1   Real earnings management

2.2.1.1   Definition of earnings management

The existing literature has suggested various definitions for earnings management. These definitions can be categorised into three groups: beneficial earnings management, pernicious earnings management and earnings manipulation, which could be either opportunistic or efficiency enhancing. With regard to beneficial earnings management, accounting scholars considered that earnings management could increase the transparency of reports by taking advantage of the flexibility in account choice to signal the manager's private information on future cash flows (Demski, 1998, Sankar and Subramanyam, 2001). In contrast, accounting researchers who focus on pernicious earnings management have argued that earnings management is harmful, as it misrepresents reports and reduces the report transparency (Schipper, 1989, Levitt Jr, 1998, Healy and Wahlen, 1999). In addition, some researchers have suggested that earnings management is the use of accounting choices, and can be either opportunistic or economically efficient. This kind of manipulation is within the boundaries of compliance with GAAP standards (Fields et al., 2001, Scott, 2009).

Based on research studying these three groups of definitions of earnings management, it is pernicious earnings management that is most widely used in recent accounting research. Although there is no consensus among researchers in defining earnings

management, practitioners and regulators have identified this practice to be common and problematical.

Specifically, the definitions proposed by Schipper (1989) and Healy and Wahlen (1999) are the most frequently cited in accounting research. According to Schipper (1989), earnings management is "a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain", and is "accomplished by timing investment or financing decisions to alter reported earnings or some subset of it" (p.92). Healy and Wahlen (1999) offered more precise definition of earnings management, and provided both the methods and the incentives of earnings management. They suggested that: "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999, p.368).

Healy and Wahlen (1999)'s definition has two notable features. First, it indicated how earnings could be managed. Managers could use 1) discretionary accruals by adopting the flexible accounting choices allowed in Generally Accepted Accounting Procedures to make up reported earnings without changing the underlying cash flows; and/or 2) real earnings management by constructing economic activities to influence cash flow.

Second, it suggested why managers engage in earnings management behaviour. Earnings are managed when managers intend either to mislead stakeholders or to influence earnings-based contracts.

2.2.1.2 Measures and objectives of earnings management

Due to the fact that earnings management cannot be measured directly, researchers in this area have developed a variety of models to detect possible earnings management. As Healy and Wahlen (1999) implied, there are two types of earnings management: (1) adopting the flexible accounting choices allowed in Generally Accepted Accounting Procedures and (2) constructing economic activities to influence cash flow. Accordingly, there are two types of model to detect them respectively: (1) accruals-based models and (2) real earnings management models.

First, in accruals-based models, the total accruals are divided into discretionary accruals and non-discretionary accruals. The non-discretionary accrual is usually considered as the estimation of total accruals, and the difference between total accruals and non-discretionary accrual is regarded as the discretionary accrual. Discretionary accrual is used to detect the value of earnings management. Most studies have adopted accruals-based models to detect earnings manipulation (Healy, 1985; Jones, 1991; Dechow et al., 1995; Kothari et al., 2005).

As a benchmark model, Jones (1991) developed a new and effective method to estimate non-discretionary accruals in order to detect earnings management during import relief (e.g. tariff increases and quota reductions). This model employed a variable such as

plant, property and equipment to control for the effect of changes in firms' business activities caused by depreciation charge on the non-discretionary accruals, and a variable of the sales revenue to control for the changes of non-discretionary accruals caused by changes in the companies' economic environment. Jones (1991) contributed to accounting research by embedding into this model the dependence of accruals on sales revenue and fixed assets.

Dechow et al. (1995) investigated the efficiency of five different models of earnings management, i.e. The Healy (1985)'s model, the DeAngelo (1986)'s model, the Jones (1991)'s model, the modified Jones model and the industry model. They found that the modified Jones model was most efficient for detecting earnings manipulation due to the fact that it could "eliminate the conjectured tendency of the Jones Model to measure discretionary accruals with error when discretion is exercised over revenues" (Dechow et al., 1995) by introducing a variable of changes in receivables into the non-discretionary function. Although both the Jones model and the modified Jones model have been widely used to detect earnings management behaviour, they existed to be severely mis-specified when applied to stratified-random samples of firms (Dechow et al., 1995; Guay et al., 1996). Kothari et al. (2005) improved the Jones model by highlighting the non-linear relationship between normal accruals and performance through the introduction of a control variable of return-on-assets. This performance-matched model increased the reliability of detection of earnings management behaviour.

Second, although most studies have detected earnings manipulation through accounting techniques, over the last decade real earnings management through real economic decisions has been drawing an increasing attention (Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2010; Gunny, 2010; Zang, 2012). Compared to the accrual-based earnings management, the real earnings management approaches are more costly and harder to reveal (Bagnoli and Watts, 2000), and have direct effects on cash flows (Cohen and Zarowin, 2010). Based on employing surveys and interviews with more than 400 executives, Graham et al. (2005) suggested that managers preferred to take economic actions (e.g. decreasing discretionary expenditure or capital investment) rather than using accounting choices (e.g. discretionary accruals) to manipulate earnings, particularly in the post-Enron and post-Sarbanes-Oxley time.

Roychowdhury (2006) developed a more comprehensive method to measure real earnings management through sales manipulation, overproduction and discretionary expenditure. Using this method, Cohen et al. (2008) and Cohen and Zarowin (2010) suggested that their empirical results are consistent with Graham et al. (2005), which indicated that manipulation through real activities was even more common than that through accounting techniques.

With regard to objectives of earnings management, prior research has identified four objectives of earnings management behaviour: (1) taking a big bath, (2) income maximization, (3) income minimization and (4) income smoothing. First, taking a "big bath" indicated that a firm made poor earnings reports even worse by manipulating

earnings. This behaviour usually happened during the restructuring period or when the firm was under stress. Newly appointed managers sometimes reported poor earnings results in the year of appointment when he could put blame on his predecessor and save the earnings for the next year. When a firm had to report a loss, the manager may prefer to report a larger loss to enhance next year's earnings artificially (Rankin, 1978; Berton and Miller, 1986; Walsh et al., 1991). The common methods to take a "big bath" included writing off assets, providing for expected future costs, and generally "clearing the desks". Due to the reversal nature of accruals, the "big bath" boosted the probability of future reported earnings. In brief, the "big bath" saved the future profits "in the bank".

Second, income maximization indicated that a firm tended to maximise its reported earnings. This usually happened when managers wanted to "influence contractual outcomes that depend on reported accounting numbers" (Healy and Wahlen, 1999). For example, managers may report higher net income for bonus purpose, or they may enlarge the income when the firm tended to violate the debt covenant.

Third, income minimization indicated that a firm tended to minimise its reported earnings. This behaviour is similar to taking a "big bath", but less extreme. When a politically visible firm earned a high profit or when a firm sought legislation protection from foreign competition, managers may minimise income by rapid write-offs of capital assets and intangibles and the expensing of advertising and R&D expenditures. In

addition, managers may use LIFO inventory (currently allowed in the United States) to minimise income due to the consideration of income tax.

Fourth, Income smoothing indicated that managers employed earnings management to smooth the earnings pattern to meet the investors' expectations. One well known example might be General Electric's (GE) earnings per share during the Welch era. When Welch was in charge of GE, the company reported remarkably smooth earnings growth even without short- term fluctuations. However, massive earnings fluctuations did appear under Immelt, i.e. Welch's successor. It was widely acknowledged that Welch cooked the book.

There are several reasons for motivating managers to smooth reported earnings. For example, they may want to influence the outcome of compensation contract and get smooth compensation. They may want to reduce reported net income volatility so as to smooth covenant ratio over time. Additionally, smoothing income could reduce the likelihood of reporting low earnings, and therefore help managers to secure their job. Smooth earnings also may convey information to outsiders that the firm had expected persistent earning power.

2.2.1.3   Determinants of earnings management

Prior research has well archived the determinants of earnings management. According to Dechow et al. (2010), there are six categories of determinants: (1) firm characteristics, (2) financial reporting practices, (3) governance and controls, (4) auditors, (5) equity market incentives, and (6) external factors.

First, there are four specific firm characteristics to affect earnings management behaviour: (1) firm performance, (2) debt contract, (3) growth and investment, and (4) size. With regard to firm performance, prior studies such as Balsam et al. (1995), Keating Zimmerman (1999), and Doyle et al. (2007a) have examined that whether firms that were performing poorly engage in accounting tactics to improve their earnings and hence lower earnings quality, suggesting that weak performance offered incentives to engage in earnings management. However, Francis et al. (1996) did not find that there was a relationship between weak performance and write-offs, and DeAngelo et al. (1994) implied that sustained weak performance could limit opportunities to manage earnings.

Concerning debt contract, Watts and Zimmerman (1986) suggested that debt contract could also induce earnings management. Lenders put restraints in debt covenants to protect their benefits, and these restraints are defined by accounting numbers. There are two types of debt covenants using accounting numbers: affirmative covenants and negative covenants. With the affirmative covenants, firms are required to maintain the accounting-based ratios to a specified level. Under the negative covenants, certain investment and financing behaviours are constrained (Smith, 1993). Healy and Palepu (1990) investigated whether managers employed discretion in accounting decisions to avoid breaking dividend constraints in debt covenants. They did not find that managers used flexibility in accounting decisions when the tightness of dividend constraints increases, but found that firms cut and even omit dividends when they are approaching dividend constraints. Sweeney (1994) found that managers switched to income-

increasing accounting procedures when the firm was close to violating debt covenants. Other studies also provided evidence that managers were motivated to increase income through accounting flexibility for the purpose of debt-contracting (Beatty and Weber, 2003; Beatty and Weber, 2006; Ball et al., 2008; Bharath, 2008; Zhang, 2008; Nikolaev, 2010). For firm growth and investment, some studies such as Richardson et al. (2005) found that there was a negative relationship between firm growth and earnings management opportunities. For firm size, prior studies indicated that there was mixed evidence of the relation between firm size and several earnings metrics including earnings management (Dechow et al., 2010). To summarise, prior studies on firm characteristics suggested that studies that investigated earnings management must control for fundamental differences in firm characteristics before inferring opportunism.

Second, concerning financial reporting practices, studies such as Cuccia et al. (1995) and Nelson et al. (2002) suggested that principles-based standards would be not likely to diminish opportunistic earnings management. However, two empirical studies drew the opposite conclusion. For example, Mergenthaler (2009) found that accounting standards with more rule-based characteristics were associated with a greater dollar magnitude of misstatements using a sample of GAAP violation firms. Barth et al. (2008) argued that International Accounting Standards (IAS) were principles-based and found evidence that the use of IAS was associated with less earnings management, more timely loss recognition, and greater value relevance.

Third, concerning governance and control, Jensen and Meckling (1976) suggested that internal controls included monitoring mechanisms, optimally chosen by the principal in the principal-agent relationship, as well as bonding mechanisms, optimally chosen by the agent at some cost. Some studies indicated that internal control procedures were associated with less earnings management (Doyle et al., 2007b and Ashbaugh-Skaife et al., 2008) and that managerial turnover was a disciplining mechanism that mitigated earnings management (Moore, 1973; DeAngelo, 1988; Collins and DeAngelo, 1990; Dechow and Sloan, 1991; Pourciau, 1993; Geiger and North, 2006). Other than internal control procedures, evidence on governance mechanisms such as ownership is mixed. For example, on the one hand, some studies implied that greater managerial ownership had an entrenchment effect – controlling shareholders extrapolate private benefits at the expense of minority shareholders through accounting method choice (Smith, 1976 and Dhaliwal et al., 1982) and less conservatism (LaFond and Roychowdhury, 2008). On the other hand, some studies suggested an incentive alignment effect of managerial ownership based on discretionary accruals and ERCs (Warfield et al., 1995 and Gul et al., 2003), although Larcker et al. (2007) obtained the opposite results for the relation between insider power, primarily measured by managerial ownership, and discretionary accruals.

Fourth, with regard to auditors, DeAngelo (1981) theoretically implied that auditors could be a determinant of earnings quality/management due to their role in mitigating intentional and unintentional misstatements, and that the ability of an auditor to

mitigate misstatements is a function of the auditor's ability both to detect a material misstatement and to adjust for or report it.

Krishnan (2003) found that auditor industry expertise was negatively related to discretionary accruals. Caramanis and Lennox (2008) pointed out that hour spent auditing as a proxy for audit effort/effectiveness was negatively associated with discretionary accruals. Additionally, auditor size and audit fees could affect earnings management behaviour (Kim et al., 2003 and Larcker and Richardson, 2004).

Fifth, existing literature has identified the influence of capital market incentives as a dominant determinants of earnings management. Dechow and Skinner (2000) suggested that firms used earnings to signal to investors about their quality financial performance, and therefore that firms were motivated to mislead investors on the value of firm valuation, in order to affect market price. Some studies investigated incentives of earnings management when firm raised capital. For example, Aharony et al. (1993) examined pre-IPO earnings management using the total accruals model. They found weak evidence to support the hypothesis that firms maximised their earnings before IPO, and showed that prestigious underwriters and auditors helped constrain earnings management. Friedlan (1994) also investigated the pre-IPO earnings management. Different from Aharony et al. (1993), he employed a simple discretionary method to capture earnings management. He argued that the use of prospectuses by investors to evaluate the issuing firm provided managers with incentives to increase earnings, as managers reasonably expected that both underwriters and investors were

not able to detect earnings management. He found evidence that firms did use income-increasing discretionary accruals before IPO to influence offer prices in order to maximise wealth. Teoh et al. (1998a) tested the accruals in the IPO year and compared stock performance in the following years with that in the IPO year. They observed poor post-IPO stock performance over a three-year holding period for the firms with abnormal high accruals in the IPO year. Specifically, firms in the first quartile of discretionary accruals experienced about 20 percent less post-IPO stock returns than the firms in the last quartile.

Additionally, some studies have indicated that earnings management could explain firms' post-SEO underperformance. For example, Rangan (1998) investigated the earnings management around SEO and found that earnings management during the SEO year could predict both changes in earnings and market-adjusted returns in the next year. Teoh et al. (1998b) tested the pre- SEO discretionary accruals and the post-SEO stock returns, finding that firms which used earnings-increasing accruals before SEO appeared to have lower long-term abnormal returns and lower net income afterwards. Shivakumar (2000) examined the earnings management around SEO. In line with Rangan (1998) and Teoh et al. (1998b), his findings provided evidence of earnings management around SEO. Cohen and Zarowin (2010) investigated both accruals management and real earnings management around SEO. They showed that both methods of earnings management could drive the SEO firms' poor post-event performance, and that real earnings management played a more important role than discretionary accruals.

Sixth, some studies have investigated external factors as determinants of earnings management. For example, Bowen et al. (1995) argued that, since a firm's stakeholders were likely to use the reported accounting numbers to help assess the firm's reputation on the fulfilment of implicit contract (e.g. timely payment to suppliers and creditors, continuing demand for product or service, funds from suppliers/creditors), managers had incentives to increase income in the long run to enhance the stakeholders' confidence in their ability to meet commitments.

2.2.1.4   Summary on real earnings management literature

Cohen et al. (2008) suggest that, compared with accruals-based earnings management, real activities management (RAM) has become a more popular means for manipulating short-term earnings after the passage of the Sarbanes- Oxley Act (SOX) in 2002. Unlike accruals-based earnings management which only affects the timing of earnings recognition and do not change true economic values, RAM alters operational practices and usually sacrifices firms' long-term economic values. By surveying and conducting interviews with top company executives, Graham et al. (2005) find that, in the post-Enron and post-SOX world, real actions have become executives' preferred method for overstating earnings when face with a possibility of failing to meet their desired quarterly earnings targets, although real actions is more likely to sacrifice the long-term economic value of companies.

Facing the popular use of real activities management, an increasing number of research has investigated various aspects of RAM, including its measurement, characteristics,

and consequences, and factors influencing real earnings management. For example, Roychowdhury (2006) develops the three measures of RAM by considering the abnormal levels of cash flow from operations (by acceleration of the timing of sales through increased price discounts), from production costs (by reporting lower cost of goods sold through increased production), and from discretionary expenditures (by reducing discretionary expenditures including advertising, research and development (R&D), and sales, general and administrative expenses (SG&A)) respectively. All of the three measures change the firm's underlying operations for boosting current-period earnings, which has suboptimal business consequences (Graham et al., 2005; Roychowdhury, 2006).

Real earnings management has been identified as myopic behaviour of management in the literature (Mizik, 2010; Kothari et al. 2016). Mizik (2010) suggests that real activities management, which is contrasted with accruals- based earnings inflation, is myopic behaviour that managers who concentrate on short-term goals such as current earnings targets overemphasize strategies with immediate payoffs at the expense of strategies with superior but more distant payoffs. Kothari et al. (2016) suggest that real earnings management directly trades off current earnings against future competitiveness.

One of main consequences of real activities management as myopic behaviour is that it has a net negative impact on future firm value. For example, Darrough and Rangan (2005) find that managers reduce R&D expenditure in the year of an initial public offering (IPO) to increase the IPO offer price, mainly due to the fact that reductions in

R&D expenditure increase current reported earnings, and managers believe that investors place more emphasis on current earnings and less empirical on R&D. They also suggest that such reductions to increase current earnings is at the expense of future earnings. Cohen and Zarowin (2010) find that real activities management gives rise to negative post- SEO earnings performance. Kothari et al. (2016) also find that real earnings management by reduction in expenditures on R&D and selling, general, and administrative activities is the main reason for post-SEO stock market underperformance when compared with accruals-based management, suggesting that managers display a greater propensity for RAM at the time of SEOs, although real activities management diminish the long-run economic profits of firms.

Some studies have investigated factors influencing real activities management as myopic behaviour. For example, Bushee (1998) examines the association between institutional investors on R&D cuts as myopic behaviour to reverse a decline in earnings, finding that firms with high institutional ownership have a lower probability of cutting R&D expenditure to reverse earnings decline, mainly due to the monitoring role of institutional investors in reducing pressures for myopic behaviour. Cheng et al. (2016) investigate whether internal governance, indicated by key subordinate executives' horizon incentives and their influence within the firm, affects the extent of real earnings management in U.S. firms. They find that the extent of real earnings management decreases with key subordinate executives' horizon (captured by the number of years to retirement) and influence (captured by their compensation relative to CEO compensation).

2.2.2 Corporate reputation

2.2.2.1 Definition of corporate reputation

According to the existing literature, there are 13 different definitions on corporate reputation (Walker, 2010), among which the four definitions are most widely employed. For example, Weigelt and Camerer (1988) suggested that a corporate reputation is a set of attributes ascribed to a firm, inferred from the firm's past actions. Fombrun and Shanley (1990, p.234), applying the framework of signaling theory, interpreted corporate reputation as "the outcome of a competitive process in which firms signal their key characteristics to constituents to maximize their social status". Fombrun (1996, p.72) defines corporate reputation as the "perceptual representation of a company's past actions and future prospects that describes the firm's overall appeal to all of its key constituents when compared with other leading rivals". By conducting a survey of prior research which defines corporate reputation, Barnett et al. (2006, p.34) indicated that corporate reputation can be referred to as "observers' collective judgments of a corporation based on assessments of the financial, social, and environmental impacts attributed to the corporation over time".

Based on the above definitions, Walker (2010) summarised that there are five attributes to corporate reputation. First, corporate reputation is based on perceptions. Second, it is the collective perception of stakeholders. Third, the reputation is comparative. Fourth, the corporate reputation can be either positive or negative. Finally, it is temporal.

31

Similarly, Barnett et al. (2006) highlighted that corporate reputation is perceptional, aggregate, comparable and contemporary.

Corporate reputation can be regarded as an essential intangible and strategic asset (Fearnley, 1993; Hall, 1993; Fombrun, 1996; Suh and Amine, 2007). Like most assets, it is subject to risk, obsolescence, and depreciation and it can be enhanced by innovation and investment (Preston, 2004). Reputational capital includes creation of market barriers, customer retention, and strengthened competitive advantages (Schwaiger, 2004). Good reputation gives a company a competitive edge by attracting customers to the company's products and services, investors to its securities, high quality employees to its jobs, suppliers' and distributors' offer of excellent contract terms, and favourable capital access, among other benefits (Fombrun, 1996; Srivastava et al., 1997; Deephouse, 2000; Schwaiger, 2004; Rindova et al., 2005; Dowling, 2006; Suh and Amine, 2007).

2.2.2.2 Measures of corporate reputation

Recently, reputation rankings by professional third parties, as a proxy for corporate reputation, have been widely used in empirical research in financial, accounting, and management subjects. Other proxies for corporate reputation include content analysis of media data, market share, winning contests, rankings by recruiters, and rankings by students.

There are four major reputation rankings for corporations in the US: the Harris Poll Reputation Quotient (hereafter RQ) by Harris Interactive; America's Most Reputable

Companies (hereafter AMRC) by Forbes; the RepTrak by the Reputation Institute; and America's (World's) Most Admired Companies (hereafter AMAC) by Fortune.

First, the Harris Poll Reputation Quotient developed its reputation ranking based on stakeholders' perceptions. Specifically, Harris Interactive evaluated stakeholders' perceptions based on the perceptions of members of the American general public across six dimensions: products and services, financial performance, workplace environment, social responsibility, vision and leadership and emotional appeal.

Second, with regard to the AMRC ranking, Forbes published it every April with their partner i.e. The Reputation Institute. The Reputation Institute conducted online surveys among consumers, which aimed at evaluating perceptions towards the 150 largest US companies. Consumers expressed their perceptions of four emotional indicators - trust, esteem, admiration and good feeling - for the companies with which they were "somewhat" or "very" familiar. Each company obtained a score between 0 and 100 derived from consumers' perceptions, and this score, known as a "RepTrak Pulse", denoted an average degree of consumers' feelings for a company.

Besides the RepTrak Pulse ranking, the Reputation Institute also conducted an annual RepTrak survey from 15 countries. The RepTrak is an online-based survey that collected and analysed perceptions from the general public. It employed the RepTrak Pulse indicators, and seven further dimensions of corporate reputation: product/services, innovation, workplace, governance, citizenship, leadership and performance. Although the Reputation Institute claimed that their RepTrak System represented the

"stakeholders' feel for a company or organisation", this system mainly concentrated on the perceptions of consumers, not the whole stakeholder group.

Fourth, for the AMAC ranking, Fortune published it every March with their partner i.e. Hay Group. This ranking was based on a survey of about 4,000 business executives, directors and analysts. The 10 largest companies in each industry would receive a score based on nine criteria: innovation, people management, use of assets, social responsibility, management quality, financial soundness, long-term investment, product quality and global competitiveness. Most empirical research on corporate reputation has employed this ranking as a measure of corporate reputation. Walker (2010) suggested that the AMAC ranking is the most widely used reputation measure in various sociological research.

Additionally, some scholars developed their own variables to estimate corporate reputation. For example, by studying automobile industry, Rao (1994) used winning contests as a proxy for corporate reputation. When a product was awarded the first prize in an event, this first prize product could be defined as a winner. The reputation variable in Rao's (1994) research is the lagged natural logarithm of cumulative winners plus unity. Cable and Graham (2000) examined job seekers' perceptions on corporate reputation. They interviewed a sample of undergraduates from two universities to investigate the factors that the students (job seekers) take into account when assessing the firm's reputation. Deephouse and Carter (2005) analysed the difference between legitimacy and reputation with a sample of US commercial banks, using media data to

capture the general public's perceptions towards a company. Fang (2005) used market share to capture the corporate reputation for an investment bank when examining the underwriter's role in bond issuance. Rindova et al. (2005) investigated organisational reputation using a sample of US business schools with full-time MBA programs. They evaluated the business school reputation by surveying recruiters.

2.2.2.3 Financial studies on the reputation effect

2.2.2.3.1 The effect of corporate reputation on earnings quality/management

Some studies have investigated the effect of corporate reputation on earnings equality/management. For example, employing a total accruals model, Riahi- Belkaoui (2001) suggested that multinational firms with high reputation used income-decreasing accruals to avoid the potential political cost, based on the assumption that highly reputed firms are always highly profitable firms, which attract more public attention and face high probability of being regulated. He first used a sample of all the firms included in Forbes' 100 "Most International" American manufacturing and service firms from 1987 to 1990, and then employed Fortune's "American Most Admired Companies" to distinguish the high-reputation firms from low-reputation firms. Similar to Jones (1991), Riahi- Belkaoui (2001) regresses total accruals on the change in sales and the total accruals balance in the first model. Then, to test reputation effect, an indicator variable was added to formulate the second model. This variable was assigned to 1 for the high-reputation firms and to 0 for low-reputation firms. Firm size was controlled in the second model and a time indicator was also included. The empirical results showed

that higher reputation firms use less accruals. He inferred that reputed firms used income-decreasing accruals to reduce the possible political cost. In this study, the reputation variable was regressed on total accruals directly. The discretionary accruals were not separated from the non-discretionary accruals. However, the total accruals model could lead to estimation error for discretionary accruals and were not able to measure the earnings management for firms with extreme performance (Dechow et al., 1995).

Tan (2007) investigates the impact of corporate reputation on earnings quality in the Chinese market. He measures earnings quality by persistent profitability compared to the average level of the related industry. He finds positive impact of corporate reputation on earnings quality. However, he does not find evidence that good reputation engenders superior earnings quality. Since enhancing and maintaining reputation is costly, firms with good reputation may experience short-term loss. He also suggests that reputation and firm's financial performance should be interactive, although his empirical work is on the one-way effect.

Luchs et al. (2009) argued that a firm's reputation was positively associated with its earnings quality. In their research earnings quality was measured by the absolute discretionary accruals, and the modified Jones model was employed to detect discretionary accruals. Their sample contained the firms from the 2006 AMAC list. For each firm in the sample, a matching firm from the same industry with closest total assets was selected from outside the AMAC list. A dummy variable was introduced to indicate

the firm's reputation category. Sample firms were coded as 1, while matching firms as 0. Luchs et al. (2009) used this dummy variable as dependent variable together with other control variables to explain the absolute discretionary accruals for the year 2005. They found that AMAC firms had lower absolute discretionary accruals on average than the non-AMAC firms. Therefore, there was a positive association between corporate reputation and earnings quality.

While Luchs et al. (2009) used earnings management as a proxy of earnings quality, Cao et al. (2012) investigated the impact of corporate reputation on earnings quality using an external indicator, i.e. restatements. As reputation is both time-consuming and complicated to build, and costly to rebuild when it is damaged, firms with different reputation levels may act in diverse ways when considering whether to build or protect their reputation. Hence, Cao et al. (2012) assumed that reputable firms are less likely to misstate their financial statements, in order to protect their reputation from sustaining huge damage due to the greater public scrutiny. After controlling for audit fees, corporate governance and potential effects of CEO reputation, they found that firms with high reputation were less likely to restate both their audited and unaudited financial reports.

Olagbemi (2011) investigated whether corporate reputation could mitigate accounting fraud based on a qualitative test by surveying accounting professionals. In her research, nearly half of the surveyed accounting professionals thought that accounting fraud could be prevented or reduced in reputable companies. Olagbemi argued that since

accounting fraud could sully corporate reputation, earnings and profits gained at the cost of corporate reputation were short-lived.

2.2.2.3.2   The effect of intermediates' reputation on issuers' earnings management

When a firm goes public for the first time, its value is unknown by the investors due to information asymmetry. If the firm is undervalued, investors may discount the security and the firm's informational cost of capital may increase; if the firm is overvalued, investors may pay extra for their misunderstanding and the firm's informational cost of capital may decrease (Carter and Manaster, 1990). Intermediates such as auditors and underwriters, who stand between the issuers and investors, reduce this information asymmetry to some degree. This implies that a reputable underwriter might influence the investors' perceptions of the issuer's stock price.

According to signaling theory, when investors do not have perfect information about the issuer's true value, the quality of intermediates selected by the issuer provides this information to the market. Several studies have suggested that intermediates' reputation had a positive impact on stock performance, as their quality informed the market about the issuer's true value. In their theoretical study, Titman and Trueman (1986) suggested that a firm with favourable information about its value selected a more prestigious auditor and underwriter than a firm with less advantageous information. Therefore, higher quality of auditor and underwriter indicated the higher value of the issuer.

Empirical work by Carter and Manaster (1990) showed that stocks of initial public offering (hereafter IPO) with reputed underwriters were associated with less under-pricing in the short term and less underperformance in the long term.

However, it has been argued that underperformance after IPO is the result of pre-IPO earnings management. As underwriters can earn economic rents from reputation, their decision making is informed by reputation concern (Fang, 2005), and therefore mitigates the issuer's earnings manipulation (Chen et al., 2013). As a result, the issuers with prestigious underwriters show better post- IPO performance (Sun et al., 2010) and the issuers with less reputable underwriters exhibit higher underperformance (Chang et al., 2010).

2.2.2.3.3   The effect of management reputation on earnings quality

There is a debate over the relationship between managerial reputation and earnings quality. Given reputation concern, the notion of "efficient contract" suggested that CEOs with favourable reputation had less incentive to engage in earnings management that resulted in poor earnings quality, as they would suffer from greater loss in their own human capital, and this behaviour would also increase the firm's cost of capital. Conversely, the idea of "rent extraction" suggested that reputable CEOs were more aggressive in earnings management in order to enhance their careers; hence they may use discretion, which could give rise to worse earnings quality (Francis et al., 2008).

Francis et al. (2008) investigated the association of CEO reputation measured by media coverage with earnings quality measured by both a five-year rolling standard deviation

of discretionary accruals from the Jones model and the absolute value of abnormal accruals from the performance-matched modified Jones model. They found that prestigious CEOs did manipulate earnings to alter the perceptions of labour and stock markets. Furthermore, they suggested that firms with inherent poor earnings quality would always hire reputable CEOs, which may go some way towards explaining why reputable CEOs were associated with poor earnings quality.

However, Lafond (2008) criticised the work of Francis et al. (2008) with regard to how reputable CEOs made accounting decisions, and the proxy used to measure CEO reputation. Demerjian et al. (2013) employed a decile rank of managerial efficiency to approximate managerial ability, and four different methods to assess earnings quality. Consistent with the efficient contract hypothesis, they concluded that managerial ability positively affects the firm's choices, such as mergers and acquisitions or R&D expenditures.

2.2.2.3.4   The effect of earnings quality on corporate reputation

Among those studies that investigated the impact of earnings quality on corporate reputation, Karpoff and Lott (1993) argued that financial reporting fraud could lead to reputational penalties. They demonstrated that firms accused of such fraud suffered from significant market-value decline, and suggested that this may be a result of reputation loss as investors adjusted their expectation of cost of capital to a higher level due to their expectation of future fraud.

While Karpoff and Lott's (1993) study focused only on the corporate reputation damage driven by the violation of GAAP, several researchers investigated the corporate reputation damage caused by poor financial quality under GAAP. For example, Riahi-Belkaoui (2001) documented a negative relationship between corporate reputation and total accruals, and concluded that corporate audience might assign lower reputation to firms with higher total accruals when considering earnings management through accruals.

Another group of studies on reputational penalties triggered by poor earnings quality focused on the managerial reputation penalty. Earnings management may bring short-term benefits to firms and managers, but in the long-run, it seemed that managers needed to pay more for this behaviour.

Kaplan and Ravenscroft (2004) suggested that earnings management was costly for managers since this behaviour tended to affect their reputation for high ethics, and this in turn could restrict their future career opportunities. Similarly, Kaplan et al. (2007) interviewed more than 100 MBA students and suggested that managers engaging in earnings management may suffer from potential reputation loss, which had a negative impact on their career. After the trade-off between the short-term benefits and long-term impact on career, personal reputation concern may be a disincentive for earnings management.

Desai et al. (2006) provided evidence that managers' reputation was damaged by misstating financial reports. They investigated the management turnover and the re-

hiring of displaced managers after firms' earnings restatement announcement. They found a higher management turnover rate in firms with restatement, compared to the firms of similar age, size and industry without restatement. Furthermore, more than two thirds of displaced managers were subsequently unable to get a comparable job.

2.2.2.4   d.   Summary on corporate reputation literature

Corporate reputation refers to the reputation effect at a corporate level, which has been identified in the literature as self-regulatory mechanism which can influence firm conduct (Barnett and Pollock, 2012). From a game theoretic perspective, the reputation effect can be defined in a repeated game with information asymmetry, in which one player's type (or reputation) is shaped by the other players' perceptions of this player's past actions; all players' actions, therefore, appear to be affected by such reputation concern, based on the fact that one player's reputation affects others' reactions, which is referred to as the reputation effect (Kreps et al., 1982; Kreps and Wilson, 1982). The reputation effect at a corporate level is a set of attributes ascribed to a firm, inferred from the firm's past actions (Weigelt and Camerer, 1988). The reputation effect can help to alleviate agency problems (Fama, 1980; Holmstrom, 1982).

From a management perspective, corporate reputation can be referred to as "observers' collective judgments of a corporation based on assessments of the financial, social, and environmental impacts attributed to the corporation over time" (Barnett et al., 2006). Corporate reputation is also an essential intangible and strategic asset (Hall, 1993; Fombrun, 1996). There are five attributes of corporate reputation: (1) the corporate

reputation is based on perceptions: (2) it is the collective perception of stakeholders; (3) it is comparative; (4) it can be either positive or negative; and (5) it is temporal (Walker, 2010).

As a result, a firm's reputation arises when the firm's stakeholders trust that the firm will uphold its explicit and implicit contracts/claims, and will not act opportunistically to their detriment, which can encourage good behaviour and discipline bad behaviour (Karpoff, 2012). On the one hand, firms with higher reputation have benefits. For example, reputable investment banks obtain higher fees for their services (Beatty et al. 1998). Firms with higher reputations enjoy a lower cost of equity capital (Cao et al. 2015). On the other hand, corporate reputation could discipline firm misconduct. Karpoff (2012) reviews the empirical studies on the costs to firms from misconduct that affects various stakeholders based on the reputation mechanism, suggesting that various types of misconduct including financial and non- financial misconduct are associated with significant share value and reputational losses.

Concerning measures of corporate reputation, reputation rankings by professional third parties are widely used in research as a proxy for corporate reputation. The most widely used corporate reputation measure is the America's Most Admired Companies (AMAC) ranking (Walker, 2010). Fortune publishes the AMAC ranking each March with their partner Hay Group. This ranking is based on a survey of about 4,000 business executives, directors and analysts. The 10 largest companies in each industry receive a score based on nine criteria: (1) innovation, (2) people management, (3) use of assets, (4) social

responsibility, (5) management quality, (6) financial soundness, (7) long-term investment, (8) product quality and (9) global competitiveness. Raters are asked to assess each company on each attribute by assigning a score from 0 (poor) to 10 (excellent). The overall corporate reputation score is an average of the attribute scores.

2.2.3 Hypothesis development

Signaling models, pioneered by Spence (1974), have generated valuable insights into the conditions that encourage myopic behaviour. Based on assumption that managers usually have better information than outsiders about the value maximizing decisions of their firms, signaling models suggest the basic elements triggering myopic behaviour: (1) there exists firms with different types i.e. firms with good or bad prospects; and (2) good-type firms have a desire to separate themselves from bad-type ones, mainly because managers care about their firms' current stock prices and this is higher for better firms (Grant et al. 1996). Because of firms' private information (e.g. firms face good or bad prospect) unavailable to the outsiders, managers can send a signal to inform the market about their firms' advantageous prospects, for example, by reporting desired favorable earnings.

However, there exists signal-jamming behavior that bad-type firms may attempt to mimic the behaviour of good-type firms for the purpose of fooling the stock market into believing that they are facing good prospects (Grant et al. 1996; Mizik, 2010). The greater the weight managers place on current stock price relative to future economic value, the more likely they are to engage in signal jamming (Bizjak et al. 1993).

Therefore, to meet desired current earnings targets or report favourable earnings, managers within bad-type firms might be more likely to engage in signal jamming, for example, by manipulating real activities to create an immediate favorable market reaction.

However, corporate reputation is the result of signaling activity (Shapiro, 1983), which means that the other players' perceptions of this player's type based on his previous actions serve as a signal of this player's current type supported by his current actions. Moreover, a ranking of corporate reputation as a disclosure has separated firms with higher type (reputation) from those with lower type; and a firm with good reputation (type) signals its competitive edge by attracting customers to the company's products and services, investors to its securities, high quality employees to its jobs, suppliers' and distributors' offer of excellent contract terms, and favorable capital access, among other benefits (Fombrun, 1996; Deephouse, 2000; Rindova et al., 2005). Therefore, a firm with higher reputation ranking has been more favorable current stock price, and might be less need to engage in myopic behavior at the expense of the long-term profits such as real activities management to report favorable current earnings for an immediate favorable market reaction. Thus, corporate reputation as a disclosure may be a disincentive for higher-reputation firms to engage in real activities management as myopic behaviour. As a result, the main hypothesis can be stated as:

H1: *Higher reputation firms engage less in real earnings management, all else equal.*

2.3   Empirical approach

2.3.1   Sample and data

The sample population for this study is based on the Fortune America's Most Admired Companies (here after AMAC). Wartick (2002) implies that corporate reputation should be measured as stakeholders' perception rather than factual representation. Similarly, Walker (2010) suggests that perception-based survey is more appropriate as a measure of corporate reputation than objective measures such as market share or winning contests. Among the perception surveys worldwide, Fortune's America's Most Admired Companies (AMAC) is one of the most famous reputation rankings. It has been copied in several countries, including the UK and Germany. Because Hay Group, which conducts the AMAC survey, describes the process in detail, I are able to understand whose perceptions this survey represents. Moreover, the U.S. reputation survey offers the largest sample size per year compared to surveys in other countries.

Data for corporate reputation is collected from the Fortune Magazine website, all the original financial data (un-restated) and marginal tax rates are downloaded from WRDS COMPUSTAT, information for institutional shareholders is collected from 13F, and the board information is derived from WRDS RiskMetrics.

The initial sample from the AMAC includes 4498 firm-year observations for the period 2006 to 2012. From this initial sample, 2342 firm-year observations are most admired companies and the 2156 firm-year observations are contenders. Since the results may

be affected by specific regulations and the unique characteristics of firms from regulated industries and the financial sector, 998 firm-year observations in regulated industries and financial sector are excluded from the initial sample following Roychowdhury (2006). 211 firm-years are excluded because the companies could not be found in COMPUSTAT. Further 2136 firm-year observations are eliminated due to information missing from COMPUSTAT, 13F and RiskMeterics. After the elimination, the final sample consists of 1153 firm-year observations.

2.3.2   Variable measurement

The main independent variable in this empirical analysis is corporate reputation, measured by the natural logarithm of the overall reputation score from Fortune list of America's (World's) Most Admired Companies. AMAC provides a better fit for this research since it focuses on the judgment of executives, directors, and security analysts from the same industry. I use this ranking since it comprises a broader range of industries and more firms, and has a longer period of available data compared to other reputation rankings used in recent reputation literature. The designation starts with the largest US and global companies (measured by revenue). Hay Group sorts the companies by industry and selects between 10 and 15 of the largest companies from each industry. About 4,000 executives, directors, and security analysts are interviewed to rank companies in their own industry. The companies rated in the top half of each industry are categorized as the Most Admired Companies.

Three ways of real activities management are used as dependent variables to test the main hypothesis in this research respectively. Following Roychowdhury (2006), the earnings manipulation through real activities is measured in three ways: increasing sales by providing discounts, increasing earnings by reducing the cost of goods sold by overproduction, and / or reducing discretionary expenditures, including R&D, advertising, and SG&A expenditures. To capture the real manipulation through these three methods, I first estimate the normal level of cash flow from operation, cost of production and expenditures with the follow equation.

The normal level of cash flow from operation:

$$\frac{CFO_{it}}{A_{it-1}} = \beta_0 + \beta_1 \left(\frac{1}{A_{it-1}}\right) + \beta_2 \left(\frac{S_{it}}{A_{it-1}}\right) + \beta_3 \left(\frac{\Delta S_{it}}{A_{it-1}}\right) + u_{it} \qquad (1)$$

where CFO_{it} is the cash flow from operation (Compustat data item 308) of firm i in year t, A_{it-1} the lagged total asset (Compustat data item 6) of firm i; S_{it} is the sales (Compustat data item 12) of current period for firm i, and ΔS_{it} is the change in sales for firm i.

The normal level of the cost of production:

$$\frac{PROD_{it}}{A_{it-1}} = \beta_0 + \beta_1 \left(\frac{1}{A_{it-1}}\right) + \beta_2 \left(\frac{S_{it}}{A_{it-1}}\right) + \beta_3 \left(\frac{\Delta S_{it}}{A_{it-1}}\right) + \beta_4 \left(\frac{\Delta S_{it-1}}{A_{it-1}}\right) \qquad (2)$$
$$+ u_{it}$$

where $PROD_{it}$ is the sum of cost of goods sold (Compustat data item 44) and changes in inventory (Compustat data item 3) of firm i in year t, and ΔS_{it-1} is the lagged change in sales for firm i.

The normal level of expenditures:

$$\frac{DISX_{it}}{A_{it-1}} = \beta_0 + \beta_1 \left(\frac{1}{A_{it-1}}\right) + \beta_2 \left(\frac{S_{it-1}}{A_{it-1}}\right) \tag{3}$$

where *DISX$_{it}$* is the sum of R&D expense (Compustat data item 46), Advertising expense (Compustat data item 45) and Selling, General and Administrative expenses (Compustat data item 189)[2].

Equations (1), (2), and (3) are estimated for each industry each year with at least 15 available observations. Following Roychowdhury (2006), industries are defined by two-digit SIC codes. Overproduction (RM_PROD) is measured as the estimated residual from the regressions. The residuals for abnormal sales and discretionary expenditures are multiplied by -1 (denoted as RM_CFO and RM_DISX respectively). That is, higher values of RM_CFO, RM_PROD, RM_DISX indicate higher amount of sales manipulation, overproduction, and reduced discretionary expenditures that firms use to manipulate earnings.

For control variables, I use variables including number of analysts following, firm size, leverage ratio, return on assets, market to book ratio, a dummy variable of showing whether the firm is audited by big 4 audit firms, the firm's market share, marginal tax

---

[2] As long as General and Administrative expenses are available, if R&D and Advertising expenses are missing they are set to zero.

rates, number of years the auditor has audited the client, net operating assets and the firm's operating cycle. Please see Table 1 as variable description and measurement.

Specifically, the firm's market share (*Market_Share*) indicates the firm's market leader status. Firms with larger market share should associate with lower cost of real earnings management. This is measured by the ratio of a firm's sales to the total sales of the same industry. Three-digit SIC code is used to define industry following Harris (1998). For firms' marginal tax rates (MTR), according to Zang (2012), higher MTR indicates higher cost for real earnings management.

Big4 is a dummy variable indicates whether the firm is audited by big 4 audit firms. Net operating assets (*NOA*) captures the extent of discretionary accruals in previous period. *NOA* is assumed to be positively related to the discretionary accruals. For operating cycle, longer operating circle should associate with lower discretionary cost since longer operating circle gives firms larger accrual accounts and longer period for accruals to reserve.

In addition, return on asset (ROA) is used to control for firm performance; logged total assets is used to control for firm size; market to book ratio is used to control for firm growth. Leverage ratio is also included to control for debt covenant as prior research suggests that debt contract is one of the main motivations for firm to manipulate earnings.

In addition, return on asset (ROA) is used to control for firm performance; logged total assets is used to control for firm size; market to book ratio is used to control for firm

growth. Leverage ratio is also included to control for debt covenant as prior research

suggests that debt contract is one of the main motivations for firm to manipulate

earnings.

Table 2.1 Variable description and measurement

Variable	Description
REM_CFO	Abnormal cash flow, estimated residuals from Equations (1);
REM_PROD	Abnormal production costs, estimated residuals from Equations (2);
REM_DISX	Abnormal discretionary expenditures, estimated residuals from Equation (3) multiplied by 1;
REM_1	Sum of REM_PROD and REM_DISX;
REM_2	Sum of REM_CFO, REM_PROD and REM_DISX;
Rep	Company reputation score, published in Fortune Magazine every March;
CAR	12 month cumulative abnormal return;
nAnalyst	Number of analysts following;
Size	Firm size measured by lagged total assets;
Leverage	Leverage;
ROA	Return on assets, income before extraordinary items divided by lagged total assets;
MTB	Market to book ratio;
Big4	Indicator variable, 1 if the firm is audited by one of big 4 audit firms, 0 otherwise;
Mkt_share	Percentage of the company's sales to the total sales of its industry at the beginning of year t, where industry is defined based on three-digit SIC codes;
MTR	Marginal tax rates developed and provided by Professor John Graham;
AU_yrs	Number of years the auditor has audited the client;
NOA	Indicator variable that equals 1 if the net operating assets (i.e., shareholders' equity less cash and marketable securities and plus total debt) at the beginning of the year divided by lagged sales is above the median of the corresponding industry-year, and 0 otherwise;
Cycle	Days receivable plus the days inventory less the days payable at the beginning of the year.

2.3.3   Model specifications

To investigate the reputation effect on real activities manipulation, I first regress the corporate reputation on the three ways of real earnings management respectively, shown as the following equation:

$$REM = \beta_0 + \beta_1 REP + \sum_m \beta_{2m} Control + \sum_n \beta_{3n} Year\ Dummy \qquad (4)$$

$$+ \sum_0 \beta_{4n} Industry\ Dummy + u_{it}$$

where *REM* denotes REM_CFO, REM_PROD, and REM_DISX i.e. real manipulation through sales, overproduction and discretionary expenditures respectively. I also use two aggregate measures of real activities management as the two additional dependent variables: REM1= REM_PROD + REM_DISX, and REM2= REM_CFO + REM_PROD + REM_DISX. *REP* is the main independent variable – corporate reputation. *Control* is the relevant control variables.

2.4   Empirical results

2.4.1   Descriptive statistics

Descriptive statistics for the sample are presented in Table 2. The mean (median) of the natural logarithm of reputation score is 1.79 (1.81). The original reputation score (does not report) is in the range from 2.32 to 9.05 with the mean (median) of 6.07 (6.12). The mean (median) logarithmic score for the most admired companies and contenders are

1.90 (1.90) and 1.65 (1.68), respectively. The mean (median) of real earnings management through accelerating sales for all, most admired and contender firms are -0.03 (-0.03), -0.06 (-0.04) and 0.00 (-0.02), respectively. The mean (median) of real earnings management through overproduction for all, most admired and contender firms are -0.03 (-0.03), -0.05 (-0.04) and -0.01 (-0.02), respectively. The mean (median) of real earnings management through discretionary expenditures for all, most admired and contender firms are -0.16 (-0.01), -0.17 (-0.01) and -0.15 (0.00), respectively. The mean (median) of aggregate total of real earnings management for all, most admired and contender firms are -0.23 (-0.09), -0.29 (-0.13) and -0.16 (-0.05), respectively. The mean (median) of the discretionary accruals for all, most admired and contender firms are 0.15 (0.00), 0.13 (0.00) and 0.17 (0.01), respectively. From descriptive statistics, the contender firms use more increasing discretionary accruals than the most admired firms. In addition, the average earnings management through real activities of most admired firms is lower than the average of contender, indicating that most admired firms use less real earnings management than the contenders.

Table 2.2 Descriptive statistics

		Mean	St. Dev.	25%	Median	75%
REM_CFO	All	-0.03	0.32	-0.1	-0.03	0.02
	AMAC	-0.06	0.32	-0.11	-0.04	0.01
	Contenders	0	0.32	-0.07	-0.02	0.04
REM_PROD	All	-0.03	0.23	-0.14	-0.03	0.06
	AMAC	-0.05	0.22	-0.16	-0.04	0.05
	Contenders	-0.01	0.23	-0.11	-0.02	0.09
REM_DISX	All	-0.16	0.89	-0.13	-0.01	0.11
	AMAC	-0.17	0.89	-0.14	-0.01	0.11
	Contenders	-0.15	0.89	-0.12	0	0.12
REM_1	All	-0.23	0.95	-0.39	-0.09	0.11
	AMAC	-0.29	0.97	-0.44	-0.13	0.08

	Contenders	-0.16	0.91	-0.31	-0.05	0.17
REM_2	All	0.15	0.75	-0.03	0	0.05
	AMAC	0.13	0.75	-0.04	0	0.05
	Contenders	0.17	0.75	-0.03	0.01	0.06
Reputation	All	1.79	0.18	1.69	1.81	1.92
	AMAC	1.9	0.11	1.83	1.9	1.97
	Contenders	1.65	0.16	1.57	1.68	1.77
Mkt_Share	All	0.16	0.2	0.03	0.08	0.22
	AMAC	0.19	0.2	0.04	0.11	0.26
	Contenders	0.13	0.18	0.02	0.06	0.15
nAnalyst	All	20.29	10.09	13	20	26
	AMAC	22.42	10.09	16	22	28
	Contenders	17.25	9.29	10	17	23
AU_yrs	All	6.61	0.98	7	7	7
	AMAC	6.74	0.82	7	7	7
	Contenders	6.46	1.12	6	7	7
MTR	All	0.31	0.08	0.32	0.34	0.35
	AMAC	0.32	0.06	0.33	0.34	0.35
	Contenders	0.28	0.1	0.25	0.34	0.35
Big4	All	0.98	0.13	1	1	1
	AMAC	0.99	0.11	1	1	1
	Contenders	0.97	0.16	1	1	1
NOA	All	0.85	1.09	0.27	0.51	0.94
	AMAC	0.83	1.04	0.29	0.52	0.93
	Contenders	0.88	1.15	0.25	0.5	0.97
Cycle	All	273.72	766.62	55.76	88.5	129.75
	AMAC	259.09	723.69	56.2	89.29	130.1
	Contenders	292.35	817.92	54.78	87.46	128.14
ROA	All	0.05	0.08	0.02	0.05	0.09
	AMAC	0.06	0.06	0.03	0.06	0.1
	Contenders	0.03	0.09	0	0.03	0.07
Size	All	3.15	1.73	1.9	2.98	4.2
	AMAC	3.42	1.69	2.18	3.22	4.44
	Contenders	2.81	1.72	1.59	2.63	3.79
MTB	All	2.64	3.61	1.26	2.05	3.35
	AMAC	3.08	3.43	1.53	2.35	3.76
	Contenders	2.07	3.77	1	1.66	2.72
Leverage	All	0.27	0.18	0.13	0.24	0.38
	AMAC	0.25	0.17	0.11	0.23	0.35
	Contenders	0.3	0.2	0.15	0.27	0.42

Table 3 presents the Pearson and Spearman correlations among the main variables. There is a significate positive correlation between overproduction and discretionary expenditures. This significant and positive correlation (Pearson) of 0.50 (0.51) between RM_PROD and RM_DISX indicates that firms in this sample always use these two real manipulation methods together to manage earnings. This is consistent with Zang (2012) who also reports a significant and positive correlation (Pearson) of 0.37 (0.19) between the abnormal production cost and cutting of discretionary expenditures. Another high, significant and positive correlation (Pearson) is between board size and board independence of 0.84 (0.84). This is mechanical because board size is the sum of independent directors and dependent directors. In addition, Z-Score is positively correlated with ROA and negatively correlated with Leverage, consistent with that firms with healthier financial condition obtain higher return on assets and keep lower leverage ratio. Positive correlations between real manipulation methods and discretionary accruals suggest that firms use both real activities manipulation and accrual-based earnings management. The abnormal reduction of discretionary expenditures is negatively correlated with corporate reputation, Z-Score, institutional shareholding, net operating assets, operation cycle, return on assets, firm size, market to book ratio, leverage ratio, board size and independence. The abnormal production cost is negatively correlated with corporate reputation, Z-Score, marginal tax ratio, net operating assets, operation cycle, return on assets, firm size, market to book ratio, leverage ratio, board size and independence. Accruals management is negatively

correlated with corporate reputation, Z-Score, auditor, firm size, board size and board

independence.

Table 2.3 Pearson (upper) and Spearman (lower) correlations

	REM_CFO	REM_PROD	REM_DISX	REM_1	REM_2	REP	Mkt_Share	nAnalyst	Au_yrs	MTR	Big4	NOA	Cycle	ROA	Size	MTB	Leverage
REM_CFO		0.08	-0.01	0.35	0	-0.12	0.07	-0.09	0.03	-0.09	0.04	-0.07	-0.08	-0.14	-0.12	-0.02	0.02
REM_PROD	0.29		0.26	0.51	-0.05	-0.15	0.19	-0.08	0.13	-0.06	0	-0.18	-0.21	-0.22	-0.19	-0.15	-0.07
REM_DISX	-0.11	0.5		0.9	-0.03	-0.06	0.1	-0.05	0.04	-0.01	0	-0.07	-0.1	-0.05	-0.09	-0.09	-0.02
REM_1	-0.26	0.41	0.57		-0.04	-0.13	0.16	-0.09	0.08	-0.05	0.01	-0.13	-0.16	-0.15	-0.17	-0.12	-0.03
REM_2	0.31	0.37	0.29	0.65		0.01	-0.07	0.02	-0.02	0.01	0.02	0.01	0.06	0.02	0.13	0.02	-0.01
REP	-0.22	-0.19	-0.09	-0.19	-0.02		0.13	0.26	-0.23	0.33	0.04	0.01	0.03	0.37	0.3	0.12	-0.19
Mkt_Share	0.08	0.24	0.18	0.22	-0.09	0.18		-0.06	-0.05	0.07	0.04	-0.15	-0.07	-0.03	0.01	0.01	0
nAnalyst	-0.13	-0.08	0.03	-0.05	0	0.26	-0.03		0.02	0.27	-0.02	-0.34	-0.1	0.47	-0.03	0.17	-0.49
Au_yrs	0.23	0.19	0.04	0.16	-0.03	-0.26	-0.08	-0.01		-0.1	-0.11	-0.1	-0.04	-0.16	-0.3	-0.08	0
MTR	-0.11	-0.09	-0.03	-0.07	-0.02	0.23	0.08	0.24	-0.17		-0.02	-0.08	0.02	0.49	0.12	0.09	-0.18
Big4	-0.01	0.01	0.02	0.02	-0.02	0.04	0.02	-0.06	-0.11	0		0.05	0.02	0.01	0.05	0.04	0.05
NOA	-0.21	-0.3	-0.19	-0.27	0.06	0.05	-0.16	-0.47	-0.2	-0.03	0.05		0.3	-0.1	0.39	-0.08	0.26
Cycle	-0.21	-0.21	-0.09	-0.18	0.05	0.06	0.04	-0.13	-0.09	-0.01	0.01	0.36		0.06	0.38	0.04	0.1
ROA	-0.33	-0.35	-0.07	-0.25	-0.01	0.37	-0.05	0.54	-0.26	0.31	0.01	-0.06	0.1		0.12	0.19	-0.21
Size	-0.3	-0.21	-0.06	-0.2	0.07	0.31	0.02	-0.08	-0.31	0.11	0.06	0.4	0.31	0.16		0.09	-0.08
MTB	-0.22	-0.32	-0.12	-0.23	0.03	0.26	0	0.26	-0.23	0.15	0.07	-0.04	0.04	0.44	0.21		0.04
Leverage	0.04	-0.05	-0.05	-0.04	0.01	-0.19	0.03	-0.52	-0.01	-0.17	0.06	0.36	0.09	-0.21	-0.08	0.02	

2.4.2   Main results

Table 4 presents the empirical results supporting the main hypothesis from estimating Model (1), Model (2), Model (3), and Model (4) respectively based on the pooled samples. The dependent variables are RM_CFO, RM_DISX, RM_PROD, REM1 and REM2 separately. As expected, the corporate reputation (REP) is significantly and negatively related to both the three ways of real manipulations through abnormal sales, overproduction and discretionary expenditures and the two aggregate measures of real earnings management. This suggests that with the increase in firms' reputation score, their managers are less likely to manage earnings by real actions through promoting sales, reducing product cost by overproduction and cutting expenditures.

In terms of control variables, I find that both number of both analyst following and return on assets are significantly negatively related to all measures of real actions, including the three ways and the two aggregate measures of real actions.

Table 2.4 The effect of corporate reputation on real activities management

	REM_CFO	REM_PROD	REM_DISX	REM_1	REM_2
Reputation	-0.3171**	-0.1919***	-0.1592**	-0.3611***	-0.6795***
	(0.140)	(0.072)	(0.072)	(0.132)	(0.198)
nAnalyst	-0.0016	-0.0053***	-0.0064***	-0.0116***	-0.0135***
	(0.002)	(0.001)	(0.001)	(0.002)	(0.003)
Size	-0.0406**	0.0217*	0.1920***	0.2155***	0.1722***
	(0.018)	(0.013)	(0.018)	(0.027)	(0.034)
Leverage	-0.1980	-0.0872	0.0122	-0.0795	-0.3368*
	(0.131)	(0.068)	(0.066)	(0.124)	(0.190)
ROA	-0.3198	-0.8015***	-0.3976***	-1.2249***	-1.5348***
	(0.205)	(0.163)	(0.120)	(0.255)	(0.385)
MTB	-0.0030	0.0001	-0.0012	-0.0008	-0.0046**
	(0.003)	(0.001)	(0.001)	(0.002)	(0.002)
Big4	0.0234	0.1298**	0.0946*	0.2242**	0.2531*
	(0.060)	(0.064)	(0.049)	(0.102)	(0.136)
Mkt_share	0.2649***	0.1819***	0.1738***	0.3639***	0.6431***
	(0.080)	(0.066)	(0.056)	(0.115)	(0.153)
MTR	0.0781	0.3019*	0.5649***	0.9172***	1.0207***
	(0.198)	(0.163)	(0.151)	(0.267)	(0.353)
AU_yrs	-0.0117	-0.0133	-0.0238***	-0.0373**	-0.0503**
	(0.015)	(0.008)	(0.009)	(0.016)	(0.023)
NOA	0.0490	-0.0824***	0.0014	-0.0861**	-0.0189
	(0.071)	(0.024)	(0.022)	(0.039)	(0.089)
Cycle	0.0000	-0.0003**	-0.0003*	-0.0006**	-0.0006*
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
_cons	1.289***	0.269*	-1.223***	-0.924***	0.489
	(0.360)	(0.141)	(0.156)	(0.258)	(0.502)
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
N	1,783	1,774	1,695	1,690	1,690
R-squared	0.1345	0.2415	0.5335	0.3615	0.1656

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

2.4.3   Does corporate reputation matters for the market response to real activities management as myopic behaviour?

Prior research such as Mizik (2010) has suggested that it is of importance to investigate whether market participants could distinguish and appreciate considerations related to myopic behaviour such as real activities manipulation, based on the fact that incentives for myopic behaviour is enhanced when the market is unable to recognize and evaluate the long-run consequences of managers' actions, and that the managers' choice of specific tools and strategies for accomplishing myopic targets is also triggered by the market's ability to assess the value and impact of these tools and strategies on firm long-term performance. In other words, does the market fully and timely responds to myopic strategies when they occur? Thus, I investigate the immediate market reaction and whether an additional valuation adjustment happens in the future when considering the reputation effect on real activities management as myopic behaviour.

Following Mizik (2010), I examine the immediate market reaction and future valuation adjustment based on the equation below:

$$abnStkR_{it+k|t} = \lambda_{0k} + \lambda_{1k} \times Myopoic_{it} + \eta_{it+k} \qquad (5)$$

for $k = 0, 1, 2, 3,$ and 4

where $abnStkR_{it+k|t}$ is the k-period ahead risk-adjusted stock return for firm I; when k=0, this equation tests the immediate market reaction; whereas the equation

examines future valuation adjustment when k takes values from 1 to 4. $Myopoic_{it}$ denotes myopic behaviour by manipulating one of the three ways of real activities i.e. abnormal cash flow, abnormal production costs, or abnormal discretionary expenditure. $Myopoic_{it}$ takes 1 when such myopic behaviour occurs and take 0 otherwise.

To further examine whether the reputation effect matters for the immediate market reaction and future valuation adjustment, I employ equation (5) to test both firms listed in the most admired ranking and those not listed in this ranking. Table 5 provides the empirical results based on equation (5). According to Panel A showing firms with higher reputation, for all the three ways of real activities manipulation, all coefficients including positive ones and negatives of $Myopoic_{it}$ are insignificant from year 0 to year 4; whereas, in terms of Panel B displaying firms with lower reputation, all these coefficients are significantly negative. These results show that market participants have insignificant immediate reaction and future valuation adjustment for firms with higher reputation, whereas they have significantly negative immediate reaction and future valuation adjustment for firms with lower reputation. This is because both firms with higher reputation engage less in real activities manipulation as myopic behaviour and higher corporate reputation makes market participants have positive perceptions or images of firms due to their competitive edge.

Table 2.5 Immediate and delayed impact of real activities management

	REM_CFO	REM_PROD	REM_DISX
Panel A: Firms on the most admired list			
CAR Model			
year 0	0.0152	-0.02	0.00191
	(-0.00941)	(-0.0297)	(-0.029)
year 1	0.00965	-0.0145	0.00644
	(-0.00912)	(-0.0296)	(-0.0294)
year 2	0.0102	-0.0194	0.00897
	(-0.00959)	(-0.0304)	(-0.0285)
year 3	0.00619	-0.0245	0.00841
	(-0.0095)	(-0.0307)	(-0.03)
year 4	0.00233	-0.0254	0.00773
	(-0.00884)	(-0.03)	(-0.0296)
Panel B: Firms not on the most admired list			
CAR Model			
year 0	-0.0144***	-0.0974***	-0.123***
	(-0.00355)	(-0.00851)	(-0.0156)
year 1	-0.0142***	-0.0910***	-0.0912***
	(-0.00339)	(-0.00819)	(-0.0149)
year 2	-0.0130***	-0.0942***	-0.0736***
	(-0.00348)	(-0.00825)	(-0.0155)
year 3	-0.0154***	-0.0918***	-0.0547***
	(-0.00347)	(-0.00838)	(-0.0151)
year 4	-0.0139***	-0.0859***	-0.0387***
	(-0.00336)	(-0.00821)	(-0.0144)

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In addition, I further investigate the total long-term consequences of real activities manipulation as myopic behaviour by assessing the future market reaction to such myopic behaviour. Following Mizik (2010), I examine such total long-term consequences based on the equation shown below:

$$abnStkR_{it+j|t} = \gamma_{0k} + \gamma_{1j} \times Myopoic_{it} + \eta_{it+j} \quad (6)$$

for $j = 1, 2, 3,$ and 4

where $abnStkR_{it+j|t}$ is future multiyear cumulative risk-adjusted stock returns for

firms engaging in myopic behaviour. $Myopoic_{it}$ is defined as the same as in equation

(5). I also use equation (6) to test both firms listed in the most admired ranking and

those not listed in this ranking. Table 6 provides the empirical results based on equation

(6). According to Panel A showing firms with higher reputation, for all the three ways of

real activities manipulation, all coefficients including positive ones and negatives of

$Myopoic_{it}$ are insignificant from year 0 to year 4. Whereas, in terms of Panel B showing

firms with lower reputation, the coefficients of all the three ways of real earnings

management during the period from year 0 to 1 are significantly negative. During the

period from year 0 to 2, myopic behaviour i.e. over production and discretionary

expenditure has generated negative market reaction. These results exhibit that market

participants have insignificant immediate reaction and future valuation adjustment for

firms with higher reputation, whereas, to some extent, they have significantly negative

future valuation adjustment for firms with lower reputation when they value the long-

term consequences of firms engaging in myopic behaviour.

Table 2.6 Total impact of Real Earnings Management

		REM_CFO	REM_PROD	REM_DISX
Panel A: Firms on the most admired list				
CAR Model				
	year 0-1	0.0192	-0.0245	-0.0128
		-0.0209	-0.0619	-0.0566
	year 0-2	0.0253	0.0111	0.00135
		-0.0385	-0.114	-0.104
	year 0-3	0.0335	0.115	0.0305
		-0.0669	-0.2	-0.18
	year 0-4	0.0332	0.271	0.0855
		-0.109	-0.328	-0.296
Panel B: Firms not on the most admired list				
CAR Model				
	year 0-1	-0.0223**	-0.180***	-0.272***
		-0.0102	-0.0241	-0.0466
	year 0-2	-0.0287	-0.280***	-0.514***
		-0.0336	-0.08	-0.157
	year 0-3	-0.0614	-0.415	-0.959
		-0.129	-0.308	-0.608
	year 0-4	-0.239	-0.547	-1.725
		-0.596	-1.433	-2.828

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

2.5   Conclusions

In this chapter I provide empirical evidence on the association between corporate

reputation and real activities management as myopic behavior based on a sample of

1153 firm-year observations from Fortune's America's Most Admired Companies

(AMAC) list during the time period from 2006-2012. I further investigate the immediate

market reaction, whether an additional valuation adjustment occurs in the future

because of real activities management as myopic behaviour, and the total long-term

consequences of real activities manipulation as myopic behaviour by assessing the future market reaction to such myopic behaviour, when considering the reputation effect on such myopic behaviour.

First, I find that there is a significantly negative relationship between corporate reputation as disclosure and both real activities manipulation through sales, overproduction and discretionary expenditures and the two aggregate measures of real actions. Second, I find that corporate reputation really matters for the market response to real activities management as myopic behaviour.

This study explores a new factor influencing real activities management, offering incremental understanding of how corporate reputation alleviates earnings activities management as myopic behavior, which provides a potent empirical evidence on the determinants corporate reputation.

Chapter 3:　The impact of media coverage on earnings management in a dynamic repeated game setting

3.1　Introduction

This research empirically examines the effect of media coverage as the other external governance mechanism on real activities management based on the

U.S. case. Based on the identification of real earnings management as managerial myopia mainly caused by informational asymmetries between managers and firms' outsiders, my focus on media coverage as the other factor alleviating real earnings management is mainly due to its positive roles played in capital markets according to extant literature. For example, prior research has suggested that the media play a role by reducing the cost of information collection (e.g., Merton, 1987), and by affecting key decision-makers' reputational concerns (e.g., Dyck and Zingales, 2002) and consequently improving corporate governance (e.g., Dyck et al., 2008; Joe, Louis, and Robinson, 2009). Based on this review, the media reduce information asymmetries and monitor managerial behaviors. In addition, the media play a crucial, albeit intermediate, role in forming a firm's public image and reputation, mainly because media coverage is a vital component of corporate communication which largely determines corporate image, identity, or reputation (Wartick, 1992; Gray and Balmer, 1998). According to

these positive roles of the media, therefore, I hypothesise that media coverage mitigates real activities management as managerial myopia.

3.2   Related literature and hypothesis development

Prior research finds that media coverage plays a role in monitoring managers and forcing them to adjust their behaviour (Miller 2006; Dyck et al. 2008; Joe et al. 2009). Media rebroadcasts information from other market intermediaries (analysts, external auditors, and attorneys) as well as undertakes original investigation (Miller 2006). Using Russian firms in the period from 1999 to 2002, Dyck et al. (2008) find that corporate violations attract more media coverage, and foreign media coverage even forces managers to correct their misbehavior. Joe et al. (2009) find that the media exposure of board ineffectiveness compels top management to take corrective actions and enhances shareholder wealth. They also find that individual investors react negatively to bad news. Taken together, media coverage can play an important and positive role in corporate governance.

Dyck and Zingales (2002) argue that media can play a role in shaping the public image of managers and directors, and thereby create pressure to shape their behavior according to societal norms. They also argue that the media can affect reputation in at least three ways: First, media attention could drive politicians to introduce corporate law reforms or enforce corporate laws in the belief that their inaction may hurt their future political careers in the eyes of public opinion. Second, media attention could affect managers' reputations.

Managers may not take advantage of self-interested opportunities in order to avoid future monetary and/or labor penalties. Third, media attention affects managers' and board members' reputations not only in the eyes of shareholders and future employers, but also in the eyes of society at large.

Dyck et al. (2008) believe that the exposure of corporate violations in Anglo- American media may affect a country's leader's reputation, so that the leader will force these firms to correct their malfeasance.

Having a wide range of readers, media are generally considered an effective information intermediary, helping reduce the information asymmetry between firms and investors. For instance, Miller (2006) argues that articles based on original analysis provide new information to markets while those that rebroadcast allegations from other intermediaries do not. Tetlock (2008) finds that a primary reporting mechanism through which investors receive and evaluate company information is the media, newspapers in particular. Fang and Peress (2009) further find that mass media can alleviate informational friction and affect stock prices even though the media do not supply any real news.

Bushee et al. (2010) even document that the press potentially shapes a firm's information environment by packaging and disseminating information, as well as creating new information through media activities. In summary, these existing studies provide support for the media's role as an important information intermediary between companies and market participants.

H1: *Media coverage mitigates real earnings management.*

3.3   Research design

3.3.1   Sample and data

The sample selection starts from all firms in the COMPUSTAT/CRSP merged dataset during 2000-2015. Consistent with prior studies (Roychowdhury, 2006), I exclude firms from regulated industries and the financial sector (SIC codes 6000-6999) due to their unique characteristics.

Data on the news coverage of NYSE, AMEX, or NASQAQ stocks during the period from January 2000 to June 2012 is obtained from RavenPack, a leading global news database that includes Dow Jones Newswire alerts on stories that are published about companies. News articles are categorized by using RavenPack's proprietary text and part-of-speech tagging or labeling.

All the original financial data (un-restated) and marginal tax rates are downloaded from WRDS COMPUSTAT, information for ownership is collected from Thomson Reuters, stock return information is from CRSP, analyst information is from IBES and the board information is derived from ISS (formerly RiskMetrics).

In order to mitigate the effects of outliers, I winsorize all continuous variables at the top and bottom 1%, though the results are qualitatively the same without winsorization.

3.3.2   Variable measurement

There are several features of the RavenPack news dataset. First, RavenPack distinguishes between firm-initiated news and news reports by independent media outlets. Second, RavenPack provides a novelty score, which indicates whether a news article is the first story about a firm-event or a repeated news article, and a relevance score, which indicates how closely the news story is related to a specific firm. Third, RavenPack reports a sentiment score which indicates the likely impact of the news story on share price. News stories with a sentiment score greater (lower) than 50 are classified as positive (negative) news.

Two variables are constructed to measure the features of media coverage. The first one is the aggregated count of news for a firm in the first 9 month of the fiscal year. The second one is the aggregated tone of news articles for a firm in the first 9 month of the fiscal year.

Using the features of news from RavenPack, three aggregate measures of news sentiment and novelty for each firm every year. Since it is unclear a priori whether one should use the average or summation of the article-specific scores to capture the news content over a given year, I experiment with both methods. To examine the role of news novelty, each year I designate firm- observations with an aggregate novelty score in the top quartile as having high novelty news, and the rest as having low novelty news.

Three ways of real activities management are used as dependent variables to test the main hypothesis in this research respectively. Following Roychowdhury (2006), the

earnings manipulation through real activities is measured in three ways: increasing sales

by providing discounts, increasing earnings by reducing the cost of goods sold by

overproduction, and / or reducing discretionary expenditures, including R&D,

advertising, and SG&A expenditures. To capture the real manipulation through these

three methods, I first estimate the normal level of cash flow from operation, cost of

production and expenditures with the follow equation.

The normal level of cash flow from operation:

$$\frac{CFO_{it}}{A_{it-1}} = \beta_0 + \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left(\frac{S_{it}}{A_{it-1}}\right) + \beta_3\left(\frac{\Delta S_{it}}{A_{it-1}}\right) + u_{it} \qquad (1)$$

where CFO_{it} is the cash flow from operation (Compustat data item 308) of firm i in year

t, A_{it-1} the lagged total asset (Compustat data item 6) of firm i; S_{it} is the sales (Compustat

data item 12) of current period for firm i, and ΔS_{it} is the change in sales for firm i.

The normal level of the cost of production:

$$\frac{PROD_{it}}{A_{it-1}} = \beta_0 + \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left(\frac{S_{it}}{A_{it-1}}\right) + \beta_3\left(\frac{\Delta S_{it}}{A_{it-1}}\right) + \beta_4\left(\frac{\Delta S_{it-1}}{A_{it-1}}\right) + u_{it} \qquad (2)$$

where $PROD_{it}$ is the sum of cost of goods sold (Compustat data item 44) and changes in

inventory (Compustat data item 3) of firm i in year t, and ΔS_{it-1} is the lagged change in

sales for firm i.

The normal level of expenditures:

$$\frac{DISX_{it}}{A_{it-1}} = \beta_0 + \beta_1\left(\frac{1}{A_{it-1}}\right) + \beta_2\left(\frac{S_{it-1}}{A_{it-1}}\right) \qquad (3)$$

where *DISX_it* is the sum of R&D expense (Compustat data item 46), Advertising expense (Compustat data item 45) and Selling, General and Administrative expenses (Compustat data item 189)[3].

Equations (1), (2), and (3) are estimated for each industry each year with at least 15 available observations. Following Roychowdhury (2006), industries are defined by two-digit SIC codes. Overproduction (RM_PROD) is measured as the estimated residual from the regressions. The residuals for abnormal sales and discretionary expenditures are multiplied by -1 (denoted as RM_CFO and RM_DISX respectively). That is, higher values of RM_CFO, RM_PROD, RM_DISX indicate higher amount of sales manipulation, overproduction, and reduced discretionary expenditures that firms use to manipulate earnings.

For control variables, I use variables including number of analysts following, firm size, leverage ratio, return on assets, market to book ratio, a dummy variable of showing whether the firm is audited by big 4 audit firms, the firm's market share, marginal tax rates, number of years the auditor has audited the client, net operating assets and the firm's operating cycle. Please see Table 1 as variable description and measurement.

---

[3] As long as General and Administrative expenses are available, if R&D and Advertising expenses are missing they are set to zero.

Specifically, the firm's market share (Market_Share) indicates the firm's market leader status. Firms with larger market share should associate with lower cost of real earnings management. This is measured by the ratio of a firm's sales to the total sales of the same industry. Three-digit SIC code is used to define industry following Harris (1998). For firms' marginal tax rates (MTR), according to Zang (2012), higher MTR indicates higher cost for real earnings management.

Big4 is a dummy variable indicates whether the firm is audited by big 4 audit firms. Net operating assets (NOA) captures the extent of discretionary accruals in previous period. NOA is assumed to be positively related to the discretionary accruals. For operating cycle, longer operating circle should associate with lower discretionary cost since longer operating circle gives firms larger accrual accounts and longer period for accruals to reserve.

In addition, return on asset (ROA) is used to control for firm performance; logged total assets is used to control for firm size; market to book ratio is used to control for firm growth. Leverage ratio is also included to control for debt covenant as prior research suggests that debt contract is one of the main motivations for firm to manipulate earnings.

Table 3.1 Variable description and measurement

Variable	Description
REM_CFO	Abnormal cash flow, estimated residuals from Equations (1);
REM_PROD	Abnormal production costs, estimated residuals from Equations (2);
REM_DISX	Abnormal discretionary expenditures, estimated residuals from Equation (3) multiplied by 1;
REM_1	Sum of REM_PROD and REM_DISX;
REM_2	Sum of REM_CFO, REM_PROD and REM_DISX;
MC	Number of news articles of a firm (with relevance score=100) in the first 9 month of the fiscal year;
CAR	12 month cumulative abnormal return;
nAnalyst	Number of analysts following;
Size	Firm size measured by lagged total assets;
Leverage	Leverage;
ROA	Return on assets, income before extraordinary items divided by lagged total assets;
MTB	Market to book ratio;
Big4	Indicator variable, 1 if the firm is audited by one of big 4 audit firms, 0 otherwise;
Mkt_share	Percentage of the company's sales to the total sales of its industry at the beginning of year t, where industry is defined based on three-digit SIC codes;
MTR	Marginal tax rates developed and provided by Professor John Graham;
AU_yrs	Number of years the auditor has audited the client;
NOA	Indicator variable that equals 1 if the net operating assets (i.e., shareholders' equity less cash and marketable securities and plus total debt) at the beginning of the year divided by lagged sales is above the median of the corresponding industry-year, and 0 otherwise;
Cycle	Days receivable plus the days inventory less the days payable at the beginning of the year.

3.3.3   Model specifications

To investigate the effect of media coverage on real activities manipulation, I first regress the media coverage on the three ways of real earnings management respectively, shown as the following equation:

$$REM = \beta_0 + \beta_1 MC + \sum_m \beta_{2m} Control + \sum_n \beta_{3n} Year\ Dummy \qquad (4)$$

$$+ \sum_0 \beta_{4n} Industry\ Dummy + u_{it}$$

where *REM* denotes REM_CFO, REM_PROD, and REM_DISX i.e. real manipulation through sales, overproduction and discretionary expenditures respectively. I also use two aggregate measures of real activities management as the two additional dependent variables: REM1= REM_PROD + REM_DISX, and REM2= REM_CFO + REM_PROD + REM_DISX. *MC* is the main independent variable – media coverage. *Control* is the relevant control variables.

3.4 Empirical results

3.4.1 Descriptive statistics

Descriptive statistics for the sample are presented in Table 2. The average (median) number of full articles from RavenPack's Dow Jones Newswire ("News Coverage") per covered firm is 33 (18). The mean (median) of real earnings management through accelerating sales are -0.03 (-0.03). The mean (median) of real earnings management through overproduction are -0.03 (-0.03). The mean (median) of real earnings management through discretionary expenditures are -0.16 (-0.01). The mean (median) of aggregate total of real earnings management are -0.23 (-0.09).

Table 3.2 Descriptive statistics

		Mean	St. Dev.	25%	Median	75%
REM_CFO	All	-0.03	0.32	-0.1	-0.03	0.02
REM_PROD	All	-0.03	0.23	-0.14	-0.03	0.06
REM_DISX	All	-0.16	0.89	-0.13	-0.01	0.11
REM_1	All	-0.23	0.95	-0.39	-0.09	0.11
REM_2	All	0.15	0.75	-0.03	0	0.05
MC	All	24.26	36.26	5	13	30
Mkt_Share	All	0.16	0.2	0.03	0.08	0.22
nAnalyst	All	20.29	10.09	13	20	26
AU_yrs	All	6.61	0.98	7	7	7
MTR	All	0.31	0.08	0.32	0.34	0.35
Big4	All	0.98	0.13	1	1	1
NOA	All	0.85	1.09	0.27	0.51	0.94
Cycle	All	273.72	766.62	55.76	88.5	129.75
ROA	All	0.05	0.08	0.02	0.05	0.09
Size	All	3.15	1.73	1.9	2.98	4.2
MTB	All	2.64	3.61	1.26	2.05	3.35
Leverage	All	0.27	0.18	0.13	0.24	0.38

Table 3 presents the Pearson and Spearman correlations among the main variables. There is a significate positive correlation between overproduction and discretionary expenditures. This significant and positive correlation (Pearson) of 0.50 (0.51) between RM_PROD and RM_DISX indicates that firms in this sample always use these two real manipulation methods together to manage earnings. This is consistent with Zang (2012) who also reports a significant and positive correlation (Pearson) of 0.37 (0.19) between the abnormal production cost and cutting of discretionary expenditures. Another high, significant and positive correlation (Pearson) is between board size and board independence of 0.84 (0.84). This is mechanical because board size is the sum of independent directors and dependent directors. In addition, Z-Score is positively correlated with ROA and negatively correlated with Leverage, consistent with that firms with healthier financial condition obtain higher return on assets and keep lower

leverage ratio. Positive correlations between real manipulation methods and discretionary accruals suggest that firms use both real activities manipulation and accrual-based earnings management. The abnormal reduction of discretionary expenditures is negatively correlated with media coverage, Z-Score, institutional shareholding, net operating assets, operation cycle, return on assets, firm size, market to book ratio, leverage ratio, board size and independence. The abnormal production cost is negatively correlated with media coverage, Z-Score, marginal tax ratio, net operating assets, operation cycle, return on assets, firm size, market to book ratio, leverage ratio, board size and independence. Accruals management is negatively correlated with media coverage, Z-Score, auditor, firm size, board size and board independence.

Table 3.3 Pearson (upper) and Spearman (lower) correlations

	REM_CFO	REM_PROD	REM_DISX	REM_1	REM_2	MC	Mkt_Share	nAnalyst	Au_yrs	MTR	Big4	NOA	Cycle	ROA	Size	MTB	Leverage
REM_CFO		0.08	-0.01	0.35	0	-0.13	0.07	-0.09	0.03	-0.09	0.04	-0.07	-0.08	-0.14	-0.12	-0.02	0.02
REM_PROD	0.29		0.26	0.51	-0.05	-0.15	0.19	-0.08	0.13	-0.06	0	-0.18	-0.21	-0.22	-0.19	-0.15	-0.07
REM_DISX	-0.11	0.5		0.9	-0.03	-0.09	0.1	-0.05	0.04	-0.01	0	-0.07	-0.1	-0.05	-0.09	-0.09	-0.02
REM_1	-0.26	0.41	0.57		-0.04	-0.14	0.16	-0.09	0.08	-0.05	0.01	-0.13	-0.16	-0.15	-0.17	-0.12	-0.03
REM_2	0.31	0.37	0.29	0.65		0.02	-0.07	0.02	-0.02	0.01	0.02	0.01	0.06	0.02	0.13	0.02	-0.01
MC	-0.13	-0.16	-0.10	-0.17	-0.05		0.23	0.6	-0.24	0.13	-0.09	0.08	-0.05	0.01	-0.13	-0.16	-0.15
Mkt_Share	0.08	0.24	0.18	0.22	-0.09	-0.05		-0.06	-0.05	0.07	0.04	-0.15	-0.07	-0.03	0.01	0.01	0
nAnalyst	-0.13	-0.08	0.03	-0.05	0	-0.15	-0.03		0.02	0.27	-0.02	-0.34	-0.1	0.47	-0.03	0.17	-0.49
Au_yrs	0.23	0.19	0.04	0.16	-0.03	0.02	-0.08	-0.01		-0.1	-0.11	-0.1	-0.04	-0.16	-0.3	-0.08	0
MTR	-0.11	-0.09	-0.03	-0.07	-0.02	0.01	0.08	0.24	-0.17		-0.02	-0.08	0.02	0.49	0.12	0.09	-0.18
Big4	-0.01	0.01	0.02	0.02	-0.02	-0.03	0.02	-0.06	-0.11	0		0.05	0.02	0.01	0.05	0.04	0.05
NOA	-0.21	-0.3	-0.19	-0.27	0.06	0.47	-0.16	-0.47	-0.2	-0.03	0.05		0.3	-0.1	0.39	-0.08	0.26
Cycle	-0.21	-0.21	-0.09	-0.18	0.05	-0.16	0.04	-0.13	-0.09	-0.01	0.01	0.36		0.06	0.38	0.04	0.1
ROA	-0.33	-0.35	-0.07	-0.25	-0.01	0.49	-0.05	0.54	-0.26	0.31	0.01	-0.06	0.1		0.12	0.19	-0.21
Size	-0.3	-0.21	-0.06	-0.2	0.07	0.01	0.02	-0.08	-0.31	0.11	0.06	0.4	0.31	0.16		0.09	-0.08
MTB	-0.22	-0.32	-0.12	-0.23	0.03	-0.1	0	0.26	-0.23	0.15	0.07	-0.04	0.04	0.44	0.21		0.04
Leverage	0.04	-0.05	-0.05	-0.04	0.01	0.06	0.03	-0.52	-0.01	-0.17	0.06	0.36	0.09	-0.21	-0.08	0.02	

3.4.2 Main results

Table 4 presents the empirical results supporting the main hypothesis from estimating Model (1), Model (2), Model (3), and Model (4) respectively based on the pooled samples. The dependent variables are RM_CFO, RM_DISX, RM_PROD, REM1 and REM2 separately. As expected, the media coverage (MC) is significantly and negatively related to both the three ways of real manipulations through abnormal sales, overproduction and discretionary expenditures and the two aggregate measures of real earnings management. This suggests that with the increase in firms' news articles, their managers are less likely to manage earnings by real actions through promoting sales, reducing product cost by overproduction and cutting expenditures.

In terms of control variables, I find that both number of both analyst following and return on assets are significantly negatively related to all measures of real actions, including the three ways and the two aggregate measures of real actions.

Table 3.4 The effect of media coverage on real activities management

	REM_CFO	REM_PROD	REM_DISX	REM_1	REM_2
Media Coverage	-0.3171**	-0.1919***	-0.1592**	-0.3611***	-0.6795***
	-0.14	(0.072)	(0.072)	(0.132)	(0.198)
nAnalyst	-0.0016	-0.0053***	-0.0064***	-0.0116***	-0.0135***
	-0.002	(0.001)	(0.001)	(0.002)	(0.003)
Size	-0.0406**	0.0217*	0.1920***	0.2155***	0.1722***
	-0.018	(0.013)	(0.018)	(0.027)	(0.034)
Leverage	-0.198	-0.0872	0.0122	-0.0795	-0.3368*
	-0.131	(0.068)	(0.066)	(0.124)	(0.190)
ROA	-0.3198	-0.8015***	-0.3976***	-1.2249***	-1.5348***
	-0.205	(0.163)	(0.120)	(0.255)	(0.385)
MTB	-0.003	0.0001	-0.0012	-0.0008	-0.0046**
	-0.003	(0.001)	(0.001)	(0.002)	(0.002)
Big4	0.0234	0.1298**	0.0946*	0.2242**	0.2531*
	-0.06	(0.064)	(0.049)	(0.102)	(0.136)
Mkt_share	0.2649***	0.1819***	0.1738***	0.3639***	0.6431***
	-0.08	(0.066)	(0.056)	(0.115)	(0.153)
MTR	0.0781	0.3019*	0.5649***	0.9172***	1.0207***
	-0.198	(0.163)	(0.151)	(0.267)	(0.353)
AU_yrs	-0.0117	-0.0133	-0.0238***	-0.0373**	-0.0503**
	-0.015	(0.008)	(0.009)	(0.016)	(0.023)
NOA	0.049	-0.0824***	0.0014	-0.0861**	-0.0189
	-0.071	(0.024)	(0.022)	(0.039)	(0.089)
Cycle	0	-0.0003**	-0.0003*	-0.0006**	-0.0006*
	0	(0.000)	(0.000)	(0.000)	(0.000)
_cons	1.289***	0.269*	-1.223***	-0.924***	0.489
	-0.36	(0.141)	(0.156)	(0.258)	(0.502)
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
N	1,783	1,774	1,695	1,690	1,690
R-squared	0.1345	0.2415	0.5335	0.3615	0.1656

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

3.4.3   Robustness tests

The effects of media coverage on managers' decisions are predicated on the media playing an informational role and a monitoring role. Tetlock et al. (2008) find that the fraction of negative words in firm-specific news stories forecast low firm earnings and the earnings and return predictability from negative words is largest for stories that focus on fundamentals. Kothari et al. (2009) find that negative (favorable) disclosures from business press result in increased (reduced) cost of capital and return volatility. Miller (2006) investigates the press' role as a watchdog for accounting fraud. He finds that articles based on original analysis provide new information to the markets while those that rebroadcast allegations from other intermediaries do not.

These studies raise the possibility that the effects of media coverage on investment efficiency may depend on the tone of the reports and the extent to which the media reports contain new information about firm fundamentals. To investigate this possibility, I take advantage of several features of the RavenPack news dataset[4]. RavenPack reports a sentiment score which indicates the likely impact of the news story on share price. News stories with a sentiment score greater (lower) than 50 are classified as positive (negative) news.

---

[4] RavenPack not only collects relevant news and other types of information from Dow Jones Newswires, Wall Street Journal, Barron's and MarketWatch, but also collects contents from over 19,000 web and social media sources, and press release wires. This database has become increasingly popular and is used in a number of prior studies, including Dai et al. (2015) and Dang, Moshirian and Zhang (2015).

Using the article-specific sentiment scores from RavenPack, I compose an aggregate measure of news sentiment for each firm every year. Table 5 reports results of estimating for high news sentiment (positive publicity). The coefficients on the interaction terms have the expected sign and are statistically significant for positive publicity firms.

The results suggest that news reports that represent positive publicity have a strong effect on reducing real earnings management.

Table 3.5 The effect of media tone on real activities management

	REM_CFO	REM_PROD	REM_DISX	REM_1	REM_2
Media Tone	-0.3171**	-0.1919***	-0.1592**	-0.3611***	-0.6795***
	-0.14	(0.072)	(0.072)	(0.132)	(0.198)
nAnalyst	-0.0016	-0.0053***	-0.0064***	-0.0116***	-0.0135***
	-0.002	(0.001)	(0.001)	(0.002)	(0.003)
Size	-0.0406**	0.0217*	0.1920***	0.2155***	0.1722***
	-0.018	(0.013)	(0.018)	(0.027)	(0.034)
Leverage	-0.198	-0.0872	0.0122	-0.0795	-0.3368*
	-0.131	(0.068)	(0.066)	(0.124)	(0.190)
ROA	-0.3198	-0.8015***	-0.3976***	-1.2249***	-1.5348***
	-0.205	(0.163)	(0.120)	(0.255)	(0.385)
MTB	-0.003	0.0001	-0.0012	-0.0008	-0.0046**
	-0.003	(0.001)	(0.001)	(0.002)	(0.002)
Big4	0.0234	0.1298**	0.0946*	0.2242**	0.2531*
	-0.06	(0.064)	(0.049)	(0.102)	(0.136)
Mkt_share	0.2649***	0.1819***	0.1738***	0.3639***	0.6431***
	-0.08	(0.066)	(0.056)	(0.115)	(0.153)
MTR	0.0781	0.3019*	0.5649***	0.9172***	1.0207***
	-0.198	(0.163)	(0.151)	(0.267)	(0.353)
AU_yrs	-0.0117	-0.0133	-0.0238***	-0.0373**	-0.0503**
	-0.015	(0.008)	(0.009)	(0.016)	(0.023)
NOA	0.049	-0.0824***	0.0014	-0.0861**	-0.0189
	-0.071	(0.024)	(0.022)	(0.039)	(0.089)
Cycle	0	-0.0003**	-0.0003*	-0.0006**	-0.0006*
	0	(0.000)	(0.000)	(0.000)	(0.000)
_cons	1.289***	0.269*	-1.223***	-0.924***	0.489
	-0.36	(0.141)	(0.156)	(0.258)	(0.502)
Year Fixed Effect	Yes	Yes	Yes	Yes	Yes
Industry Fixed Effect	Yes	Yes	Yes	Yes	Yes
N	1,783	1,774	1,695	1,690	1,690
R-squared	0.1345	0.2415	0.5335	0.3615	0.1656

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

3.5   Conclusions

In this chapter I conduct empirical exploration of new factors influencing real activities manipulation based on the U.S. case, extending the extant literature investigating these issues as in response to the prevalence and the detrimental effects on firms' future values of this firm-level real actions. I find that (1) there is significantly negative association between the level of media coverage and both real earnings management through sales, overproduction and discretionary expenditures and the one aggregate measures of real actions; (2) positive news reduces real activities management through the three ways; and (3) the greater positive of news tone, the greater degree of reducing real earnings management.

Chapter 4:   Does Media Coverage Improve Investment Efficiency?

4.1   Introduction

A body of research has found that the media affect stock price and corporate governance by selecting, certifying, and repackaging information (Dyck, Volchkova, and Zingales, 2008; Tetlock, 2014) as well as undertaking original investigation and analysis (Miller, 2006). In contrast with the growing interest in media's financial market effects, there is limited direct evidence on the real effects of media coverage, specifically, the efficiency of corporate investment. Given that capital investments represent one major source of firms' value creation (McConnell and Muscarella, 1985) and significantly contribute to economic growth (De Long and Summers, 1991; McLean, Zhang, and Zhao, 2012), whether and how media coverage affects corporate investment is an important issue.

In a perfect world with frictionless capital markets, a firm's investment policy is solely dependent on its investment opportunities as measured, e.g., by its value of Tobin's (1969) Q. In the real world, a variety of frictions and distortionary forces cause sub-optimal investments (Hubbard, 1998; Stein 2003). Among these, informational asymmetries and agency problems are the most pervasive and important factors influencing the efficiency of corporate investment (Stein, 2003). Building on past studies

which have shown that media coverage can reduce information asymmetry (Tetlock, 2010) and improve corporate governance (Miller, 2006; Dyck, Volchkova, and Zingales; 2008), this paper examines whether and how the media improve the efficiency of corporate fixed investment.

Using a large sample of US public firms during 2006-2014 I find that greater media coverage associates with higher investment sensitivity to Q and lower investment sensitivity to cash flow in the subsequent year, consistent with the notion that media coverage improves investment efficiency (McLean et al., 2012). Alternatively measuring investment efficiency as deviations from models of expected investment (e.g., Richardson, 2006; Chen, Hope, and Wang, 2011) I find that greater media coverage associates with smaller deviations (i.e., higher efficiency).

Having established the baseline results, I investigate the specific ways that media coverage affects investment efficiency[5]. To begin, I directly test the premise that media coverage reduces information asymmetries. I find that media coverage is negatively associated with bid-ask spreads and analysts' forecast dispersion. I also find that media coverage significantly increases the investment sensitivity to Q and lowers the investment sensitivity to cash flow for high information costs firms, but a similar effect

---

[5] Although I investigate individual channels and mechanisms of media influence, more than one channels and mechanisms are likely to be simultaneously at work. The results must be interpreted with this in mind.

is not found for low information costs firms. The evidence suggests that media influence operates inter alia through reducing information costs.

To the extent that asymmetric information and moral hazard problems make external financing more costly (Hubbard, 1998; Stein, 2003), and to the extent that media coverage mitigates such problems (Kothari, Li, and Short, 2009; Bushee, Core, Guay and Hamm, 2010), media coverage is expected to facilitate firms' access to lower-cost external financing, which facilitates positive NPV investments[6]. I measure financial constraints using Almeida, Campello, and Weisbach's (2004) "cash flow sensitivity of cash" model. In their theory, firms faced with more severe financial constraints hold more cash in order to finance future investments. I find that cash-cash flow sensitivity decreases in the level of media coverage; this effect is particularly evident for high information costs firms. Further, I find that media coverage plays a more significant role in improving investment efficiency and in alleviating financial constraints for firms that depend on external financing (the information problem is particularly important for these firms). These findings are consistent with media coverage mitigating asymmetric information-related problems and enabling firms to access external financing and respond to investment opportunities.

---

[6] Khurana, Martin, and Pereira (2006) find that financial market development, which eases financial constraints by improving firms' access to lower-cost external financing, decreases the cash flow sensitivity of cash. Fang and Peress (2009) find that greater media coverage is associated with lower expected return.

Next, I investigate the media's role in mitigating agency problems and improving external monitoring of managers. Jensen and Meckling (1976) suggest that agency problems are particularly severe in firms with high cash flow and low growth opportunities. I find that the effect of media coverage on investment efficiency (e.g., investment sensitivity to Q, and deviations from expected investment) is more evident for high agency costs firms. In addition, given low growth opportunities, media coverage is positively associated with liquidation of unprofitable investment; the effect is again most evident for high agency costs firms. These findings are consistent with the notion that media coverage enhances external monitoring and mitigates agency problems and, by doing so, improves the efficiency of corporate investment.

To address concerns with a linear regression framework of corporate investment (Whited, 2006; Billett, Garfinkel, and Jiang, 2011) I estimate a hazard model. After replicating Billett et al.'s (2011) main results using their three factors (financial constraints, internal corporate governance, and CEO incentives alignment), I compare the effects of media coverage as an external monitoring mechanism with the effects of internal corporate governance, by substituting media coverage for internal corporate governance. Controlling for investment opportunities, I find that financially unconstrained, high media firms experience longer spells between large investments (i.e., lower hazard rates), relative to low media firms. Such timing differences disappear in the presence of financial constraints or strong managerial incentives, consistent with Billett et al. After adding media coverage as a fourth factor, I find that high media coverage lowers the investment hazard rates of unconstrained firms with weak internal

governance and low managerial incentives. No differences are found for unconstrained firms with good internal governance and/or high managerial incentives. This finding is consistent with media's external governance role where internal governance or managerial incentives are weak. I also find that media coverage increases the investment hazard rates of financially constrained firms with good internal governance and high managerial incentives. The latter finding suggests that media coverage alleviates the financial constraints of otherwise constrained well-governed firms, allowing them to fund positive NPV projects. The hazard model results are consistent with Billett et al. (2011), and with the results from the linear regression framework.

I investigate whether the effect of media coverage on investment efficiency depends on media content (novelty and tone). I find stronger effects where media reports contain new information related to firm fundamentals, consistent with such information being useful to market participants (e.g., Miller, 2006; Tetlock, Saar-Tsechansky, and Macskassy, 2008). The baseline regression results also hold for different media sources (LexisNexis and RavenPack) and measurements (raw counts and decile ranks), and different model specifications and estimation methods (e.g., firm fixed effects and instrumental variable estimation).

I contribute to the literatures on the role of the media in corporate investment and liquidity demand in several important ways. First, I document that the media play a positive role beyond affecting firms' value-reducing acquisition attempts (Liu and McConnell, 2013) or high-profile governance breaches (Dyck et al., 2008). I find robust

evidence of positive media effects on firms' investment efficiency for a broad sample of firms. In doing so, this paper extends prior studies that document that accounting information/disclosure[7], firm-specific information embodied in stock price[8], investor protection (Wurgler, 2000), access to debt market (Harford and Uysal, 2014) and governance (Billett et al., 2011; Gao, Harford, and Li, 2013) have an impact on firms' investment efficiency.

Second, I shed light on the possible channels and mechanisms through which the media impacts investment efficiency. I show that media coverage reduces information asymmetries, alleviates financial constraints, enhances monitoring of managers and, by doing so, prompt firms to respond to growth opportunities and dispose of underperforming assets. I also document stronger media effects on corporate investment and financing decisions in circumstances characterized by more severe asymmetric information and agency problems, namely, in precisely those firms where theory predicts that the media impacts are likely to be stronger. The evidence complements and extends prior studies that find that media coverage lowers financing costs (e.g., Kothari et al., 2009, Fang and Peress, 2009) and that information intermediaries, such as analysts, can serve as external monitors (e.g., Yu, 2008). To my

---

[7] Examples include quality of aggregate financial reporting (Biddle and Hilary, 2006; Biddle et al., 2009; Chen et al., 2011), disclosure of material weakness in internal control (Cheng, Dhaliwal, and Zhang, 2014), and transparency of the external information environment (Shroff, Verdi, and Yu, 2014).

[8] See Bond, Edmans and Goldstein (2012) for a summary of this literature.

knowledge, this paper is among the first to provide comprehensive evidence on media's role in a variety of real decisions.

Third, I add to the literature on the determinants of liquidity demand and contribute to the continuing debate on the interpretation of investment-cash flow sensitivity. One of the novel findings is that whereas media coverage increases the positive investment sensitivity to Q, it weakens the positive investment sensitivity to cash flow. Two main interpretations have been advanced in the literature to explain the positive investment sensitivity to cash flow: (1) it arises because cash provides information on the profitability of firms' investments beyond Q; (2) it measures financial constraints. If the first interpretation is correct, media coverage should load with the same sign on investment sensitivity to Q and on investment sensitivity to cash flow. The evidence is inconsistent with that interpretation. Further, using Almeida et al.'s (2004) cash-cash flow sensitivity as a measure of financial constraints, I find that media coverage lowers the cash-cash flow sensitivity. In addition, I find that media coverage plays a more pronounced role in lowering the investment sensitivity to cash flow and the cash-cash flow sensitivity in high information costs firms. Hazard model estimates also indicate that media coverage relaxes financial constraints where they would otherwise hinder corporate investment. Taken together, the evidence suggests that media coverage mitigates asymmetric information between corporate insiders and the capital market, and, by doing so, facilitates access to external financing and reduce the need to depend on internal cash flows.

The remainder of this chapter is organized as follows. Section 2 reviews the literature and presents the hypothesis. Section 3 discusses the research design. Section 4 presents the empirical results. Section 5 concludes.

4.2   Related literature and hypothesis

Extant literature has examined the effects of media coverage on stock pricing/trading and corporate governance choices[9]. Prior studies suggest that the media may play two different, even opposite, roles in capital markets. One stream of the literature suggests that the media play a positive role, for example, by reducing the cost of information collection (e.g., Merton, 1987), and by affecting key decision-makers' reputational concerns (e.g., Dyck and Zingales, 2002) and consequently improving corporate governance (e.g., Dyck et al., 2008; Joe, Louis, and Robinson, 2009). According to this view, the media reduce information asymmetries and monitor managerial behaviors.

However, other studies indicate that the media may play an insignificant or even negative role. Jensen (1979) argues that the media engage in sensationalism, a proposition supported by recent research (Core, Guay, and Larcker, 2008; Ahern and Sosyura, 2015). Some studies suggest that media reporting is not unbiased (Dyck and Zingales, 2003; Reuter and Zitzewitz, 2006), and media content/journalists can reflect or influence investor biases/sentiment (Mullainathan and Shleifer, 2005a, 2005b;

---

[9] Tetlock (2014) and Strömberg (2015) provide a review of media studies in finance and politics, respectively.

Dougal, Engelberg, Garcia, and Parsons, 2012; Garcia, 2013; Solomon, Soltes, and Sosyura, 2014). Firms also influence investor expectations/stock prices by actively influencing media coverage through advertising (Gurun and Butler, 2012), use of investor relations firms (Solomon, 2012), or corporate press releases (Ahern and Sosyura, 2014). Shiller (2005), Engelberg, Sasseville, and Williams (2012), and Chen, Pantzalis, and Park (2013) suggest the media may mis-inform investors and cause investors to overvalue the firm. Overvaluation allows firm to issue overvalued equities and fund additional investments, perhaps beyond what is warranted by firm fundamentals (Dou, Wong and Xin, 2014).

Thus, extant literature provides a rather mixed view as to media's financial market effects. An important underexplored question is the real effects of media coverage, specifically, whether and how media coverage affects firms' capital allocation. Liu and McConnell (2013) examine this issue by focusing on acquisition proposals that are accompanied by negative stock price reactions. They find that managers' decision whether to abandon such "value-reducing" proposals is influenced by the level and the tone of media attention. In additional analysis they find no evidence that negative media coverage can induce managers to abandon a "value-increasing" acquisition attempt, and conclude that the media do not play a role independent of the stock market response. Liu and McConnell (2013) call for additional studies to consider other circumstances where the media may affect the important corporate function of capital allocation.

In the neo-classical framework of investment, growth opportunities shall be the sole driver of capital investment policy (Modigliani and Miller, 1958), and benevolent managers obtain financing for positive NPV projects at the prevailing economy-wide interest rate and distribute any excess cash to investors. In reality, investment distortions may arise due to misalignment of managerial and shareholder interests (Jensen and Meckling, 1976) and asymmetric information between corporate insiders and the capital market (Myers, 1984; Myers and Majluf, 1984; Baker, Stein, and Wurgler, 2003). Both cause investment to be sensitive to the amount of internal cash (Malmendier and Tate, 2005). The effect is most important for firms likely to face information-related capital market imperfections (Hubbard, 1998).

Media coverage potentially mitigates the adverse effects of asymmetric information and agency problems, and, by doing so, improves corporate investment efficiency in two main ways [10],[11] . First, by collecting, aggregating, analyzing and broadly disseminating market, industry and firm-specific information, the media can reduce the cost of information collection and information asymmetry between outsiders and

---

[10] As anecdotal evidence that media coverage can, and do affect corporate investment decisions, Joe et al. (2009) report that shareholder activist Robert Monks' full-page advertisement in the Wall Street Journal in April 1992 led Sears' directors to spin off the company's financial services businesses.

[11] In developing the arguments, I allow for the possibility that managers seek to maximize shareholder value and the possibility that they seek to maximize personal utility. Both managerial objectives co-exist and need not be in conflict. The media's role in reducing information asymmetries and facilitating access to external financing neither requires nor precludes the assumption that managers maximize shareholder value. In contrast, the media's monitoring role does assume self-interested managers who consider personal objectives (though not without regard for the consequences for the market value of the firm; e.g., Morck, Shleifer, and Vishny, 1990). In addition, although I analyze the media's role in mitigating information asymmetries and agency problems separately, they are positively correlated. For instance, high information asymmetries both cause financial constraints and exacerbate agency problems.

insiders and across investors (Merton, 1987; Dyck et al., 2008; Tetlock, 2010; Bushee et al., 2010). By enhancing investor recognition and/or reducing information asymmetry, media coverage facilitates access to lower cost external capital (Fang and Peress ,2009; Kothari et al., 2009; Liu, Sherman, and Zhang, 2014)[12].11 This in turn alleviates financial constraints (Harford and Uysal, 2014) and facilitates positive NPV investments.

Second, media coverage can improve external monitoring of (self-interested) managers and controlling shareholders[13]. By exposing managerial misdeeds (e.g., empire building, shirking or excessive perquisite) and other governance problems (e.g., Miller, 2006; Dyck, Morse, and Zingales, 2010), media coverage may affect the private benefits from managing/controlling a larger firm (Jensen, 1986; Dyck and Zingales, 2004; Kuhnen and Niessen, 2012). Further, media attention and slant may push managers to act in the interest of shareholders through impacting their labor market reputation (Liu and McConnell, 2013). By improving corporate governance and holding managers more accountable to shareholders, media coverage is expected to improve the efficiency of

---

[12] For a review of theory and empirical evidence on the relation between information asymmetry and cost of capital, see Derrien and Kecskes (2013). They hypothesize and find that a decrease in analyst coverage increases information asymmetry and increases the cost of capital; as a result, firms decrease their investment and financing. Conversely, higher stock price, which results in lower cost of capital, leads to more investment (Cochrane, 1991; Lamont, 2000; Li, Livdan and Zhang, 2009).

[13] Media coverage can lower conflicts between majority shareholders and minority shareholders and play a monitoring role even when managers are acting in the majority shareholders' interest—this may occur when the media report on managers' attempts at helping majority shareholders expropriate minority shareholders.

capital allocation, e.g., by prompting managers to respond to growth opportunities and abandon unprofitable projects[14,15].

In the same way that prior research suggests that media coverage may have both positive and negative effects on stock pricing and trading, theory does not produce clear-cut predictions as to the *average* effect of media coverage on investment efficiency, and arguments may be cited for positive, negative or insignificant effects of media coverage on real corporate decisions. The effects of media coverage on investment choices depend on the interplay of complex factors. For example, it may depend on the interactions among different governance factors and financial constraints (Billett et al., 2011). It may also depend on media content and tone, as well source credibility (Kothari et al., 2009) and social norms (Dyck et al., 2008)[16].15 It is hard

---

[14] It is less clear how media coverage affects the agency conflict between debtholders and shareholders. To the extent that media coverage mitigates information asymmetry between managers/shareholders and lenders, media coverage can facilitate access to the debt market and hence investment (Harford and Uysal, 2014). However, a large debt burden may cause investment distortions through the "debt overhang" problem and the "debt substitution" problem. Stein (2003) and Hennessy (2004) discuss these issues. I control for leverage in all analyses.

[15] It is possible that, despite their information advantage about their own firms, managers may still benefit from reading about market and industry developments. For example, media reports that discuss a firm within the broader context of Fed or other macroeconomic policies, consumer trends, industry competitors or suppliers could help managers (acting in the interest of shareholders) identify profitable projects and avoid/abandon unprofitable projects. In discussing the possibility that managers learn from the stock price of their own firm, Bond et al. (2012) note that "optimal real decisions depend not only on internal information to the firm (about which the managers may be more informed), but also on external information, such as the state of the economy, the position of competitors, the demand by consumers, etc." (p. 341) I do not directly test for this channel as it is hard to ascertain whether (and what exactly) managers learn from media reports.

[16] Dyck et al. (2008) find that local media coverage in Russia does not affect the probability of corporate governance breaches being corrected. They suggest that in Russia public shaming works only if it takes place in front of the international business community. Core et al. (2008) examine the press' role in monitoring and influencing executive compensation practices in the US. They find little evidence that firms respond to negative press coverage.

to tell ex ante whether investors can see through media sensationalism, biased reporting and selective publicity. If positive coverage is the result of spin or quid pro quo for advertising but outside investors or other stakeholders do not see through these, they might support an increase in investment, which could turn out to be sub-optimal[17]. CEOs with media-induced superstar status may also be more likely to engage in rent-extraction or other self-serving behaviors, with potentially negative performance consequences for the firm (Malmendier and Tate, 2009). Media coverage which exposes CEOs who prefer the "quiet life" (e.g., Bertrand and Mullainathan, 2003) may push them to increase investment efficiency, if the decision at hand is to shut down an existing, poorly performing project (Bertrand, 2009). On the other hand, it can also lead to lower investment efficiency, if the media coverage pressures the CEO into entering a new line of business that actually is unprofitable. Finally, to the extent that media coverage of managerial actions impact manager's reputational/career concerns, it is hard to predict how this may change their incentives and behaviors (e.g., short-termism, herding, excessive conservatism or risk-taking) and hence investment choices (Stein, 2003)[18].

---

[17] Positive coverage may be used by a self-interested CEO to empire-build or by an overconfident CEO to increase investment expenditures. Malmendier and Tate (2005) find that managerial overconfidence can cause investment distortions. Titman, Wei, and Xie (2004) find that stock prices rise in those years in which capital expenditures increase; firms that substantially increase capital investments subsequently achieve negative benchmark-adjusted returns. The negative abnormal capital investment/return relation is stronger for firms that have greater investment discretion. They conclude that investors underreact to the empire building implications of increased investment expenditures. It is an open question whether the media can help investors understand the empire building implications of increased expenditures, which are often greeted with stock price increases (McConnell and Muscarella, 1985; Chen, 2006).

[18] Bebchuk and Stole (1993) examine managerial investment decisions in the presence of imperfect information and short-term managerial objectives. They show that a concern with near-term stock prices

Ultimately, the impacts of media coverage on managerial decisions and investment efficiency are an open empirical issue. I state the hypothesis, in alternative form, as follows:

H1: *Media coverage improves firm-level investment efficiency.*

4.3   Research design

4.3.1   Sample and data

The sample selection starts from all firms with total assets data in the COMPUSTAT/CRSP merged dataset during 2006-2014. Consistent with prior studies, I exclude financial firms (SIC codes 6000-6999). The number of firms with total assets data ranges from 4,648 in 2012 to 5,593 in 2006. Data requirements for estimating investment efficiency and for the explanatory variables reduce the primary sample to 19,725 firm-year observations (3660 unique firms). The exact number of firm-year observations varies from table to table depending on the model specification.

As the prime measure of media coverage, I collect the number of firm-specific news articles from LexisNexis. To match news articles with a company, LexisNexis uses "relevance score" which is based on such criteria as the keyword's frequency, weight and location within the document. To maintain the quality of matching with a given

---

or reputation can lead to investment distortions and, depending on the information structure (i.e., whether level of investment and/or productivity of the investment is observable), either over-investment or under- investment may occur.

company, I follow Fang and Peress (2009) and retain articles that have a relevance score of at least 90% ("Major Reference").

I collect financial data from COMPUSTAT, stock return data from CRSP, analyst data from IBES, and ownership data from Thomson Financial. In order to mitigate the effects of outliers, I winsorize all continuous variables at the top and bottom 1%, though the results are qualitatively the same without winsorization.

4.3.2   Variable measurement

I follow the investment literature (Lang, Ofek, and Stulz, 1996; Hubbard, 1998; Stein, 2003; McLean et al., 2012) and use Q and cash flow sensitivities of investment as the prime measure of investment efficiency[19].   I estimate the following regression model:

(1)

$$Investment_{i,t} = \alpha + \beta_1 CF_{i,t-1} + \beta_2 Q_{i,t-1} + \beta_3 MC(MCLorMCG)_{i,t-1} + \beta_4 MC(MCLorMCG)_{i,t-1} \times Q_{i,t-1}$$
$$+ \beta_5 MC(MCLorMCG)_{i,t-1} \times CF_{i,t-1} + \sum \gamma_j Control\_Variables_{j,i,t-1} + \varepsilon_{i,t}$$

where *Investment_{i,t}* is the sum of all outlays on capital expenditure, acquisitions and research and development less receipts from sale of property, plant and equipment, scaled by average total assets in the prior year; cash flow ($CF_{i,t-1}$) is earnings before extraordinary items plus depreciation and amortisation deflated by average total

---

[19] I also use three measures of investment efficiency from the accounting literature (e.g. Richardson, 2006; Chen et al., 2011; Biddle, Hilary and Verdi, 2009), where efficiency is defined as deviations from models of expected investment level. The results from these accounting proxies of investment efficiency are consistent with those obtained for the investment-Q sensitivity tests, and are available in an Appendix.

assets; Tobin's Q represents investment opportunities; and $MC_{i,t-1}$ is media coverage in the prior year. I take the control variables from the literature.

I use the number of newspaper articles from LexisNexis about a stock to proxy for media coverage (MC). Specifically, for firm *i* in year *t*, the variable $MCL_{i,t}$ refers to the sum of firm-specific articles published in four major U.S. newspapers: New York Times (NYT), USA Today (USAT), Wall Street Journal (WSJ), and Washington Post (WP). While $MCL_{i,t}$ reflects the level of media coverage in major U.S. newspapers, I create the variable $MCG_{i,t}$ to capture global media coverage by including Financial Times (FT) as the fifth newspaper. In robustness tests, I conduct additional analyses using news measures from the RavenPack database, which collects news and other types of information from a much wider range of sources.

Managers of well-governed firms are more likely to invest efficiently in cash holdings, acquisitions, and capital expenditures (e.g., Harford, Mansi, and Maxwell, 2008; Gao et al., 2013). Prior studies also document interrelationships among corporate governance, performance, institutional ownership, analyst coverage and media coverage [20]. Consistent with these studies, I control for corporate governance (plus a host of other

---

[20] Better governed firms have better performance (Gompers, Ishii, and Metrick's, 2003) and attract more institutional investors (Doidge et al., 2009), whereas poor governance associates with less efficient acquisitions (Masulis, Wang and Xie, 2007) and with over-investment built via capital expenditures (Billett, Garfinkel, and Jiang, 2011). Ferreira and Matos (2008) find that institutional investors prefer to invest in large firms and firms with growth opportunities and proven profitability, and that the presence of foreign and independent institutions reduces capital expenditures, consistent with institutional investor monitoring curtailing managers' incentives to overinvest.

firm characteristics) to isolate its effect from that of media coverage. I use Bebchuk,
Cohen, and Ferrell's (2009) E-index to proxy for corporate governance. For consistency
with other measures, I multiply the E-score by -1 so that the measure is increasing in
corporate governance ($InvE-Score_{i,t}$)[21].

4.3.3   Model specification

Prior research documents positive investment Q and cash flow sensitivities. If media
coverage reduces information problems and/or makes managers more accountable to
shareholders, greater media coverage should further strengthen the positive relation
between Q and investment. A positive β_4 in Eq. (1) would be consistent with this
expectation.

The causes and interpretation of the positive relation between cash flow and
investment (or even its existence) are continuously debated. Fazzari, Hubbard, and
Petersen (1988, 2000) assume that investment sensitivity to cash flow reflects financial
constraints. Hubbard (1998) argue that because capital market imperfections make
external financing costlier than internal funds, for given levels of investment
opportunities and information costs, firms with higher net worth should invest more. A

---

[21] As a robustness test, I use Gompers et al.'s (2003) G-score, which is based on 24 provisions of
governance reflecting the level of anti-takeover protection. The results are similar to those reported.

number of papers have questioned the interpretation of investment-cash flow sensitivity as a measure of financial constraints[22].

Similar to McLean et al. (2012), I assume that low cash flow firms have greater need for external funds. If media coverage reduces information asymmetry, moral hazard and adverse selection, high coverage firms are better able to access external funds. This should *weaken* the positive investment sensitivity to cash flow if such sensitivity captures financial constraints, i.e., a negative β_5 in Eq. (1). On the other hand, if cash flow reflects growth opportunities instead, high media coverage should *strengthen* the positive sensitivity of investment to cash flow (just as it strengthens the positive investment sensitivity to Q)[23].

I control for information environment (using firm size, index membership, ownership concentration, institutional ownership), alternative information sources (credit rating, conference call, firm-initiated press release), and analyst coverage (e.g., Duarte, Han, Harford, and Young, 2008). I control for financial reporting quality (Biddle et al., 2009,

---

[22] For example, if Q is estimated with error, investment could be sensitive to cash flow because it reflects growth opportunities (Poterba, 1988). Gomes (2001) shows that investment-cash flow sensitivities are theoretically neither necessary nor sufficient for financial constraints. For a review of this large literature, see Erickson and Whited (2000), Stein (2003), Chen et al. (2006), Chen and Chen (2012) and Hoberg and Maksimovic (2015).

[23] In a cross-country setting McLean et al. (2012) find that investor protection is associated with higher investment sensitivity to Q and lower investment sensitivity to cash flow. They further find that finance plays a role in causing these effects; in countries with strong investor protection, external finance increases more strongly with Q, and declines more strongly with cash flow. They also find that Q and cash flow sensitivities are associated with *ex post* investment efficiency. They conclude that the findings are consistent with investor protection reducing financial constraints, and encouraging efficient investment. I test for a similar role of the media in this paper.

Chen et al., 2011), auditor type (Lu and Sapra, 2009; Das and Pandit, 2014), managerial ability (Demerjian, Lev, and McVay, 2012), profitability, dividend and leverage, etc. Appendix 1 provides a summary of the variable definitions.

To account for heteroskedasticity in the OLS residuals I adjust the standard errors using a two-dimensional cluster at the firm and year level (Petersen, 2009). I include industry fixed effects to control for industry-specific shocks to investment.

4.4   Empirical results

4.4.1   Descriptive statistics

Table 1 provides the summary and descriptive statistics. Panel A shows the number of articles per firm, categorized by news source. The average percentage of firms covered by the four major national newspapers ranges from 3.92% (for USA Today) to 13.41% (for WSJ)[24]. In total, I have 51,398 articles from the US national newspapers (MCL) and 24,556 additional articles from Financial Times, for a total of 75,954 news articles (MCG). I obtain 999,257 firm-specific news stories from RavenPack.

I next report the conditional statistics for number of LexisNexis news articles per covered firm. The average (median) number of articles from the 5 major newspapers per covered firm ranges from 6 to 14 (from 2 to 3). The average (median) number of full

---

[24] These are lower than the percentages reported in Hillert, Jacobs, and Müller (2014) mainly due to the different relevance score I use in the LexisNexis search.

articles from RavenPack's Dow Jones Newswire ("News Coverage") per covered firm is 33 (18). The higher number of firm news from RavenPack is due to its much greater information types and sources[25].

Table 1, Panel B reports the descriptive statistics for the dependent variables and main independent variables. The mean value of fixed business investment is 3.45% of the prior year's total asset value, with a standard deviation of 20.06%. The average number of firm-specific US media coverage (global media coverage) is 2.40 (3.70) articles per year. There is considerable cross-sectional variation, with a standard deviation of 22.50 (37.36) for US (global) media coverage. The control variables do not present any apparent abnormalities.

---

[25] RavenPack focuses more on market related news and has a greater and deeper coverage of the publicly traded firms. In contrast, the LexisNexis newspapers are general-interest newspapers (*Wall Street Journal* is the only newspaper that RavenPack and LexisNexis have in common). For all the analyses, I obtain qualitatively the same results using LexisNexis and RavenPack news data. These are available on request.

Table 4.1 Summary and Descriptive Statistics

Panel A: Summary statistics of media coverage

Newspaper	Year	Total no. of articles	No. of articles per year (Mean)	Percentage of firms covered by media in a given year	Conditional no. of articles (Mean)	Conditional no. of articles (Median)
New York Times	2006-2014	17,759	1,973	9.30%	9	2
Wall Street Journal	2006-2014	19,611	2,178	13.41%	7	2
Washington Post	2006-2014	8,769	974	6.18%	7	2
USA Today	2006-2014	5,260	584	3.92%	6	2
Financial Times	2006-2014	24,556	2,728	8.72%	14	3
MCL	2006-2014	51,398	5,711	20.01%	13	2
MCG	2006-2014	75,954	8,439	21.29%	18	3
NewsCoverage	2006-2014	999,257	111,029	67.60%	33	18

This table reports summary statistics for the media coverage of the sample firms. The time range, total number of articles, average number of articles per year, the average percentage of firms covered in a given year and conditional statistics (number of articles written on the firm conditioned on coverage) are presented. Articles for the five major newspapers are obtained from LexisNexis using the power search function and a "relevance score" of at least 90%. The average percentage of covered firms in a given year is the yearly average of the percentage of coverage separately for each year in which the newspaper is available. "NewsCoverage" refers to the full articles obtained from Dow Jones Newswire (RavenPack DJ Edition).

Table 4.1 (contd.) Summary and Descriptive Statistics

Panel B: Descriptive Statistics						
Variables	Obs.	Mean	Median	Std.Dev.	Min	Max
A. Dependent Variables						
$INVESTMENT_{i,t}$	19,725	0.0345	0.0335	0.2006	-7.4817	10.6500
B. Independent Variables						
$MCL_{i,t}$	19,725	2.3958	0	22.4999	0	1,469
$MCG_{i,t}$	19,725	3.6997	0	37.3602	0	2,895
$CF_{i,t}$	19,725	-2.3276	-2.2553	0.8790	-9.0781	7.4813
$Q_{i,t}$	19,725	0.5220	0.4086	0.6013	-1.9412	6.2188
C. Control Variables						
$Log(Sales_{i,t})$	19,725	5.8695	5.9560	2.4136	-6.9078	13.0727
$S\&P500_{i,t}$	19,725	0.1019	0	0.3025	0	1
$Log(Equity_{i,t})$	19,725	6.1874	6.1419	2.1469	-2.0519	13.3480
$Log(BooktoMarket_{i,t})$	19,725	0.6089	0.4820	0.6123	-0.9140	3.6598
$Return_{i,t}$	19,725	-0.0663	-0.0370	0.5381	-4.1405	3.7354
$STD(StockReturn_{i,t})$	19,725	0.0342	0.0294	0.0218	0.0043	1.2161
$ROA_{i,t}$	19,725	-0.0332	0.0349	0.28	-1.5642	0.46
$MA\_Score_{i,t}$	19,725	-0.0048	-0.0163	0.1497	-0.4039	0.5448
$Credit\_Rating_{i,t}$	19,725	10.737	11	3.4242	1	22
$Conference\_Call_{i,t}$	19,725	0.0457	0	0.0939	0	1.58
$Press\_Release_{i,t}$	19,725	17.0821	14	15.8973	0	418
$SD(Itotal)_{i,t-5tot-1}$	19,725	0.0824	0.049	0.0965	0.0015	0.5485
$SD(CFO)_{i,t-5tot-1}$	19,725	0.08	0.05011	0.09543	0.0052	0.6183
$SD(SALES)_{i,t-5tot-1}$	19,725	0.1758	0.1178	0.1843	0	1.0720
$Tangibility_{i,t}$	19,725	0.2625	0.1696	0.2473	0.001	0.9076
$Slack_{i,t}$	19,725	6.8253	0.7124	21.3857	0.0012	164.5571
$CFOsale_{i,t}$	19,725	-0.5008	0.0855	3.6657	-31.4917	0.6883
$Dividend_{i,t}$	19,725	0.3889	0	0.4875	0	1
$Market\ leverage_{i,t}$	19,725	0.1657	0.0810	0.207	0	0.8468
$Ind.Market\ Leverage_{i,t}$	19,725	0.1623	0.1417	0.0911	0.0461	0.4007
$InvE-Score_{i,t}$	8,811	-2.5042	-3	1.2254	-6	0
$AQ_{i,t}$	19,725	-0.3231	-0.1333	0.4936	-3.0203	-0.0089
$BIG\ 4_{i,t}$	19,725	0.8722	1	0.3338	0	1
$INSTITUTE_{i,t}$	19,725	0.478	0.4803	0.3337	0.0013	0.9976
$ANALYST_{i,t}$	19,725	7.5956	7.6	6.5672	1	54.75
$OWN\_CON_{i,t}$	19,725	0.138	0.0724	0.1668	0.0217	0.9391
$FLC_{i,t}$	19,725	2.493	2	0.8922	1	5

In untabulated univariate analyses using the accounting-based proxies of investment efficiency, I find that relative to no- and low media firms, firms with high media coverage on average exhibit higher investment efficiency in the subsequent year. Untabulated Pearson correlations are consistent with this.

4.4.2   Determinants of media coverage

Following Core et al. (2008), Fang and Peress (2009) and Dai et al. (2015), I estimate a model to identify determinants of media coverage[26]. Results are reported in Table 2. Consistent with expectations and prior literature, larger firms, firms with higher sales, and firms belonging to the S&P500 index attract more media attention. The media also tend to cover firms with high stock price volatility, and poorly-performing firms. I control for these determinants of media coverage in subsequent analyses. In the robustness tests, I use an instrumental variable approach to explicitly address the endogeneity concern.

---

[26] Prior studies have used different determinants of media coverage. I choose those determinants that are common to related studies. The investment efficiency regressions include a more comprehensive set of control variables.

Table 4.2 Determinants of Media Coverage

Variables	Model 1: using MCL as the dependent variable	Mode 2: using MCG as the dependent variable
$Log\left(Sales_{i,t}\right)$	0.6934*** (2.96)	1.2054*** (2.86)
$S\&P500_{i,t}$	6.2351*** (6.00)	8.5047*** (4.54)
$Log(Equity_{i,t})$	1.2744*** (4.58)	2.2547*** (4.50)
$Log(BooktoMarket_{i,t})$	0.0572 (0.19)	0.1824 (0.33)
$Return_{i,t}$	-0.3749 (-1.16)	-0.6625 (-1.33)
$STD(StockReturn_{i,t})$	36.4452*** (3.38)	60.0383*** (3.06)
$ROA_{i,t}$	-2.2825** (-2.13)	-3.8724** (-1.99)
Industry FE	YES	YES
OBS	19,725	19,725
Adjusted R^2 (%)	16.44	12.48

*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test). t-statistics, in brackets, are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated. See Appendix I for definition of variables.

4.4.3   Baseline results: Investment sensitivities to Q and cash flow

Table 3 reports results from estimation of Eq. (1) in which *Investment* is the dependent variable. Model 1 does not include media coverage. Consistent with expectations and prior literature, the coefficients on Q and CF are both positive and statistically significant.

In Model 2, I add US media coverage (MCL) plus its interaction with Q and CF, respectively. The coefficients on Q and CF remain positive and statistically significant. The coefficient on

the interaction term $Q_{i,t-1}*MCL_{i,t}$ is positive and statistically significant, whereas the coefficient on the interaction term $CF_{i,t-1}*MCL_{i,t}$ is negative and statistically significant. These suggest that media coverage increases the investment sensitivity to growth opportunities, and lowers the investment sensitivity to cash flow. The same findings emerge from Model 3 where global media coverage (MCG) replaces US media coverage. The results indicate that greater media coverage is associated with more firm responsiveness to investment opportunities, and less dependence on internal funds[27]. Both findings are novel.

I interpret the results as indicating that greater media coverage is *on average* associated with higher investment efficiency, consistent with H1.

Table 4.3 Effect of Media Coverage on Q and Cash Flow Sensitivities of Investment

	Dependent variable: *Investment*$_{i,t}$ is firm *i*'s investment expenditure in year *t*.					
	Model 1		Model 2		Model 3	
Variables	*Coeff.*	*t-stat.*	*Coeff.*	*t-stat.*	*Coeff.*	*t-stat.*
$CF_{i,t-1}$	0.0294***	(2.96)	0.0195**	(2.20)	0.021***	(2.19)
$Q_{i,t-1}$	0.0269***	(8.03)	0.0249**	(7.55)	0.0245***	(7.60)
$MCL_{i,t-1}$			**-0.0017***	**(-2.97)**		
$CF_{i,t-1} \times MCL_{i,t-1}$			**-0.0011**	**(-2.26)**		
$Q_{i,t-1} \times MCL_{i,t-1}$			**0.0005***	**(2.45)**		
$MCG_{i,t-1}$					**-0.0018***	**(-3.04)**
$CF_{i,t-1} \times MCG_{i,t-1}$					**-0.0011**	**(-2.27)**
$Q_{i,t-1} \times MCG_{i,t-1}$					**0.0005***	**(2.57)**
$Log\left(Sales_{i,t}\right)$	7.1685***	(6.77)	6.9628***	(6.43)	6.9950***	(6.45)
$S\&P500_{i,t}$	1.0668	(1.00)	0.6068	(0.38)	0.6516	(0.39)

---

[27] The results are qualitatively similar when I use cash holding in place of current-year cash flow.

$Log(Equity_{i,t})$	5.5377***	(4.8)	5.0043***	3.85	4.9800***	(3.85)
$Log(BooktoMarket_{i,t})$	0.0026	(0.22)	0.0022	(0.14)	0.0021	(0.14)
$Return_{i,t}$	-3.6769*	(-1.77)	-4.9276**	-2.17	-4.9535**	(-2.18)
$STD(StockReturn_{i,t})$	-0.5906	(-1.35)	-0.6094	(-1.27)	-0.6507	(-1.27)
$ROA_{i,t}$	-2.6921***	(-2.76)	-3.6384***	(-3.68)	-3.8359***	(-3.66)
$MA\_Score_{i,t}$	7.7571***	(6.22)	6.5410***	(5.96)	6.4674***	(5.94)
$Credit\_Rating_{i,t}$	-1.2994*	(-1.55)	-1.0901	(-1.22)	-1.0927	(-1.22)
$Conference\_Call_{i,t}$	0.0231	(0.24)	0.0234	(0.26)	0.0233	(0.25)
$Press\_Release_{i,t}$	0.1941***	(2.73)	0.1941***	(2.53)	0.1937***	(2.54)
$SD(Itotal)_{i,t-5tot-1}$	-12.2562***	(-11.72)	-12.9267***	(-11.39)	-12.8295***	(-11.39)
$SD(CFO)_{i,t-5tot-1}$	-1.8216*	(-1.77)	-0.9149	(-1.03)	-0.8842	(-1.02)
$SD(SALES)_{i,t-5tot-1}$	0.1611	(0.49)	0.5683	(0.82)	0.5720	(0.81)
$Tangibility_{i,t}$	1.6186*	(1.61)	2.8502***	(2.56)	2.9061***	(2.58)
$Slack_{i,t}$	-0.4672*	(-1.60)	-1.4008**	(-2.45)	-1.4015**	(-2.45)
$CFOsale_{i,t}$	0.4123	(0.4)	0.3044	(0.21)	0.3707	(0.21)
$Dividend_{i,t}$	-1.4513*	(-1.51)	-1.4418	(-1.33)	-1.4384	(-1.32)
$mkt.Lev_{i,t}$	7.7116***	(8.1)	7.2484***	(7.03)	7.2549***	(7.04)
$Ind.Mkt.Lev_{i,t}$	1.0356	(0.91)	0.0741	(0.87)	0.0751	(0.87)
$InvE-Score_{i,t}$	0.0050	(0.54)	0.0055	(0.58)	0.0055	(0.59)
$AQ_{i,t}$	6.1193***	(4.12)	-6.1642***	(-4.11)	-6.1854***	(-4.12)
$BIG\ 4_{i,t}$	0.2291	(0.03)	1.9729	0.25	1.9552	(0.25)
$INSTITUTE_{i,t}$	1.4874	(1.35)	1.6854*	(1.66)	1.7263*	(1.66)
$ANALYST_{i,t}$	0.7642***	(3.55)	0.5898***	(2.53)	0.5872***	(2.52)
$OWN\_CON_{i,t}$	-3.7117***	(-3.57)	-4.4845***	(-4.04)	-5.3002***	(-4.04)
$FLC_{i,t}$	-2.5512***	(-2.67)	-2.2687**	(-2.21)	-2.2521***	(-2.20)
Industry FE	YES		YES		YES	
OBS	19,725		19,725		19,725	
Adjusted R2 (%)	34.48		39.08		40.90	

Investment_{i,t} is firm *i*'s investment expenditure in year *t*, $CF_{i,t-1}$ is the level of firm i's cash flow in year t-1, and $Q_{i,t-1}$ represents investment opportunities (Tobin's Q) for firm *i* in year *t-1*. which is given by the sum of the yearly growth in property, plant, and equipment, plus growth in inventory, plus R&D expenditure, and all deflated by average total assets. Cash flow ($CF_{i,t-1}$) is measured as earnings before extraordinary items plus depreciation and amortisation deflated by average total assets. $Q_{i,t-1}$ represents investment opportunities (Tobin's Q), which is proxied by market capitlisation plus total assets minus book equity all over average total assets. T-statistics, in brackets, are corrected for

heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated. See Appendix I for definition of variables.

*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test).

4.4.4 How does media coverage impact investment efficiency?

The central tenet of this chapter is that media coverage improves the efficiency of capital allocation by mitigating information asymmetries and agency problems, the two traditional explanations for investment distortions. In this section I shed light on the specific ways in which media coverage improves investment efficiency. It is worth re-iterating that although I investigate the different channels separately, multiple channels are likely to be at work simultaneously.

4.4.4.1 Does media coverage reduce information asymmetry?

I first conduct a direct test to see whether media coverage lowers information asymmetry associated with the firm. Following prior studies (e.g., Bushee et al., 2010), Dai et al., 2015), I use bid-ask spread and dispersion of analysts' forecasts of annual earnings as measures of information asymmetry. Bid-ask spreads proxy for information asymmetry across traders. Analysts' forecast dispersion reflects information asymmetry existing between insiders and outsiders. I regress these information asymmetry proxies on media coverage and other known determinants of information asymmetry. Results are reported in Table 4.

Table 4.4 Effect of Media Coverage on Information Asymmetry

Variables	$Bid\text{-}AskSpread1_{i,t}$		$Bid\text{-}AskSpread2_{i,t}$		$AnalystForecastDispersion_{i,t}$	
$MCL_{i,t}$	-0.0071*** (-2.89)		-0.0062** (-2.07)		-0.0036* (-1.78)	
$MCG_{i,t}$		-0.0056* (-1.86)		-0.0059** (-1.95)		-0.0032* (-1.70)
$Log\left(Sales_{i,t}\right)$	-0.0010* (-1.91)	-0.0010* (-1.91)	-0.0002* (-1.70)	-0.0002* (-1.70)	-0.0261 (-1.09)	-0.0262 (-1.10)
$S\&P500_{i,t}$	-0.0018* (-1.56)	-0.0018* (-1.56)	-0.0004 (-1.43)	-0.0004 (-1.43)	-0.0547 (-1.05)	-0.0543 (-1.04)
$Log(Equity_{i,t})$	-0.0037*** (-6.11)	-0.0037*** (-6.12)	-0.0009*** (-5.67)	-0.0009*** (-5.68)	-0.0359 (-1.40)	-0.0355 (-1.38)
$Log(BooktoMarket_{i,t})$	0.0000 (-0.28)	0.0000 (-0.27)	0.0000 (-0.15)	0.0000 (-0.15)	-0.0001 (-0.11)	-0.0001 (-0.11)
$Return_{i,t}$	-0.0002 (-0.33)	-0.0002 (-0.32)	0.0000 (-0.24)	0.0000 (-0.23)	-0.1822*** (-4.41)	-0.1824*** (-4.41)
$STD(StockReturn_{i,t})$	0.8609*** (28.93)	0.8608*** (28.93)	0.2132*** (26.52)	0.2131*** (26.51)	4.9186*** (2.78)	4.9273*** (2.79)
$ROA_{i,t}$	-0.0081** (-2.44)	-0.0081** (-2.44)	-0.0020** (-2.28)	-0.0020** (-2.28)	-0.7168*** (-3.38)	-0.7175*** (-3.39)
Other controls	YES	YES	YES	YES	YES	YES
Industry FE	YES	YES	YES	YES	YES	YES
OBS	19,289	19,289	19,289	19,289	19,289	19,289
Adjusted R2 (%)	59.63	59.70	56.45	56.44	29.94	29.91

Bid-AskSpread1i,t=annual average of daily bid-ask spread scaled by closing price of firm i in year t. Bid-AskSpread2i,t=annual average of daily bid-ask spread, divided by bid-ask mid-point, of firm i in year t. AnalystForecastDispersioni,t=standard deviation of the analysts' most recent EPS forecasts for the firm-year, scaled by EPS consensus forecast. "Other controls" include control variables used across all models, and control variables specific to a given model (results are not tabulated due to space limitation). The former group includes MA_Scorei,t, Credit_Ratingi,t, Conference_Calli,t, Press_Releasei,t, and Leveragei,t. See Appendix I for definition of these variables. Control variables that are specific to the different models are as follows. In the Bid-AskSpread1&2 models, I include control variables Vol_Avei,t=annual average of daily shares traded of firm i in year t. Turnover_Avei,t=ratio of number of shares traded to number of tradable shares outstanding of firm i in year t. Prccd_Avei,t=average closing stock price of firm i in year t. AnalystCoveragei,t=natural log of (1 plus) the number of analysts issuing earnings forecasts for firm i in year t. INSTITUTEi,t= percentage of outstanding shares held by institutional investors of firm i in year t. And in the AnalystForecastDispersion model, I control for Opercyclei,t=log of the sum of the firm's days of accounts receivable and days; LOSSi,t=proportion of losses calculated as the number of firm-years with negative earnings divided by the total number of firm-years for each firm over the twenty-quarter period from t-19 to t; and ROEi,t=measured as income before extraordinary items divided by common equity at the end of the previous quarter.
*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test). T-statistics, in brackets, are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated.

The coefficient on information asymmetry is negative and statistically significant; this holds for all three proxies for information asymmetry (two measures of bid-ask spread, and analyst forecast dispersion) and for both measures of media coverage (MCL and MCG). Thus higher coverage associates with lower information asymmetry, as predicted. The finding is also consistent with Tetlock (2010) and Bushee et al. (2010).

4.4.4.2 Does media coverage alleviate financial constraints?

Prior literature (e.g., Hubbard, 1998; Stein, 2003) suggests that frictions in the form of adverse selection costs due to information asymmetry and agency problem create a divergence between the costs of external and internal funds, thereby constraining firms in their ability to fund projects. Limitations in the capacity to raise external finance cause firms to invest below first best levels (Almeida et al., 2004; Khurana et al., 2006). Using a survey-based measure of financial constraint, Campello, Graham and Harvey (2010) find that relative to unconstrained firms, constrained firms planned deeper cuts in tech spending, employment, and capital spending during the Global Financial Crisis[28]. They conclude that financial constraints hamper investment in valuable projects. Harford and Uysal (2014) find that the lack of debt market access has a real effect on firms' ability to make investments and on the quality of these investments by creating under-investment. I argue that one way that media coverage improves investment efficiency is by facilitating access to external capital and relaxing financial constraints[29].

---

[28] Duchin, Ozbas, and Sensoy (2010) find that corporate investment declines significantly following the Crisis; the decline is greatest for financially constrained firms and firm that operate in industries dependent on external finance.

[29] One may argue that alleviation of financial constraints could aggravate over-investment. Billett et al. (2011) find that financially unconstrained poor-governance firms tend to over-invest and subsequently underperform in terms of both operating and stock return performance. Harford et al. (2008) show that US public firms with more entrenched managers prefer to overinvest rather than maintain observably high cash levels. Gao et al. (2013) find that compared to private firms, public firms spend excess cash via investment in a myopic way and in ways that reduce firm operating performance; this problem is particularly notable among poorly governed public firms. While, in and of itself, access to lower-cost external financing that is made possible by greater media visibility could lead to over-investment, especially for poorly-governed firms, greater media coverage is also associated with more effective external monitoring, which mitigates over-investment (this is supported by the hazard model estimates). Since these counteracting forces are *simultaneously* at work, the net effect is an empirical question.

I adopt Almeida et al.'s (2004) "cash flow sensitivity of cash" model financial constraints. In their theory, constrained firms save cash out of cash flows in order to finance future investments and thus have positive cash–cash flow sensitivities, while financially unconstrained firms do not. Their results support cash–cash flow sensitivity as a theoretically justified, empirically useful variable that is correlated with a firm's ability to access capital markets[30]. I estimate the following model:

$$\Delta Cash_{i,t} = \alpha + \beta_1 MC_{i,t} + \beta_2 CF_{i,t} + \beta_3 MC_{i,t} \times CF_{i,t} + \Sigma \gamma_j Control\_Variables_{j,i,t}$$
$$(2) \quad + \varepsilon_{i,t}$$

where $\Delta Cash_{i,t}$ is the change of cash holdings of firm i from that of the previous year scaled by total average asset. $CF_{i,t}$ denotes the net cash flow from operating activities scaled by total average asset. I control for size, Q, investment expenditures, acquisitions, change in net working capital, and change in short-term debt, where all of these variables are scaled by assets, plus controls for firms' information environments and other firm characteristics.

In estimating Eq. 2, I recognize the endogeneity of financial and investment decisions and use an instrumental variables (IV) approach, following Almeida et al. (2004). The instruments include two lags of the level of fixed capital (net plant, property, and investment to total assets), lagged acquisitions, lagged net working capital, and lagged

---

[30] This model focuses on the link between financial constraints and a firm's demand for liquidity, in contrast to prior literature that examines the effects of financial constraints on corporate investment demand. Almeida et al. (2004) argue that the use of cash-cash flow sensitivities to test for financial constraints sidesteps some of the criticisms that have plagued the interpretation of tests of financial constraints that use investment–cash flow sensitivities.

short-term debt, as well as two-digit SIC industry indicators and twice-lagged sales growth[31].

I include firm-fixed effects (to control for unobserved firm heterogeneity) and correct the

error structure for heteroskedasticity and for within–period error correlation using the

White–Huber estimator.

---

[31] The instruments pass the weak instrument test and over-identification test. To save space I do not tabulate the first-stage regression results (available on request).

Table 4.5 Impact of Media Coverage on Cash Flow Sensitivity of Cash

Variables	Dependent variable: $\Delta Cash_{i,t}$			
	Model 1: US Media Coverage (MCL)		Model 2: Global Media Coverage (MCG)	
	Coeff.	t-stat.	Coeff.	t-stat.
$CF_{i,t}$	0.3812***	(11.44)	0.3893***	(11.57)
$MCL_{i,t}$	-0.0002*	(-1.77)		
$MCG_{i,t}$			-0.0001*	(-1.66)
$CF_{i,t} \times MCL_{i,t}$	**-0.0012****	**(-1.99)**		
$CF_{i,t} \times MCG_{i,t}$			**-0.0011****	**(-1.99)**
$Log\left(Sales_{i,t}\right)$	-0.0064	(-0.88)	-0.0065	(-0.89)
$S\&P500_{i,t}$	0.0259**	(2.38)	0.0262**	(2.40)
$Log(Equity_{i,t})$	0.0113**	(2.15)	0.0113**	(2.15)
$Log(BooktoMarket_{i,t})$	0.0000	(-0.60)	-0.0000	(-0.61)
$Return_{i,t}$	0.0109**	(2.28)	0.0110**	(2.30)
$STD(StockReturn_{i,t})$	0.5651***	(3.73)	0.5673***	(3.74)
$ROA_{i,t}$	0.0617***	(2.56)	0.0610***	(2.53)
$MA\_Score_{i,t}$	-0.0150	(-1.33)	-0.0151	(-1.34)
$Credit\_Rating_{i,t}$	-0.0049**	(-2.37)	-0.0049**	(-2.37)
$Conference\_Call_{i,t}$	-0.0030	(-0.17)	-0.0015	(-0.09)
$Press\_Release_{i,t}$	-0.0002	(-0.97)	-0.0002	(-1.06)
$Q_{i,t}$	0.0125***	(3.30)	0.0122***	(3.32)
$\Delta STD_{i,t}$	0.0140***	(3.27)	0.0138***	(3.24)
$\Delta NWC_{i,t}$	-0.0136**	(-1.84)	-0.0138**	(-1.90)
$EXPEND_{i,t}$	-0.00002*	(-1.63)	-0.00002*	(-1.62)
Industry FE	YES		YES	
OBS	19,725		19,725	
Adjusted R^2 (%)	20.41		20.33	

$\Delta Cash_{i,t}$ is the change of cash holdings of firm i from that of the previous year scaled by total average asset. $CF_{i,t}$ measured as earnings before extraordinary items plus depreciation and amortisation deflated by average total assets

for firm i in year t. $Q_{i,t}$ is proxied by market capitalization plus total assets minus book equity all over average total assets for firm i in year t. $\Delta STD_{i,t}$ is the net change in current liability, scaled by average total assets. $\Delta NWC_{i,t}$ is the net change in net working capital, scaled by average total assets. $EXPEND_{i,t}$ is $CAPEX$ scaled by average total assets. T-statistics, in brackets, are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated. See Appendix I for definition of other control variables.

*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test)

Table 5 reports the second-stage results. The coefficient on CF is positive and statistically significant, suggesting that the average firm is financially constrained. The coefficient on the interaction term between media coverage (MCL or MCG) and cash flow is negative and statistically significant. The results support a negative relation between media coverage and financial constraints, and suggest that financial constraint is decreasing in the level of media coverage. This finding is consistent with the investment-cash flow sensitivity result in Table 3.

Consistent with Almeida et al. (2004) and Khurana et al. (2006), size (log(Equity)), Tobin's Q and change of the short-term debt to total assets ratio (Δ STD) are positively associated with annual change of cash holdings, whereas capital expenditures (EXPEND) and changes in noncash net working capital (Δ NWC) are negatively associated with change of cash holdings.

4.4.4.3   Does media coverage facilitate abandonment of unprofitable investments?

Firms with fewer growth opportunities and poor performance in their current business should dispose of assets in order to restructure their operations for higher efficiency (Hovakimian and Titman, 2006)[32]. Lang, Poulsen and Stulz (1995) find that firms selling

---

[32] Hite, Owers and Rogers (1987) find that interfirm asset sales are associated with the movement of resources to higher-value uses, consistent with asset sales promoting efficiency (see also Maksimovic and

assets tend to be poor performers. Among the reasons given by their sample firms for undertaking the asset sales, "Focusing on core business", "Selling unprofitable or slow-growing business" and "To finance acquisition or expansion" are the most prevalent motivations. Campello et al. (2010) find that during the Financial Crisis in 2008, the vast majority of financially constrained firms sold assets in order to fund operations. Consistent with prior studies, I expect that if firms decide to sell assets, they are likely to sell the unprofitable ones and use the proceeds for more profitable investments.

However, managers may be reluctant to liquidate or divest poorly-performing investments for fear that such actions will be interpreted as an admission of failure on their part (Boot, 1992; Baker, 2000). Reluctance to liquidate poorly-performing current investments leads to over-investment and low investment efficiency. The media may uncover/publicize such wasteful/unprofitable investments through original investigation and broad dissemination (Miller, 2006; Bushee et al., 2009), and/or by giving voice to shareholder activists who seek shareholder value maximization (Joe et al., 2009; Bednar et al., 2013). To the extent that media coverage lowers information asymmetry between managers and shareholders and puts pressures on managers to act in shareholders' interest, I not only expect to find a negative relation between growth opportunities and asset sales, but I also expect such relation to be stronger for firms with greater media coverage. I estimate the following model:

Phillips, 2001). Warusawitharana (2008) and Yang (2008) develop theories and provide empirical evidence that corporate asset sales are consistent with efficient investment decisions and changes in productivity, respectively.

(3)

$$SalePPE_{i,t} = \alpha + \beta_1 MC(MCLorMCG)_{i,t-1} + \beta_2 Qa_{i,t-1} + \beta_3 MC(MCLorMCG)_{i,t-1} \times Qa_{i,t-1}$$
$$+ \sum \gamma_j Control\_Variables_{j,i,t-1} + \varepsilon_{i,t}$$

where $SPPE_{i,t}$ is the sale of property of firm *i* in the previous year scaled by average

total assets, and $Qa_{i,t-1}$ is obtained by multiplying the value of Tobin's Q by minus 1 (so

larger or less negative values of $Qa_{i,t-1}$ indicate less growth opportunity).

Table 4.6 Impact of Media Coverage on Asset Sales

Variables	Dependent variable: $SalePPE_{i,t}$			
	Model 1: US Media Coverage (MCL)		Model 2: Global Media Coverage (MCG)	
	Coeff.	t-value	Coeff.	t-value
$Qa_{i,t-1}$	0.1248	(1.34)	0.1341	(1.38)
$MCL_{i,t-1}$	0.4017*	(1.78)		
$MCG_{i,t-1}$			0.3740*	(1.66)
$Qa_{i,t-1} \times MCL_{i,t-1}$	**0.0031***	**(1.75)**		
$Qa_{i,t-1} \times MCG_{i,t-1}$			**0.0074****	**(2.07)**
$Log(Sale_{i,t-1})$	-1.2376	(-0.89)	-1.2488	(-0.91)
$S\&P500_{i,t-1}$	1.7676	(0.60)	1.9030	(0.58)
$log(Equity_{i,t-1})$	-1.1816	(-0.84)	-1.1919	(-0.83)
$log(BooktoMarket_{i,t-1})$	0.0010**	(2.11)	0.0010**	(2.11)
$Return_{i,t-1}$	-0.0150**	(-2.12)	-0.0158**	(-2.18)
$STD(StockReturn_{i,t-1})$	1.4758	(0.52)	1.4556	(0.52)
$MA\_Score_{i,t-1}$	1.6730*	(1.58)	1.6721*	(1.58)
$ROA_{i,t-1}$	1.8762	(0.89)	1.9018	(0.91)
$Credit\_Rating_{i,t-1}$	0.0011	(0.34)	0.0012	(0.44)
$Conference\_Call_{i,t-1}$	0.1642*	(1.66)	0.1637*	(1.66)
$Press\_Release_{i,t-1}$	0.3819	(1.51)	0.3754	(1.46)
$LEVERAGE_{i,t-1}$	-1.7756*	(-1.92)	-1.8247*	(-2.02)
$Financial\_Slack_{i,t-1}$	-2.0018	(-0.99)	-2.2038	(-1.21)
$Dividend\_Pay_{i,t-1}$	0.6470	(0.33)	0.5699	(0.32)
$Bond\_rating_{i,t-1}$	-0.1050	(-0.12)	-0.1058	(-0.14)
$AGE_{i,t-1}$	-0.3711	(-1.31)	-0.5045	(-1.40)
Industry FE	YES		YES	
OBS	19,725		19,725	
Adjusted R^2 (%)	20.66		24.15	

$SalePPE_{i,t}$ is the sale of property of firm i in the previous year scaled by average total assets, and $Qa_{i,t-1}$ is obtained by multiplying the value of Tobin's Q by minus 1 so larger (or less negative) values of $Qa_{i,t-1}$ indicate less growth opportunity. T-statistics are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated. See Appendix I for definition of other control variables.
*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test).

Table 6 reports the results. The positive relation between Qa and SPPE indicates that firms with lower growth opportunity tend to have more asset sales. Furthermore, as media coverage increases, firms sell more assets (the coefficients on $Qa_{i,t-1} * MCL_{i,t}$ and $Qa_{i,t-1} * MCG_{i,t}$ are both positive and statistically significant). The evidence suggests that media coverage improves investment efficiency *inter alia* by forcing low-growth firms to sell unprofitable assets.

4.4.5 Cross-sectional analysis[33]

The associations documented above reflect the *average* relation between media coverage and the observed outcomes for the whole sample. The theory underlying these findings implies that the documented associations are likely to vary in the cross section, along such dimensions as information costs, agency costs and dependence on external financing. These additional analyses both cross-validate the baseline results and also provide more useful tests (Stein, 2003).

4.4.5.1 Variation in agency costs

I expect the media's role in improving efficiency to be more evident when agency costs are high[34]. I use a variety of empirical proxies for agency costs (AC). The first proxy is

---

[33] For all tables in this section, I use the same control variables as before but omit them to save space. Also due to space limitation, I tabulate the results for the accounting-based proxies of investment efficiency in the Appendix.

[34] Chava and Roberts (2008) show that when agency and information problems are more severe, covenant violations play a more important role in mitigating investment distortions arising from financing frictions. I argue for a similar role for media coverage.

based on free cash flow. Jensen (1986) argues that managers of low growth, high cash flow firms are involved in non-value-maximizing activities. Each year I divide firms into high/low growth opportunities based on industry median Q, and into high/low cash flow firms based on industry median cash flow (scaled by sales, alternately total assets). Firms with low growth opportunity and high cash flow are classified as high AC firms, and the rest as low AC firms.

The second proxy is based on industry competition, measured by Herfindahl-Hirschman index (HHI). I compute HHI using all COMPUSTAT public firms, as the sum of the square of firm's market share (firm sale/industry sale) for each of the Fama-French 48 industries. Firms belonging to industries with HHI falling in the bottom (top) 1/3 are classified as high (low) AC firms[35]. The idea behind this classification is that firms faced with low (high) product market competition are more (less) susceptible to agency problems[36].

I also try other proxies based on empire building, leverage, dividend and managerial ownership[37]. The results for these proxies are generally consistent. For brevity, I report the results based on free cash flow and industry competition.

---

[35] I also use top/bottom 20% as the cut-off. The results are qualitatively similar.

[36] While managers of firms in non-competitive industries enjoy slack, managers of firms in competitive industries are under constant pressure to reduce slack and improve efficiency (Giroud and Mueller, 2010). Giroud and Mueller, 2010, 2011) and Peress (2010) present empirical evidence on the implications of product market competition for agency costs, corporate governance, stock market efficiency and operating performance. Stoughton et al. (forthcoming) argue that product market competition affects information production and investment efficiency.

[37] I follow the literature to define these proxies. For example, I follow the spirit of Shin and Kim (2002) and define empire building on the basis of asset size and growth opportunities. Specifically, for each

Table 4.7 Cross-Sectional Variations in the Media Coverage-Investment Efficiency Relation and Underlying Channels Depending on Agency Costs

Panel A: Investment Q and Cash Flow Sensitivities Model

Dependent variable			Independent variables			OBS	Adjusted R^2 (%)
$Investment_{i,t}$	$CF_{i,t-1}$	$Q_{i,t-1}$	$MCL_{i,t-1}$	$CF_{i,t-1} \times MCL_{i,t-1}$	$Q_{i,t-1} \times MCL_{i,t-1}$		
Free Cash Flow Measure (AC)							
HIGH AC Group	0.0416***	0.0418***	-0.0031***	-0.0029***	0.0013***		
	(3.57)	(8.29)	(-3.53)	(-4.07)	(7.22)	4,167	27.31%
LOW AC Group	0.0353***	0.0231***	-0.0008	-0.0009*	0.0006*		
	(3.81)	(6.16)	(-1.19)	(-1.66)	(1.76)	15,658	13.29%
Industry Competition Measure (AC)							
HIGH AC Group	0.0294***	0.0150***	-0.0019**	-0.0015**	0.0007*		
	(3.62)	(4.07)	(-2.26)	(-2.52)	(1.89)	4,285	21.99%
LOW AC Group	0.0207*	0.0149***	-0.0003	-0.0002	0.0001		
	(1.89)	(5.13)	(-0.11)	(-0.51)	(0.42)	5,447	18.09%

Panel B: Asset Sales

Dependent Variable		Independent Variables					
$SalePPE_{i,t}$	$Qa_{i,t-1}$	$MCL_{i,t-1}$	$Qa_{i,t-1} \times MCL_{i,t-1}$	$Qa_{i,t-1}$	$MCL_{i,t-1}$	$Qa_{i,t-1} \times MCL_{i,t-1}$	
		HIGH AC Group			*LOW AC Group*		
Free Cash Flow Measure (AC)	0.1663	0.4095*	0.0103*	1.0541***	0.1053	0.0391	
	(1.44)	(1.69)	(1.93)	(2.97)	(0.56)	(1.22)	
OBS		2,317			17,408		

Adjusted R^2 (%)		16.54%			15.40%	
Industry Competition Measure (AC)	0.2746***	0.7334*	0.0139*	0.0740	0.0005	0.0054
	(2.91)	(1.74)	(1.83)	(0.53)	(0.70)	(0.50)
OBS		2,317			17,408	
Adjusted R^2 (%)		16.54%			15.40%	

T-statistics, in brackets, are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated. See Appendix I for definition of other control variables.

*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test).

Table 7, Panel A reports results of estimating investment Q and cash flow sensitivities (Eq. 1) for high and low AC firms, respectively. The first row reports results when AC is based on free cash flow. For both high and low AC firms, the coefficients on Q and CF are positive and statistically significant, similar to the base tests. For high AC firms, the coefficient on the interaction term Q*MC is statistically positive, and the coefficient on the interaction term Q*CF is statistically negative. In contrast, for low AC firms the coefficients on these interaction terms, whilst having the expected sign, are statistically insignificant. The magnitude of the coefficients is more than halved compared to that for high AC firms.

The second row reports results when agency cost is measured by product market competition. For high AC firms, the coefficients on the interaction terms MC*Q and MC*CF are statistically positive and negative, respectively. For low AC firms, they are statistically insignificant, and their magnitude is much smaller.

Panel B report the by-group analysis using asset sales (Eq. 3). As shown, the effect of media coverage on asset sales is more evident for high AC firms. Taken together, the evidence indicates that media coverage plays a more pronounced efficiency-enhancing role for high agency costs firms. This is consistent with the hypothesis that media coverage mitigates agency costs, and, by doing so, improves investment efficiency.

4.4.5.2   Variation in information costs

Models of asymmetric information and incentive problems imply that information costs and the internal resources of a firm influence the cost of external funds for fixed investment, making it higher than internal funds (Hubbard, 1998). Holding constant investment opportunities, a reduction in net worth reduces investment for firms facing information costs (IC), and the effects of net worth on investment should be most important for high IC firms. To the extent that media coverage mitigates information problems, I expect the investment efficiency-enhancing effect of media coverage to be more evident for high IC firms. Media coverage is also expected to play a role in prompting asset sales for low-growth firms, with such effect being most evident for high IC firms. In addition, I expect firm's cash-cash flow sensitivity to decrease in the extent of media coverage, especially for high IC firms. This is because liquidity management is particularly important in settings where external financing is costly (Khurana et al., 2006), and market imperfections in the form of information asymmetry increase the cost of external financing (Myers and Majluf, 1984).

The first measure of information costs is financial reporting quality (FRQ). Prior research finds that financial reporting quality mitigates investment efficiencies. I adopt the four proxies for FRQ used in Chen et al. (2011).

The second captures firms' information environments. I take the empirical proxies from Duarte et al. (2008). These include whether a firm has a credit rating, firm's institutional ownership percentage, and analyst coverage. I combine all three variables and

designate as high (low) IC firms those that have a bottom (top) quartile composite score[38].

The third proxy for information costs is based on firm size. Large firms generally have lower information asymmetries and thus lower information costs. Each year I sort firms based on total assets. Firms in the top (bottom) quartile are considered low (high) IC firms.

Table 8 reports results of estimating Eq. (1), Eq. (2), and Eq. (3) for information costs partitions based on FRQ, information environment and firm size, respectively. Focusing first on the investment Q and CF sensitivities (Panel A), the coefficients on the interaction terms MC*TQ and MC*CF have the predicted sign and are statistically significant predominantly for high IC firms.

Moving to asset sales (Panel B), I again note that media coverage has a more evident effect on asset sales for high IC firms. As reported in Panel C, greater media coverage is associated with lower cash-cash flow sensitivity only for high IC firms.

The results thus confirm that media coverage has a more pronounced effect on corporate investment and financing when information costs are high, as predicted by theory.

---

[38] Availability of credit rating is scored 1, and otherwise zero. A score of 1 (zero) is assigned to firm-year observations with above (below) median institutional ownership and analyst coverage, respectively.

Table 4.8 Cross-Sectional Variations in the Media Coverage-Investment Efficiency Relation and Underlying Channels Depending on Information Costs

Panel A: Investment Q- and Cash Flow Sensitivities Model

Dependent variable		Independent variables				OBS	Adjusted R^2 (%)
$Investment_{i,t}$	$CF_{i,t-1}$	$Q_{i,t-1}$	$MCL_{i,t-1}$	$CF_{i,t-1} \times MCL_{i,t-1}$	$Q_{i,t-1} \times MCL_{i,t-1}$		
Financial Reporting Quality Measure (IC)							
HIGH IC	0.0354***(3.78)	0.0318***(8.36)	-0.0037***(-4.33)	-0.0014**(-2.12)	0.0008***(3.55)	9,536	19.00%
LOW IC	0.0293***(2.83)	0.0132***(3.04)	-0.0003(-0.04)	-0.0002(-0.56)	0.0000(0.16)	9,314	10.09%
Information Environment Measure (IC)							
HIGH IC	0.0306***(3.22)	0.0406***(10.62)	-0.0028***(-3.41)	-0.0007**(-2.05)	0.0007***(4.03)	1,656	12.53%
LOW IC	0.0571(0.75	0.0146***(4.46)	-0.0003(-0.71)	-0.0006*(-1.59)	0.0000(0.45)	1,187	11.71%
Firm Size Measure (IC)							
HIGH IC	0.0451***(4.42)	0.0235***(7.29)	-0.0020***(-2.59)	-0.0034***(-3.16)	0.0004*(1.70)	4,104	27.70
LOW IC	0.0314***(3.03)	0.0016(0.33)	-0.0016**(-2.04)	-0.0019**(-1.97)	0.0003(1.33)	5,036	27.82

Panel B: Asset Sales

Dependent Variable		Independent Variables				
$SalePPE_{i,t}$	$Qa_{i,t-1}$	$MCL_{i,t-1}$	$Qa_{i,t-1} \times MCL_{i,t-1}$	$Qa_{i,t-1}$	$MCL_{i,t-1}$	$Qa_{i,t-1} \times MCL_{i,t-1}$
	HIGH IC Group			*LOW IC Group*		
Financial Reporting Quality (IC)	0.2289***	0.6061	0.0136*	0.1376	0.1210	0.0037

	(3.77)	(1.38)	(1.86)	(1.13)	(0.23)	(0.34)
OBS		9,096			9,096	
Adjusted R^2 (%)		14.50%			14.40%	
Information Environment (IC)	0.4656***	0.4383*	0.0989*	0.0789*	0.2344*	0.0676
	(3.21)	(1.73)	(1.88)	(1.48)	(1.48)	(1.35)
OBS		2,250			1,178	
Adjusted R^2 (%)		22.31%			12.30%	
Firm Size (IC)	0.2091***	0.3111*	0.0102*	0.2604***	0.1081	0.0107
	(2.72)	(1.47)	(1.89)	(2.99)	(0.57)	(1.19)
OBS		3,856			5,127	
Adjusted R^2 (%)		13.05			18.05	

Panel C: Cash-Cash Flow Sensitivity Model

Dependent Variable	Independent Variables					
$\Delta Cash_{i,t}$	$CF_{i,t}$	$MCL_{i,t}$	$CF_{i,t} \times MCL_{i,t}$	$CF_{i,t}$	$MCL_{i,t}$	$CF_{i,t} \times MCL_{i,t}$
	HIGH IC Group			*LOW IC Group*		
Financial Reporting Quality (IC)	0.1448***	-0.0006*	-0.0015*	0.0082	-0.0001	-0.0001
	(3.22)	(-1.78)	(-1.56)	(0.24)	(-0.27)	(-0.24)
OBS		9,534			9,534	
Adjusted R^2 (%)		10.60%			12.60%	
Information Environment (IC)	0.1589***	-0.0005*	-0.0026***	0.0350	-0.0002	-0.0004
	(3.64)	(-1.73)	(-2.79)	(0.35)	(-0.11)	(-0.83)

OBS		3,662			1,710	
Adjusted R^2 (%)		21.40%			14.40	
Firm Size	0.0795*	-0.0002*	-0.3966***	0.0427	0.0000	-0.0008
(IC)	(1.69)	(-1.86)	(-3.11)	(1.26)	(-0.78)	(-0.83)
OBS		4,104			5,346	
Adjusted R^2 (%)		11.01			13.66	

T-statistics, in brackets, are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated. See Appendix I for definition of other control variables.

*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test).

4.4.5.3 Dependence on external financing

If information problems drive the effect of media coverage, it is more likely to be observed among firms that depend on external financing for their investments, since it is precisely when accessing the external capital market that asymmetric information-related problems affect firms. McLean et al. (2012) argue and find that low cash flow firms have greater need for external funds. Hoberg and Maksimovic (2015) argue that the most constrained firms are high-growth firms that desire external equity financing, and that asymmetric information can lead to equity market constraints, which force firms to under-invest. Their text-analysis of financial constraints supports such an argument.

Following Rajan and Zingales (1998), I define dependence on external equity as the ratio of the net amount of equity issues (sale of common and preferred stocks minus purchase of common and preferred stocks) to capital expenditures. I construct the industry measure as the median value of this ratio for each 2-digit SIC code using COMPUSTAT data for all US firms over the sample period. Each year I divide the sample into high and low financial dependence firms based on the industry median. The goal is to see how the effects of media coverage on financial constraints and investment efficiency vary depending on financial dependence.

Table 4.9 Cross-Sectional Variations in the Media Coverage-Investment Efficiency Relation and Underlying Channels Depending on Financial Dependence

Panel A: Investment Q and Cash Flow Sensitivities Model

Dependent variable			Independent variables			OBS	Adjusted R^2 (%)
$Investment_{i,t}$	$CF_{i,t-1}$	$Q_{i,t-1}$	$MCL_{i,t-1}$	$CF_{i,t-1} \times MCL_{i,t-1}$	$Q_{i,t-1} \times MCL_{i,t-1}$		
Rajan and Zingales (1998) Financial Dependence (FD)							
HIGH FD Group	0.0658***	0.0138***	-0.0001	-0.0019***	0.0004	9,625	26.48%
	(5.33)	(5.06)	(-0.42)	(-2.54)	(1.13)		
LOW FD Group	0.0142*	0.0164***	-0.0011	-0.0002	0.0000	7,970	16.41%
	(1.91)	(5.53)	(-0.67)	(-0.16)	(0.37)		

Panel B: Asset Sales

Dependent Variable		Independent Variables				
$SalePPE_{i,t}$	$Qa_{i,t-1}$	$MCL_{i,t-1}$	$Qa_{i,t-1} \times MCL_{i,t-1}$	$Qa_{i,t-1}$	$MCL_{i,t-1}$	$Qa_{i,t-1} \times MCL_{i,t-1}$
		HIGH FD Group			LOW FD Group	
Rajan and Zingales (1998) Financial Dependence (FD)	0.1478	0.3778*	0.0102*	0.2315***	0.0862	0.0026
	(1.39)	(1.50)	(1.88)	(2.93)	(0.60)	(0.28)
OBS		7,663			9,176	
Adjusted R^2 (%)		7.50%			10.50%	

Panel C: Cash-Cash Flow Sensitivity Model

Dependent Variable		Independent Variables				
$\Delta Cash_{i,t}$	$CF_{i,t}$	$MCL_{i,t}$	$CF_{i,t} \times MCL_{i,t}$	$CF_{i,t}$	$MCL_{i,t}$	$CF_{i,t} \times MCL_{i,t}$

	HIGH FD Group			LOW FD Group		
Rajan and Zingales (1998) Financial Dependence (FD)	0.0999*	-0.0003**	-0.0013*	0.0158	-0.0001	-0.0003
	(1.85)	(-1.93)	(-1.82)	(0.33)	(-1.24)	(-0.70)
OBS	7,967			7,967		
Adjusted R^2 (%)	10.66			13.46%		

T-statistics, in brackets, are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated. See Appendix I for definition of other control variables. *, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test).

Table 9 reports the results of repeating the analyses for high and low financial dependence (FD) firms. Panel A reports results for the investment Q and CF sensitivities test. The coefficient on CF is positive in both partitions, but it is much larger for high FD firms (0.0658) than for low FD firms (0.0142). This is consistent with the notion that high FD firms are subject to relatively more financial constraints and thus have to resort to external financing. Of particular interest, the coefficient on MCL*CF is negative and statistically significant for high FD firms, indicating that media coverage relaxes financial constraints for those firms that depend on external financing[39]. A similar effect is not found for low FD firms[40].

Panel B reports results of estimating Eq. (2) "cash-cash flow sensitivity" separately for the high and low FD sub-samples. The coefficient on the interaction term MCL*CF is negative and statistically significant for high FD firms only, suggesting that media coverage mitigates financial constraints for these firms. This is consistent with the finding in Panel A above, if one interprets investment-cash flow sensitivity as a measure of financial constraints.

Finally, I test for evidence of a stronger media coverage effect on asset sales for high FD firms relative to low FD firms. I expect the *ex post* measure of dependence on external

---

[39] Putting together the evidence in Table 3 and Table 5, I choose to interpret the coefficient on CF as an indication of financial constraint. Nevertheless, I caution that such an interpretation should be viewed with the continuing debate in mind.

[40] The coefficient on Q is positive and statistically significant for both groups of firms. The coefficient on the interaction term MCL*Q is statistically insignificant. This does not necessarily contradict the findings elsewhere, since the partitioning is done differently.

financing (FD) to be correlated with underlying firm developments requiring external funds (e.g., acquisitions or expansion plans) and hence asset sales[41]. Given demand for external financing and holding constant other factors, media coverage is predicted to be positively associated with asset sales as it is an alternative way of raising the funds for corporate investment or operations. I expect the media effect to be stronger for high FD firms because media reports provide investors with information about the existence of unprofitable investments and make managers more accountable to shareholders.

As shown in Panel C, the interaction term between (inverse) growth opportunity and media coverage is positive and statistically significant for the high FD firms only. This indicates that for given growth opportunities, greater media coverage is associated with more asset sales only for firms that depend on external financing. The evidence is consistent with the prediction.

4.4.6 Robustness tests

4.4.6.1 Addressing endogeneity

One concern with the analyses is that media coverage is not exogenous. I have addressed this concern by controlling for determinants of media coverage (and of the

---

[41] Lang et al. (1995) document that firms sell assets in part to finance acquisitions/expansions. Hovakimian and Titman (2006) find that cash obtained from asset sales is a significant determinant of corporate investment and that the sensitivity of investment to proceeds from asset sales is stronger for firms that are likely to be financially constrained.

dependent variables) in all the regressions, by using media coverage to predict future investment efficiency, and, in some specifications, by focusing on the interaction term between media coverage and another explanatory variables[42]. Furthermore, the confidence in the results is strengthened by using multiple indicators of efficient investment (ranging from fixed investment to asset sales), by investigating plausible channels through which media coverage affects investment and financing, and by examining how the effects of media coverage on the observed outcomes vary cross-sectionally in ways predicted by theory. While these approaches mitigate the endogeneity concern, I adopt two more approaches to further address this issue. First, I repeat the base regressions after including firm-fixed effects, in order to control for unobserved time-invariant firm heterogeneity. The results, which are not tabulated for brevity, remain qualitatively the same.

The second approach is an IV approach. Specifically, I use a two-stage least squares (2SLS) model to predict media coverage. I include all the determinants of media coverage, and then add instrument variables that are functions of the distance between firm i's headquarter and the media outlets measured by kilometers using latitude and longitude. Prior research (e.g., Gurun and Butler, 2012; Dai et al., 2015) shows that a firm's distance to news outlets affects firm's media coverage (i.e., firms headquartered in more remote cities are likely to receive less media coverage, ceteris paribus).

---

[42] Focusing on interaction effects makes it hard to argue for reverse causality (Rajan and Zingales, 1998; Chen et al., 2011).

Furthermore, no economic intuition suggests a direct link between distance to news outlets and firms' investment efficiency (thus it satisfies the exclusion criterion).

I use three measures of distance as IVs for media coverage: (1) the natural logarithm of minimal distance ($LnDist\_min_{i,t}$) between firm's headquarter and the nearest office of four major US newspapers (WSJ, USAT, NYT, and WP); (2) the natural logarithm of average distance ($LnDist\_mean_{i,t}$) between firm's headquarter and the nearest office of the four newspapers; (3) a dummy variable that is equal to 1 if the nearest media office is within 50 kilometers of the corporate headquarter ($DummyDistmean_{i,t}$).

Table 10 reports the 2SLS results of estimating Eq. (1). In the first-stage, I instrument for media coverage and the interaction terms involving media coverage using the three instruments. Consistent with Dai et al. (2015), the instrumental variables are significantly negatively correlated with media coverage (they pass the weak instrument and over-identification tests, which are not tabulated). The second-stage result shows that the "main terms" Q and CF retain a positive and statistically significant coefficient. The coefficient on the interaction term MCL*TQ is positive and marginally significant, indicating that media coverage strengthens the responsiveness of corporate investment to growth opportunities. The coefficient on MCL*CF is negative and statistically significant, as in the base tests.

Therefore, the results are robust to controlling for endogeneity.

Table 4.10 Relation between Media Coverage and Investment Efficiency using 2SLS

1st stage results	Instrument Variables (IVs)								
	IV1	IV2	IV3	$IV1 \times CF_{i,t}$	$IV2 \times CF_{i,t}$	$IV3 \times CF_{i,t}$	$IV1 \times TQ_{i,t}$	$IV2 \times TQ_{i,t}$	$IV3 \times TQ_{i,t}$
$MCL_{i,t}$	-3.00006***	-1.88013***	6.02230**						
	(t=-3.75)	(t=-3.36)	(t=2.32)						
$MCL_{i,t} \times CF_{i,t}$				-1.72167*	-2.03080***	0.20704*			
				(t=-1.84)	(t=-2.52)	(t=1.59)			
$MCL_{i,t} \times TQ_{i,t}$							-2.39726*	-1.16476*	0.21665*
							(t=-1.80)	(t=-1.51)	(t=1.66)

2nd stage results	Independent Variables of Interest				
	$CF_{i,t-1}$	$Q_{i,t-1}$	$MCL_{i,t-1}$	$CF_{i,t-1} \times MCL_{i,t-1}$	$Q_{i,t-1} \times MCL_{i,t-1}$
$Investment_{i,t}$	0.00547***	0.01153*	-0.00101	-0.00127*	0.00032*
	(z=2.74)	(z=1.53)	(z=-0.60)	(z=-1.78)	(z=1.54)

IV1 is the natural logarithm of minimal distance ($LnDist\_min_{i,t}$) between firm's headquarter and the nearest office of four major US newspapers (WSJ, USAT, NYT, and WP). IV2 is the natural logarithm of average distance ($LnDist\_mean_{i,t}$) between firm's headquarter and the nearest office of the four newspapers. IV3 is a dummy variable that is equal to 1 if the nearest media office is within 50 kilometers of the corporate headquarter ($DummyDistmean_{i,t}$). The same set of control variables (CONTROLS) as in Table 4 and the constant are included but not tabulated. T-statistics, in brackets, are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level. The constant is included but not tabulated. See Appendix I for definition of other variables.
*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test).

4.4.6.2 Effects of Media Content (Tone and Novelty)

The effects of media coverage on investment efficiency are predicated on the media playing an informational role and a monitoring role. Tetlock et al. (2008) find that the fraction of negative words in firm-specific news stories forecast low firm earnings and the earnings and return predictability from negative words is largest for stories that focus on fundamentals. Kothari et al. (2009) find that negative (favorable) disclosures from business press result in increased (reduced) cost of capital and return volatility. Miller (2006) investigates the press' role as a watchdog for accounting fraud. He finds that articles based on original analysis provide new information to the markets while those that rebroadcast allegations from other intermediaries do not.

These studies raise the possibility that the effects of media coverage on investment efficiency may depend on the tone of the reports and the extent to which the media reports contain new information about firm fundamentals. To investigate this possibility, I take advantage of several features of the RavenPack news dataset[43]. First, RavenPack distinguishes between firm-initiated news and news reports by independent media outlets. Second, RavenPack provides a novelty score, which indicates whether a news article is the first story about a firm-event or a repeated news article, and a relevance score, which indicates how closely the news story is related to a specific firm.

---

[43] RavenPack not only collects relevant news and other types of information from Dow Jones Newswires, Wall Street Journal, Barron's and MarketWatch, but also collects contents from over 19,000 web and social media sources, and press release wires. This database has become increasingly popular and is used in a number of prior studies, including Dai et al. (2015) and Dang, Moshirian and Zhang (2015).

Third, RavenPack reports a sentiment score which indicates the likely impact of the news story on share price. News stories with a sentiment score greater (lower) than 50 are classified as positive (negative) news.

Using the article-specific sentiment and novelty scores from RavenPack, I compose an aggregate measure of news sentiment and novelty for each firm every year. Since it is unclear *a priori* whether one should use the average or summation of the article-specific scores to capture the news content over a given year, I experiment with both methods. To examine the role of news novelty, each year I designate firm-observations with an aggregate novelty score in the top quartile as having high novelty news, and the rest as having low novelty news[44].

Table 11, Panel A reports results of estimating Eq. 1 for the high and low novelty subsamples. The key interest is in News Coverage interacted with Tobin Q and cash flow, respectively. The coefficients on these interaction terms are negative and statistically significant for the high novelty subsample but not for the low novelty subsample. Thus original news reports (as opposed to stale news) have a more pronounced effect on investment efficiency, in the sense of strengthening the responsiveness of corporate investment to growth opportunities and mitigating financial constraints.

---

[44] The results are qualitatively similar to those reported when I use other partitioning methods (for novelty and sentiment). For example, the results are similar if I designate only the bottom quartile as low novelty/sentiment firms (discarding the intermediary quartiles).

Panel B reports results of estimating Eq. 1 for high news sentiment (positive publicity) and low news sentiment (negative publicity) subsamples. The coefficients on the interaction terms have the expected sign and are statistically significant for negative publicity firms. For positive publicity firms, only the coefficient on NewsCoverage*Q is statistically significant.

Table 4.11 Effects of Media Content on the Relation between Media Coverage and Investment Efficiency

Panel A: News Novelty and Investment Efficiency—Investment Q and Cash Flow Sensitivities Model

Dependent variable $Investment_{i,t}$	$CF_{i,t-1}$	$Q_{i,t-1}$	Independent variables $NewsCoverage_{i,t-1}$	$CF_{i,t-1} \times NewsCoverage_{i,t-1}$	$Q_{i,t-1} \times NewsCoverage_{i,t-1}$	OBS	Adjusted R^2
HIGH NOVELTY Group	0.0437***	0.0171***	-1.2574	-0.0350*	0.0806**	4,696	27.10
	(4.63)	(5.28)	(-1.42)	(-1.64)	(2.21)		
LOW NOVELTY Group&	0.0236***	0.0208***	-1.4006*	-0.0174	0.0169	16,512	14.16
	(3.29)	(6.03)	(-1.77)	(-0.35)	(1.22)		
LOW NOVELTY Group$	0.0270***	0.0182***	-1.0448	-0.0178	0.0182	5,415	15.58
	(4.11)	(5.88)	(-1.38)	(-0.95)	(1.38)		

Panel B: News Sentiment and Investment Efficiency—Investment Q and Cash Flow Sensitivities Model

HIGH SENTIMENT Group	0.0046	0.0138***	-1.4108*	-0.0181	0.0257*	5,089	16.13
	(0.53)	(3.65)	(-1.77)	(-0.34)	(1.65)		
LOW SENTIMENT Group&	0.0351***	0.0423***	-4.0731***	-0.0316*	0.0534***	16,119	24.28
	(3.52)	(9.33)	(-4.22)	(-1.55)	(3.41)		
LOW SENTIMENT Group$			-1.5396*	-0.0404**	0.0262*	5,458	19.19
	0.0286*** (2.84)	0.0139*** (3.90)	(-1.87)	(-1.93)	(1.75)		

HIGH NOVELTY Group includes firms with novelty scores in the top quarter (quarter 4). LOW NOVELTY Group$ includes firms with novelty scores in the lowest quartile (quarter 1). LOW NOVELTY Group& includes firms with novelty scores in quarters 1-3. HIGH SENTIMENT Group includes firms with sentiment score in the top quarter (quarter 4). LOW SENTIMENT Group$ includes firms with sentiment score in the lowest quartile (quarter 1). LOW SENTIMENT Group& includes firms with sentiment score in quarters 1-3. The same set of control variables as in corresponding tables in previous sections are included but not tabulated. T-statistics, in brackets, are corrected for heteroskedasticity and cross-sectional and time-series correlation using a two-way cluster at the firm and year level.
*, **, *** Significant at the 10%, 5%, 1% levels (two-tailed test).

Taking together, the results suggest that news reports that represent new information have a stronger effect on investment efficiency. Relative to news reports that represent positive publicity, negative publicity seems to have a more evident effect on investment efficiency.

4.4.6.3   Evidence from a hazard model

Previous studies raise concerns with the linear regression framework of investment, including measurement error in Tobin's Q and the lumpy nature of fixed business investment (e.g., Whited, 2006). To alleviate these concerns Billett, Garfinkel and Jiang (2011), BGJ, estimate a hazard model. They report three main findings: financially unconstrained firms with more anti-takeover provisions (poor governance) have the most frequent investment spikes, i.e., highest hazard rates; the hazard rates of well-governed financially unconstrained firms are indistinguishable from well-governed financially constrained firms as well as poorly governed constrained firms; financially unconstrained firms with poor governance and low CEO incentives have higher hazards than the other groups. Their further evidence from the Sarbanes-Oxley (SOX) period and post-investment performance outcomes is most consistent with the view of over-investment and consequently low investment efficiency by financially unconstrained poor-governance firms. Combining the hazard model results with analysis of post-investment outcomes, they conclude that good governance mitigates over-investment (i.e., increases investment efficiency), rather than good governance associating with under-investment.

Both as a robustness check on the linear regression results and to offer additional insights, I estimate a hazard model for the sample. Recall that I have argued and found that media coverage plays the dual role of alleviating financial constraints and improving corporate governance. In the context of a hazard model, several interesting possibilities emerge which prior work has not examined. First, to the extent that media coverage alleviates financial constraints (or if this is the dominant effect), high coverage may aggravate over-investment problems of financially unconstrained firms[45] with poor corporate governance and weak CEO incentives, resulting in higher hazard rates for such firms. However, to the extent that media coverage improves external governance/monitoring (or if this is the dominant effect), high coverage may mitigate over-investment problems of financially unconstrained firms with poor corporate governance and weak CEO incentives, thus lowering their hazard rates. This is opposite to the above-said prediction. Furthermore, the media's external governance role may not have significant incremental effects on the investment hazards of financially unconstrained firms with good internal governance and/or strong CEO incentives, since, according to BGJ, these other factors already serve to constrain over-investment. It is possible, however, that high media coverage could increase the investment rates of financially *constrained* firms with good corporate governance and strong CEO incentives

---

[45] Strictly speaking, all firms are subject to financial constraints, in varying degrees. Therefore, financially unconstrained firms should be construed as relatively less constrained rather than absolutely free of financial constraints. Media coverage may make it easier for even these firms to raise more external capital.

(these firms may otherwise underinvest), if the media does play a strong financial constraints alleviating role.

The objectives of the following tests are to examine the net effects of media coverage on the investment hazards of different groups of firms, and shed some light on the ways the two effects of media coverage interact with other factors. To the knowledge, these are the first tests to examine the circumstances in which the two media effects and different governance factors may reinforce, complement, offset or dominate one another[46].

I begin by replicating the BGJ tests using three factors: financial constraints, internal governance, and CEO incentives[47]. The different sample period and data availability force us to use co-opted boards[48] (in place of managerial entrenchment) to proxy for internal corporate governance, and pay-performance sensitivity (in place of CEO delta) to proxy for CEO incentives. Despite the use of these alternative measures, I are able to

---

[46] Billett et al. (2011) recognize that a firm's overall governance structure is a function of many factors, including corporate charter and compensation structures. They consider CEO incentive alignment (CEO delta) as an alternative corporate governance mechanism, and allow different governance factors to interact with financial constraints to influence corporate investment. In the setting I allow media coverage (an external governance mechanism) to interact with both other governance factors and financial constraints.

[47] I closely follow BGJ's methodology, with one exception. BGJ restricts their sample to small firms (those with real assets below the 33rd percentile) in order to ameliorate aggregation issues. The results are based on the whole sample, although qualitatively similar results are obtained using small firms.

[48] Co-option is the fraction of the board comprised of directors appointed after the CEO assumed office. Coles, Daniel, and Naveen (2014) find that a CEO who has co-opted a greater fraction of the board will be less likely to be fired following poor performance, will receive higher pay, will have lower sensitivity of pay to performance, and will be able to implement preferred or pet projects even if they are suboptimal from a shareholder-value perspective. I thank Lalitha Naveen for providing us the co-option data.

replicate the main BGJ results, which, for brevity, I summarize without tabulating. First, using financial constraints and internal governance only, I find that unconstrained firms with weak internal governance have higher hazard rates than do other firms. I find no difference in hazard rates among firms that have any sort of constraints. Second, after adding CEO incentives and sorting firms into eight groups based on three factors, I find that unconstrained firms with weak internal governance and low CEO incentives have higher hazards than do other groups.

I next extend the BGJ results. First, I examine whether, and the circumstance under which internal governance and external governance (i.e., media coverage) play similar or dissimilar roles[49]. Table 12, Panel A reports the hazard model estimates using media coverage in place of internal governance. Financially unconstrained, low media firms (group 2) have higher hazard rates than the other groups. There is no difference in the hazard rates between unconstrained high media firms (group 1) and constrained low media firms (group 4), suggesting that any sort of constraints (financial constraints or high media coverage) may mitigate over-investment. These results are similar to those of BGJ using one form of internal governance (G-Index).

---

[49] I use MCL as the measure of media coverage in both panels. The results (not tabulated here) are qualitatively the same using MCG to proxy for media coverage.

Table 4.12 Effects of Internal and External Corporate Governance, Financial Constraints and CEO Incentives on Investment Hazards

	Panel A: Duration Model Estimate: Effect of Media Coverage (MCL)			
Coefficient	Unconstrained Firms		Constrained Firms	
	(1) High MCL	(2) Low MCL	(3) High MCL	(4) Low MCL
Leverage	0.9787	1.0059	0.9987	1.0254
	(0.0513)	(0.0202)	(0.0317)	(0.0179)
Total assets	1.0000	1.0000**	1.0000	1.0000*
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Cash flow	0.2225*	0.8727	0.6253	1.0876
	(0.2288)	(0.4932)	(0.3624)	(0.3427)
Sales growth	0.6150	0.7870	1.0743	0.8532*
	(0.2287)	(0.1395)	(0.2218)	(0.0896)
1 year hazard	0.1331***	0.1205***	0.1444***	0.1076***
	(0.0214)	(0.0083)	(0.0174)	(0.0072)
2 year hazard	0.1397***	0.1472***	0.1656***	0.1428***
	(0.0106)	(0.0117)	(0.0246)	(0.0177)
3 year hazard	0.1779	0.1991***	0.1921***	0.1851***
	(0.0334)***	(0.0187)	(0.1117)	(0.0165)
4 year hazard	0.2094***	0.2277***	0.1930***	0.2117***
	(0.0273)	(0.0535)	(0.0383)	(0.0253)
5 year hazard	0.2296***	0.2323***	0.2081***	0.2250***
	(0.0730)	(0.0791)	(0.2083)	(0.0388)
6 year hazard	0.3068***	0.2983***	0.2291*	0.2740***
	(0.1392)	(0.0490)	(0.1153)	(0.1587)
7 year hazard	0.3803	0.4925*	0.2447	0.3658**
	(0.2717)	(0.2209)	(0.0671)	(0.0827)
Log likelihood	-619.6301	-1925.1946	-527.6475	-2230.1445

Wald Chi^2 test		790.7***	2454.88***			640.39***	2964.01***
OBS		1,484	4,624			1,199	5,593
Log-rank test	(2)-(1)	(2)-(3)	(2)-(4)	(1)-(3)	(1)-(4)	(3)-(4)	
	4.70***	3.18*	6.70***	5.48**	0.45	8.15***	

Panel B: Duration Model Estimate: Effect of Financial Constraints, Internal Corporate Governance, Median Coverage(MCL), and Pay-Performance Sensitivity(PPS)

Coefficient	Unconstrained Firms							
	Low Corporate Governance				High Corporate Governance			
	High MCL		Low MCL		High MCL		Low MCL	
	High PPS (1)	Low PPS (2)	High PPS (3)	Low PPS (4)	High PPS (5)	Low PPS (6)	High PPS (7)	Low PPS (8)
Leverage	1.0073**	0.9121	1.0163	0.9583	1.0786	0.8453	1.0910	1.0290
	(0.1441)	(0.1609)	(0.0645)	(0.1086)	(0.1108)	(0.1223)	(0.0673)	(0.0645)
Total assets	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Cash flow	0.2660	0.1236	0.4918	1.3265	0.1103	1.0975	0.7393	5.0863
	(0.4929)	(0.4588)	(0.9671)	(2.4723)	(0.3717)	(1.8342)	(1.3122)	(12.5483)
Sales growth	1.7691	1.7889	1.5442	0.3155	1.7607	0.1043	0.7676	0.5054
	(1.9847)	(2.1565)	(1.1202)	(0.2454)	(1.9208)	(0.1159)	(0.5398)	(0.3548)
1 year hazard	0.0418***	0.0504***	0.1543***	0.1343***	0.0231***	0.0808***	0.1108***	0.1258***
	(0.0445)	(0.0326)	(0.0276)	(0.0358)	(0.0234)	(0.0316)	(0.0311)	(0.0332)
2 year hazard	0.0484***	0.1156***	0.1635***	0.1597***	0.0789***	0.0944***	0.1185***	0.1323***
	(0.0578)	(0.0447)	(0.0361)	(0.0737)	(0.0314)	(0.0582)	(0.1199)	(0.0278)
3 year hazard	0.1243***	0.1277***	0.2030***	0.1941***	0.1006***	0.1469***	0.1619***	0.3200***
	(0.0925)	(0.1325)	(0.0746)	(0.0572)	(0.0414)	(0.0463)	(0.0510)	(0.1344)
4 year hazard	0.1574***	0.2619**	0.2513***	0.2927***	0.2574***	0.1693**	0.1697***	0.3273***
	(0.1605)	(0.1168)	(0.1135)	(0.1507)	(0.1116)	(0.0620)	(0.0713)	(0.1498)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
5 year hazard	0.2799*	0.2826	0.3520***	0.5444**	0.2644**	0.2121*	0.2727***	0.3354***
	(0.1103)	(0.2970)	(0.2526)	(0.3231)	(0.1470)	(0.2172)	(0.1255)	(0.2390)
Log likelihood	-109.7214	-72.2121	-248.2296	-190.2122	-80.6421	-80.8202	-193.9346	-203.2207
Wald Chi^2 test	130.19***	92.07***	289.59***	265.57***	112.33***	111.39***	250.19***	248.33***
OBS	250	192	545	511	232	238	471	471
Log-rank test	(4)-(1)	(4)-(2)	(4)-(3)	(4)-(5)		(4)-(6)	(4)-(7)	(4)-(8)
	8.13***	5.39***	2.83*	8.26***		6.79***	3.73*	2.55

Panel B: Duration Model Estimate: Effect of Financial Constraints, Internal Corporate Governance, Median Coverage(MCL), and Pay-Performance Sensitivity(PPS)

Coefficient	Constrained Firms							
	Low Corporate Governance				High Corporate Governance			
	High MCL		Low MCL		High MCL		Low MCL	
	High PPS (9)	Low PPS (10)	High PPS (11)	Low PPS (12)	High PPS (13)	Low PPS (14)	High PPS (15)	Low PPS (16)
Leverage	1.1522	1.0385	1.0910	1.0736	0.8424	0.9540	1.0627	0.9817
	(0.1241)	(0.0543)	(0.0803)	(0.0570)	(0.0876)	(0.2693)	(0.2462)	(0.1790)
Total assets	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	0.9999
	(0.0001)	(0.0000)	(0.0001)	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0001)
Cash flow	0.0185	0.2906	3.2776	0.7274	0.0655	0.2788	66.0692*	3.7485
	(0.0520)	(0.3507)	(3.4153)	(1.0428)	(0.1128)	(0.5881)	(147.9926)	(4.8635)
Sales growth	0.2869	1.0508	0.4237*	1.4538	1.8827*	15.9364**	0.3607	0.5975
	(0.3251)	(0.4405)	(0.2158)	(0.6989)	(2.3601)	(21.1477)	(0.3947)	(0.3065)
1 year hazard	0.1669***	0.1165***	0.1099***	0.0843***	0.0796***	0.0670***	0.1144***	0.1138***
	(0.0440)	(0.0246)	(0.0250)	(0.0201)	(0.0479)	(0.0607)	(0.1186)	(0.0266)
2 year hazard	0.2473***	0.1374***	0.1519***	0.1477***	0.1531***	0.1541***	0.1559***	0.1207***
	(0.0786)	(0.0343)	(0.0387)	(0.0345)	(0.0528)	(0.1159)	(0.0582)	(0.0331)
3 year hazard	0.2312***	0.1652***	0.2033***	0.1744***	0.2082***	0.1648**	0.1584***	0.1563***
	(0.1335)	(0.0895)	(0.0577)	(0.0500)	(0.0981)	(0.1322)	(0.0635)	(0.0674)

4 year hazard	0.3244	0.2823***	0.2102***	0.1703***	0.3110**	0.2100**	0.2199**	0.1655***
	(0.3249)	(0.0976)	(0.0822)	(0.0673)	(0.1863)	(0.1604)	(0.1227)	(0.0985)
5 year hazard	0.4871	0.3062***	0.2495***	0.3664	0.3413	0.3022**	0.2540***	0.1836***
	(0.4879)	(0.1391)	(0.1160)	(0.3740)	(0.2590)	(0.1600)	(0.1179)	(0.0528)
Log likelihood	-52.0919	-60.2016	-210.0270	-196.7677	-58.9395	-49.6239	-211.9544	-215.1554
Wald Chi^2 test	49.47***	71.59***	242.3***	256.61***	69.52***	77.66**	284.05***	316.43***
OBS	106	144	466	497	142	167	558	604
Log-rank test	(4)-(9)	(4)-(10)	(4)-(11)	(4)-(12)	(4)-(13)	(4)-(14)	(4)-(15)	(4)-(16)
	7.75***	1.96	3.33*	1.93	1.65	1.70	3.56*	3.84**

The dependent variable is the number of years a firm has not exceeded the investment threshold (or spike). I define a spike to be any occurrence where the firm's ratio of capital expenditures-to-assets exceeds a threshold of two times the firm's own median investment rate over 2006-14. Constrained firms refer to a sample of firms that have zero dividend distribution in the year prior to the investment year. Unconstrained firms are the complement sample. Corporate Governance is proxied by the fraction of the board comprised of directors appointed after the CEO assumed. CEO Incentives is proxied by PPS_E, which is calculated as the natural logarithm of the change of CEO total equity remuneration divided by the change of shareholder value. High (Low) Corporate Governance, MCL and PPS_E refer to firms above- (below-) their median respectively. Leverage is the sum of long-term debt and debt in current liabilities, all divided by total assets ((data9+data34)/data6). Total asset is Compustat data6. Cash flow is the sum of data14 and data18, divided by data6. Sales growth is the growth rate of sales, deflated by the producer price index. Standard errors are in parentheses. The significance level of the difference in hazard functions across groups is based on a log-rank test. *, **, *** Significant at the 10%, 5%, 1% levels, respectively.

However, whereas BGJ find no difference between the hazard rates of group 3 and those of group 1 or group 4 firms, I find that group 3 firms (financially constrained, high media firms) have lower investment hazard rates than group 1 and group 4 firms. Group 3 represent an interesting case because it brings into focus the net effect of the two roles of media coverage (alleviating financial constraints, and enhancing external monitoring) which potentially have opposite effects on investment hazard rates. The finding that group 3 firms have lower investment hazard rates than group 4 firms (financially constrained, low media firms) suggests that, for these types of firms, high media coverage constraints over-investment more than it alleviates financial constraints[50]. The finding that group 3 firms have lower hazard rates than group 1 firms (financially unconstrained, high media firms) again indicates that media coverage plays a dominant governance role[51]. As in BGJ, however, I allow for the possibility that the results may change after accounting for the *joint* influence of internal/external governance, financial constraints, and CEO incentives. I explore that possibility next.

Table 12, Panel B reports the hazard model estimates for sixteen groups of firms based on financial constraints (FC), internal corporate governance (CG), media coverage

---

[50] Group 3 and group 4 firms are both financially constrained. If high media coverage (for group 3 firms) sufficiently alleviates financial constraints (thus increasing investment hazards, all else constant), or more so than it enhances external governance (thus decreasing investment hazards, all else constant), one would expect group 3 firms to have higher, rather than lower, hazard rates than group 4 firms. The lower hazard rate for group 3 firms is attributed to high media coverage having a dominant governance effect on investment hazards.

[51] This is again because, if media's financial constraints alleviating effect is very strong or dominates the governance enhancing effect (and given that financial constraints alleviation tends to increase investment hazards), one would expect group 3 firms to have at most similar (rather than significantly lower) hazards as group 1 firms.

(MCL), and CEO incentives (PPS). Focusing first on the unconstrained firms, the results are consistent with the notion that firms that lack any sort of constraints, namely group 4 firms, tend to over-invest. They have higher hazard rates than unconstrained firms with some sort of constraints.

A closer comparison between group 2, group 4 and group 8 is interesting. Group 4 firms differ from group 8 firms only in the strength of internal governance (both groups have low media coverage and low CEO incentives). Despite having stronger CG, group 8 firms' hazard rates are not significantly different from those of group 4 firms. It appears that strong internal governance is insufficient to compensate for weak external governance and low CEO incentives.

Group 2 firms have higher media coverage than group 4 firms (both groups have weak internal governance and low CEO incentives). The higher media coverage leads to significantly lower hazards for group 2 firms relative to group 4 firms. Thus strong external governance plays an incremental role in constraining over-investment of financially unconstrained firms.

Group 2 firms and group 8 firms differ along two dimensions: group 2 firms have weak internal governance and high media coverage, whereas group 8 firms have strong internal governance and low media coverage (both groups have low CEO incentives). Swapping high internal governance for high external governance does not lead to significant difference in the hazard rates of these two groups of financially unconstrained firms with low CEO incentives. It appears that external governance by

the media and internal corporate governance are substitutes in controlling over-investment of financially unconstrained firms with low CEO incentives[52].

Moving to the financially constrained firms, I note that the hazards of most of these firms are not significantly different from each other. This may be happening because these firms are subject to some sort of constraint (e.g., financial constraints, external monitoring by the media, high CEO incentives, or a combination thereof) such that the over- or under-investment tendencies are mitigated. A comparison between these financially constrained firms that are further constrained along other dimensions and those firms that lack any sort of constraints (group 4) reveals a mixed picture: the hazard rates of group 4 firms are significantly higher than those of about half of those firms that have some sort of constraints. I conjecture that this is due to the complex interplay of the various factors.

The hazard rates of group 13 firms are marginally higher than those of group 15 firms (test statistics are untabulated). Since both groups of financially constrained firms already have good corporate governance (i.e., strong internal governance and high CEO incentives), one does not expect high media coverage to play an incremental governance role. However, media coverage may still play a role in alleviating financial constraints and permitting investment in positive NPV projects. The higher investment hazards for group 13 firms, which have high media coverage, is consistent with this view.

---

[52] Zhang (2009) find that CEO incentives and other governance mechanisms are substitutes in controlling over-investment of free cash flow.

Overall, the hazard model results suggest that the lack of any sort of constraints associates with over-investment, and that the presence of some sort of constraints mitigates over-investment (i.e., lower the investment hazards) and improves efficiency[53].

4.5   Conclusion

I examine the important question of whether the media affect the efficiency of capital allocation in US public firms. I find comprehensive and robust evidence that media coverage improves investment efficiency, measured using multiple indicators and models. Investigations into plausible channels and mechanisms suggest that media coverage reduces information asymmetries, alleviates financial constraints, improves external monitoring, and, by doing so, facilitates project acceptance (evidenced by greater investment sensitivity to growth opportunities) and abandonment (e.g., asset sales). The effect of media coverage on investment efficiency is more pronounced for firms characterized by more severe information and agency problems, when firms depend on external financing, and when media reports contain original news about corporate fundamentals. These findings suggest that media coverage improves investment efficiency by mitigating information asymmetries and agency problems, the

---

[53] Lower hazard rates may indicate either rejection of positive NPV projects by poorly-governed firms, or acceptance of negative NPV projects by well-governed firms. Based on evidence from the post-SOX period and post-investment performance outcomes, BGJ show that good governance and financial constraints mitigate over-investment. I adopt their interpretation that poor governance associates with over-investment (i.e., higher hazards) and hence poor performance.

two most important factors influencing the efficiency of corporate investment (Stein, 2003). The regression results are corroborated by hazard model estimates, which further reveal that media coverage interacts with financial constraints and other governance factors to influence corporate investment.

The finding that media coverage affects the important corporate function of capital allocation suggests that firms would benefit from encouraging and attracting media coverage. One policy implication is that a media sector that is incentivized to collect/disseminate value-relevant information and monitor managers could help improve corporate capital allocation and contribute to economic growth. This calls for policy measures to promote press freedom, competition and accountability (Gentzkow and Shapiro, 2006). Given the widely varying ownership and market structure of the media sector, and correspondingly differences in media penetration and media independence worldwide (e.g., Houston, Lin, and Ma, 2011), I call for more research to be conducted in other (non-US) market settings to corroborate the findings.

Chapter 5:   Conclusion

This thesis conducts empirical exploration of new factors influencing both real activities manipulation and investment efficiency based on the U.S. case, extending the extant literature investigating these issues as in response to the prevalence and the detrimental effects on firms' future values of these two firm-level real actions. First, the thesis empirically examines the effect of corporate reputation as an external governance mechanism on real activities manipulation as managerial myopia. It finds that there is a significantly negative relationship between corporate reputation ranking as disclosure and both real activities manipulation through sales, overproduction and discretionary expenditures and the two aggregate measures of real actions, and that corporate reputation really matters for the market response to real activities management as myopic behaviour. Second, the thesis empirically explores the impact of media coverage on real activities management, finding that (1) there is significantly negative association between the level of media coverage and both real earnings management through sales, overproduction and discretionary expenditures and the one aggregate measures of real actions; (2) positive news reduces real activities management through the three ways: sale manipulation, overproduction and discretionary expenses; and (3) the greater positive of news tone, the greater degree of reducing real earnings management.

Third, the thesis empirically investigates how media coverage affects investment efficiency. It finds comprehensive and robust evidence that media coverage improves investment efficiency. Investigations into plausible channels and mechanisms suggest that media coverage reduces information asymmetries, alleviates financial constraints, improves external monitoring, and, by doing so, facilitates project acceptance (evidenced by greater investment sensitivity to growth opportunities) and abandonment (e.g., asset sales). The effect of media coverage on investment efficiency is more pronounced for firms characterised by more severe information and agency problems, when firms depend on external financing, and when media report contain original news about corporate fundamentals. These findings suggest that media coverage improves investment efficiency by mitigating information asymmetries and agency problems.

Reference

AHARONY, J., LIN, C.-J. & LOEB, M. P. 1993. Initial Public Offerings, Accounting Choices, and Earnings Management. *Contemporary Accounting Research,* 10**,** 61-81.

AHERN, K. R. & SOSYURA, D. 2015. Rumor Has It: Sensationalism in Financial Media. *Review of Financial Studies,* 28**,** 2050-2093.

ALMEIDA, H., CAMPELLO, M. & WEISBACH, M. S. 2004. The Cash Flow Sensitivity of Cash. *The Journal of Finance,* 59**,** 1777-1804.

ARNOUD, W. A. B. 1992. Why Hang on to Losers? Divestitures and Takeovers. *The Journal of Finance,* 47**,** 1401-1423.

ASHBAUGH-SKAIFE, H., COLLINS, D. W., KINNEY JR, W. R. & LAFOND, R. 2009. The Effect of SOX Internal Control Deficiencies on Firm Risk and Cost of Equity. *Journal of Accounting Research,* 47**,** 1-43.

BAGNOLI, M. & WATTS, S. G. 2000. The effect of relative performance evaluation on earnings management: a game-theoretic approach. *Journal of Accounting and Public Policy,* 19**,** 377-397.

BAKER, M., GOMPERS, P., HART, O., LERNER, J., MARTINEZ-JEREZ, A., MAYFIELD, S., RUBACK, R., SHLEIFER, A., STEIN, J. & VERTER, G. 2000. Career Concerns and staged investment: evidence from the venture capital industry. *Harvard Business Review*.

BAKER, M., STEIN, J. C. & WURGLER, J. 2003. When Does the Market Matter? Stock Prices and the Investment of Equity-Dependent Firms. *The Quarterly Journal of Economics,* 118**,** 969-1005.

BALL, R., BUSHMAN, R. M. & VASVARI, F. P. 2008. The Debt-Contracting Value of Accounting Information and Loan Syndicate Structure. *Journal of accounting research,* 46**,** 247-287.

BALSAM, S., HAW, I.-M. & LILIEN, S. B. 1995. Mandated accounting changes and managerial discretion. *Journal of Accounting and Economics,* 20**,** 3-29.

BARNETT, M. L., JERMIER, J. M. & LAFFERTY, B. A. 2006. Corporate Reputation: The Definitional Landscape. *Corporate Reputation Review,* 9**,** 26-38.

BARTH, M. E., LANDSMAN, W. R. & LANG, M. H. 2008. International Accounting Standards and Accounting Quality. *Journal of Accounting Research,* 46**,** 467-498.

BEATTY, A. & WEBER, J. 2003. The Effects of Debt Contracting on Voluntary Accounting Method Changes. *The Accounting Review,* 78**,** 119-142.

BEATTY, A. & WEBER, J. 2006. Accounting Discretion in Fair Value Estimates: An Examination of SFAS 142 Goodwill Impairments. *Journal of accounting research,* 44**,** 257-288.

BEATTY, R. P., BUNSIS, H. & HAND, J. R. M. 1998. The indirect economic penalties in SEC investigations of underwriters1. *Journal of Financial Economics,* 50**,** 151-186.

BEBCHUK, L., COHEN, A. & FERRELL, A. 2009. What Matters in Corporate Governance? *Review of Financial Studies,* 22**,** 783-827.

BEDNAR, M. K., BOIVIE, S. & PRINCE, N. R. 2013. Burr Under the Saddle: How Media Coverage Influences Strategic Change. *Organization Science,* 24**,** 910-925.

BERTRAND, M. 2009. CEOs. *Annual Review of Economics,* 1**,** 121-150.

BHARATH, S. T., SUNDER, J. & SUNDER, S. V. 2008. Accounting Quality and Debt Contracting. *Accounting Review,* 83**,** 1-28.

BHOJRAJ, S., HRIBAR, P., PICCONI, M. & MCINNIS, J. 2009. Making Sense of Cents: An Examination of Firms That Marginally Miss or Beat Analyst Forecasts. *The Journal of Finance,* 64**,** 2361-2388.

BIDDLE, G. C. & HILARY, G. 2006. Accounting Quality and Firm-Level Capital Investment. *The Accounting Review,* 81**,** 963-982.

BIDDLE, G. C., HILARY, G. & VERDI, R. S. 2009. How does financial reporting quality relate to investment efficiency? *Journal of Accounting and Economics,* 48**,** 112-131.

BILLETT, M. T., GARFINKEL, J. A. & JIANG, Y. 2011. The influence of governance on investment: Evidence from a hazard model. *Journal of Financial Economics,* 102**,** 643-670.

BIZJAK, J. M., BRICKLEY, J. A. & COLES, J. L. 1993. Stock-based incentive compensation and investment behavior. *Journal of Accounting and Economics,* 16**,** 349-372.

BOND, P., EDMANS, A. & GOLDSTEIN, I. 2012. The Real Effects of Financial Markets. *Annual Review of Financial Economics, Vol 4,* 4**,** 339-360.

BOWEN, R. M., DUCHARME, L. & SHORES, D. 1995. Stakeholders' implicit claims and accounting method choice. *Journal of Accounting and Economics,* 20**,** 255-295.

BUSHEE, B. J. 1998. The Influence of Institutional Investors on Myopic R&D Investment Behavior. *The Accounting Review,* 73**,** 305-333.

BUSHEE, B. J., CORE, J. E., GUAY, W. & HAMM, S. J. W. 2010. The Role of the Business Press as an Information Intermediary. *Journal of Accounting Research,* 48**,** 1-19.

CABLE, D. M. & GRAHAM, M. E. 2000. The determinants of job seekers' reputation perceptions. *Journal of Organizational Behavior,* 21**,** 929-947.

CAMPELLO, M., GRAHAM, J. R. & HARVEY, C. R. 2010. The real effects of financial constraints: Evidence from a financial crisis. *Journal of Financial Economics,* 97**,** 470-487.

CAO, Y., MYERS, J. N., MYERS, L. A. & OMER, T. C. 2015. Company reputation and the cost of equity capital. *Review of Accounting Studies,* 20**,** 42-81.

CAO, Y., MYERS, L. A. & OMER, T. C. 2012. Does Company Reputation Matter for Financial Reporting Quality? Evidence from Restatements. *Contemporary Accounting Research,* 29**,** 956-990.

CARAMANIS, C. & LENNOX, C. 2008. Audit effort and earnings management. *Journal of Accounting and Economics,* 45**,** 116-138.

CARTER, R. & MANASTER, S. 1990. Initial Public Offerings and Underwriter Reputation. *The Journal of Finance,* 45**,** 1045-1067.

CHANG, S.-C., CHUNG, T.-Y. & LIN, W.-C. 2010. Underwriter reputation, earnings management and the long-run performance of initial public offerings. *Accounting & Finance,* 50**,** 53-78.

CHAVA, S. & ROBERTS, M. R. 2008. How Does Financing Impact Investment? The Role of Debt Covenants. *The Journal of Finance,* 63**,** 2085-2121.

CHEN, C., SHI, H. & XU, H. 2013. Underwriter Reputation, Issuer Ownership, and Pre-IPO Earnings Management: Evidence from China. *Financial Management,* 42**,** 647-677.

CHEN, C.-W., PANTZALIS, C. & PARK, J. C. 2013. PRESS COVERAGE AND STOCK PRICE DEVIATION FROM FUNDAMENTAL VALUE. *Journal of Financial Research,* 36**,** 175-214.

CHEN, F., HOPE, O.-K., LI, Q. & WANG, X. 2011. Financial Reporting Quality and Investment Efficiency of Private Firms in Emerging Markets. *The Accounting Review,* 86**,** 1255-1288.

CHEN, H. F. & CHEN, S. J. 2012. Investment-cash flow sensitivity cannot be a good measure of financial constraints: Evidence from the time series. *Journal of Financial Economics,* 103**,** 393-410.

CHEN, S. S. 2006. The economic impact of corporate capital expenditures: Focused firms versus diversified firms. *Journal of Financial and Quantitative Analysis,* 41**,** 341-355.

CHEN, X., CHENG, Q., LO, A. K. & WANG, X. 2015. CEO Contractual Protection and Managerial Short-Termism. *The Accounting Review,* 90**,** 1871-1906.

CHENG, M., DHALIWAL, D. & ZHANG, Y. 2013. Does investment efficiency improve after the disclosure of material weaknesses in internal control over financial reporting? *Journal of Accounting and Economics,* 56**,** 1-18.

CHENG, M., DHALIWAL, D. & ZHANG, Y. 2013. Does investment efficiency improve after the disclosure of material weaknesses in internal control over financial reporting? *Journal of Accounting and Economics,* 56**,** 1-18.

CHENG, Q., LEE, J. & SHEVLIN, T. 2016. Internal Governance and Real Earnings Management. *The Accounting Review,* 91**,** 1051-1085.

COCHRANE, J. H. 1991. Production-Based Asset Pricing and the Link Between Stock Returns and Economic Fluctuations. *The Journal of Finance,* 46**,** 209-237.

COHEN, D. A., DEY, A. & LYS, T. Z. 2008. Real and Accrual-Based Earnings Management in the Pre- and Post-Sarbanes-Oxley Periods. *The Accounting Review,* 83**,** 757-787.

COHEN, D. A. & ZAROWIN, P. 2010. Accrual-based and real earnings management activities around seasoned equity offerings. *Journal of Accounting and Economics,* 50**,** 2-19.

COLES, J. L., DANIEL, N. D. & NAVEEN, L. 2014. Co-opted Boards. *The Review of Financial Studies,* 27**,** 1751-1796.

COLLINS, D. W. & DEANGELO, L. 1990. Accounting information and corporate governance. *Journal of Accounting and Economics,* 13**,** 213-247.

CORE, J. E., GUAY, W. R. & VERDI, R. 2008. Is accruals quality a priced risk factor? *Journal of Accounting and Economics,* 46**,** 2-22.

CUCCIA, A. D., HACKENBRACK, K. & NELSON, M. W. 1995. The Ability of Professional Standards to Mitigate Aggressive Reporting. *The Accounting Review,* 70**,** 227-248.

DAI, L., PARWADA, J. T. & ZHANG, B. 2015. The Governance Effect of the Media's News Dissemination Role: Evidence from Insider Trading. *Journal of Accounting Research,* 53**,** 331-366.

DANG, T. L., MOSHIRIAN, F. & ZHANG, B. 2015. Commonality in news around the world. *Journal of Financial Economics,* 116**,** 82-110.

DARROUGH, M. & RANGAN, S. 2005. Do Insiders Manipulate Earnings When They Sell Their Shares in an Initial Public Offering? *Journal of Accounting Research,* 43**,** 1-33.

DAS, S. & PANDIT, S. 2014. Audit quality, life-cycle stage and the investment efficiency of the firm. *Working Paper.* University of Illinois at Chicago.

DE LONG, J. B. & SUMMERS, L. H. 1991. Equipment Investment and Economic Growth. *The Quarterly Journal of Economics,* 106**,** 445-502.

DEANGELO, H., DEANGELO, L. & SKINNER, D. J. 1994. Accounting choice in troubled companies. *Journal of Accounting and Economics,* 17**,** 113-143.

DEANGELO, L. E. 1981. Auditor size and audit quality. *Journal of Accounting and Economics,* 3**,** 183-199.

DEANGELO, L. E. 1986. Accounting Numbers as Market Valuation Substitutes: A Study of Management Buyouts of Public Stockholders. *Accounting Review,* 61**,** 400.

DEANGELO, L. E. 1988. Managerial competition, information costs, and corporate governance. *Journal of Accounting and Economics,* 10**,** 3-36.

DECHOW, P., GE, W. & SCHRAND, C. 2010. Understanding earnings quality: A review of the proxies, their determinants and their consequences. *Journal of Accounting and Economics,* 50**,** 344-401.

DECHOW, P. M. & SKINNER, D. J. 2000. Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators. *Accounting Horizons,* 14**,** 235-250.

DECHOW, P. M. & SLOAN, R. G. 1991. Executive incentives and the horizon problem. *Journal of Accounting & Economics,* 14**,** 51-89.

DECHOW, P. M., SLOAN, R. G. & SWEENEY, A. P. 1995. Detecting Earnings Management. *The Accounting Review,* 70**,** 193-225.

DEEPHOUSE, D. L. 2000. Media Reputation as a Strategic Resource: An Integration of Mass Communication and Resource-Based Theories. *Journal of Management,* 26**,** 1091.

DEEPHOUSE, D. L. & CARTER, S. M. 2005. An Examination of Differences Between Organizational Legitimacy and Organizational Reputation*. *Journal of Management Studies,* 42**,** 329-360.

DEMERJIAN, P., LEV, B. & MCVAY, S. 2012. Quantifying Managerial Ability: A New Measure and Validity Tests. *Management Science,* 58**,** 1229-1248.

DEMERJIAN, P. R., LEV, B., LEWIS, M. F. & MCVAY, S. E. 2013. Managerial Ability and Earnings Quality. *Accounting Review,* 88**,** 463-498.

DEMSKI, J. S. 1998. Performance Measure Manipulation*. *Contemporary Accounting Research,* 15**,** 261-285.

DERRIEN, F. & KECSKÉS, A. 2013. The Real Effects of Financial Shocks: Evidence from Exogenous Changes in Analyst Coverage. *The Journal of Finance,* 68**,** 1407-1440.

DESAI, H., HOGAN, C. E. & WILKINS, M. S. 2006. The Reputational Penalty for Aggressive Accounting: Earnings Restatements and Management Turnover. *The Accounting Review,* 81**,** 83-112.

DHALIWAL, D. S., SALAMON, G. L. & DAN SMITH, E. 1982. The effect of owner versus management control on the choice of accounting methods. *Journal of Accounting and Economics,* 4**,** 41-53.

DOIDGE, C., KAROLYI, G. A., LINS, K. V., MILLER, D. P. & STULZ, R. M. 2009. Private Benefits of Control, Ownership, and the Cross-listing Decision. *Journal of Finance,* 64**,** 425-466.

DOU, Y., WONG, M. F. & XIN, B. 2014. The Effect of Recognition versus Disclosure on Investment Efficiency.

DOUGAL, C., ENGELBERG, J., GARCíA, D. & PARSONS, C. A. 2012. Journalists and the Stock Market. *The Review of Financial Studies,* 25**,** 639-679.

DOWLING, G. 2006. Communicating Corporate Reputation through Stories. *California Management Review,* 49**,** 82-100.

DOYLE, J., GE, W. & MCVAY, S. 2007. Determinants of weaknesses in internal control over financial reporting. *Journal of Accounting and Economics,* 44**,** 193-223.

DOYLE, J. T., GE, W. & MCVAY, S. 2007. Accruals Quality and Internal Control over Financial Reporting. *The Accounting Review,* 82**,** 1141-1170.

DUARTE, J., HAN, X., HARFORD, J. & YOUNG, L. 2008. Information asymmetry, information dissemination and the effect of regulation FD on the cost of capital. *Journal of Financial Economics,* 87**,** 24-44.

DUCHIN, R., OZBAS, O. & SENSOY, B. A. 2010. Costly external finance, corporate investment, and the subprime mortgage credit crisis. *Journal of Financial Economics,* 97**,** 418-435.

DYCK, A., MORSE, A. & ZINGALES, L. 2010. Who Blows the Whistle on Corporate Fraud? *The Journal of Finance,* 65**,** 2213-2253.

DYCK, A., VOLCHKOVA, N. & ZINGALES, L. 2008. The Corporate Governance Role of the Media: Evidence from Russia. *The Journal of Finance,* 63**,** 1093-1135.

DYCK, A. & ZINGALES, L. 2003. The bubble and the media. *Working paper.* Harvard University.

DYCK, A. & ZINGALES, L. 2004. Private benefits of control: An international comparison. *Journal of Finance,* 59**,** 537-600.

DYCK, I. J. A. & ZINGALES, L. 2002. The Corporate Governance Role of the Media. *In:* ISLAM, R., DJANKOV, S. & MCLEISH, C. (eds.) *The right to tell : the role of mass media in economic development.* Washington, D.C.: The World Bank.

ENGELBERG, J., SASSEVILLE, C. & WILLIAMS, J. 2012. Market Madness? The Case of Mad Money. *Management Science,* 58**,** 351-364.

ERICKSON, T. & WHITED, T. M. 2000. Measurement error and the relationship between investment and q. *Journal of Political Economy,* 108**,** 1027-1057.

FAMA, E. F. 1980. Agency Problems and the Theory of the Firm. *Journal of Political Economy,* 88**,** 288-307.

FANG, L. & PERESS, J. 2009. Media Coverage and the Cross-section of Stock Returns. *The Journal of Finance,* 64**,** 2023-2052.

FANG, L. H. 2005. Investment Bank Reputation and the Price and Quality of Underwriting Services. *The Journal of Finance,* 60**,** 2729-2761.

FAZZARI, S., HUBBARD, R. G. & PETERSEN, B. 1988. Investment, Financing Decisions, and Tax Policy. *The American Economic Review,* 78**,** 200-205.

FAZZARI, S. M., HUBBARD, R. G. & PETERSEN, B. C. 2000. Investment-Cash Flow Sensitivities are Useful: A Comment on Kaplan and Zingales. *The Quarterly Journal of Economics,* 115**,** 695-705.

FEARNLEY, M. 1993. Corporate Reputation: The Wasted Asset. *Marketing Intelligence & Planning,* 11**,** 4-8.

FERREIRA, M. A. & MATOS, P. 2008. The colors of investors' money: The role of institutional investors around the world. *Journal of Financial Economics,* 88**,** 499-533.

FIELDS, T. D., LYS, T. Z. & VINCENT, L. 2001. Empirical research on accounting choice. *Journal of Accounting and Economics,* 31**,** 255-307.

FOMBRUN, C. & SHANLEY, M. 1990. What's in a Name? Reputation Building and Corporate Strategy. *The Academy of Management Journal,* 33**,** 233-258.

FOMBRUN, C. J. 1996. *Reputation: Realizing value from the corporate image*, Harvard Business Press.

FRANCIS, J., HANNA, J. D. & VINCENT, L. 1996. Causes and Effects of Discretionary Asset Write-Offs. *Journal of Accounting Research,* 34**,** 117-134.

FRANCIS, J., HUANG, A. H., RAJGOPAL, S. & ZANG, A. Y. 2008. CEO Reputation and Earnings Quality. *Contemporary Accounting Research,* 25**,** 109-147.

FRIEDLAN, J. M. 1994. Accounting Choices of Issuers of Initial Public Offerings. *Contemporary Accounting Research,* 11**,** 1-31.

GAO, H. S., HARFORD, J. & LI, K. 2013. Determinants of corporate cash policy: Insights from private firms. *Journal of Financial Economics,* 109**,** 623-639.

GARCIA, D. 2013. Sentiment during Recessions. *Journal of Finance,* 68**,** 1267-1300.

GEIGER, M. A. & NORTH, D. S. 2006. Does Hiring a New CFO Change Things? An Investigation of Changes in Discretionary Accruals. *The Accounting Review,* 81**,** 781-809.

GENTZKOW, M. & SHAPIRO, J. M. 2006. Media bias and reputation. *Journal of Political Economy,* 114**,** 280-316.

GIROUD, X. & MUELLER, H. M. 2010. Does corporate governance matter in competitive industries? *Journal of Financial Economics,* 95**,** 312-331.

GIROUD, X. & MUELLER, H. M. 2011. Corporate Governance, Product Market Competition, and Equity Prices. *The Journal of Finance,* 66**,** 563-600.

GOMES, J. F. 2001. Financing investment. *American Economic Review,* 91**,** 1263-1285.

GOMPERS, P., ISHII, J. & METRICK, A. 2003. Corporate Governance and Equity Prices. *The Quarterly Journal of Economics,* 118**,** 107-156.

GRAHAM, J. R., HARVEY, C. R. & RAJGOPAL, S. 2005. The economic implications of corporate financial reporting. *Journal of Accounting and Economics,* 40**,** 3-73.

GRANT, S., KING, S. & POLAK, B. 1996. INFORMATION EXTERNALITIES, SHARE-PRICE BASED INCENTIVES AND MANAGERIAL BEHAVIOUR. *Journal of Economic Surveys,* 10**,** 1-21.

GRAY, E. R. & BALMER, J. M. T. 1998. Managing Corporate Image and Corporate Reputation. *Long Range Planning,* 31**,** 695-702.

GUAY, W. R., KOTHARI, S. P. & WATTS, R. L. 1996. A Market-Based Evaluation of Discretionary Accrual Models. *Journal of accounting research,* 34**,** 83-105.

GUL, F. A., CHEN, C. J. P. & TSUI, J. S. L. 2003. Discretionary Accounting Accruals, Managers' Incentives, and Audit Fees*. *Contemporary Accounting Research,* 20**,** 441-464.

GUNNY, K. A. 2010. The Relation Between Earnings Management Using Real Activities Manipulation and Future Performance: Evidence from Meeting Earnings Benchmarks*. *Contemporary Accounting Research,* 27**,** 855-888.

GURUN, U. G. & BUTLER, A. W. 2012. Don't Believe the Hype: Local Media Slant, Local Advertising, and Firm Value. *The Journal of Finance,* 67**,** 561-598.

HALL, R. 1993. A framework linking intangible resources and capabiliites to sustainable competitive advantage. *Strategic Management Journal,* 14**,** 607-618.

HARFORD, J., MANSI, S. A. & MAXWELL, W. F. 2008. Corporate governance and firm cash holdings in the US. *Journal of Financial Economics,* 87**,** 535-555.

HARFORD, J. & UYSAL, V. B. 2014. Bond market access and investment. *Journal of Financial Economics,* 112**,** 147-163.

HARRIS, M. S. 1998. The Association between Competition and Managers' Business Segment Reporting Decisions. *Journal of Accounting Research,* 36**,** 111-128.

HEALY, P. M. 1985. THE EFFECT OF BONUS SCHEMES ON ACCOUNTING DECISIONS. *Journal of Accounting & Economics,* 7**,** 85-107.

HEALY, P. M. & PALEPU, K. G. 1990. Effectiveness of accounting-based dividend covenants. *Journal of Accounting and Economics,* 12**,** 97-123.

HEALY, P. M. & PALEPU, K. G. 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics,* 31**,** 405-440.

HEALY, P. M. & WAHLEN, J. M. 1999. A Review of the Earnings Management Literature and Its Implications for Standard Setting. *Accounting Horizons,* 13**,** 365-383.

HENNESSY, C. A. 2004. Tobin's Q, Debt Overhang, and Investment. *The Journal of Finance,* 59**,** 1717-1742.

HILLERT, A., JACOBS, H. & MüLLER, S. 2014. Media Makes Momentum. *Review of Financial Studies,* 27**,** 3467-3501.

HITE, G. L., OWERS, J. E. & ROGERS, R. C. 1987. The market for interfirm asset sales: Partial sell-offs and total liquidations. *Journal of Financial Economics,* 18**,** 229-252.

HOBERG, G. & MAKSIMOVIC, V. 2015. Redefining Financial Constraints: A Text-Based Analysis. *Review of Financial Studies,* 28**,** 1312-1352.

HOLMSTRöM, B. 1999. Managerial Incentive Problems: A Dynamic Perspective. *The Review of Economic Studies,* 66**,** 169-182.

HOUSTON, J. F., LIN, C. & MA, Y. 2011. Media ownership, concentration and corruption in bank lending. *Journal of Financial Economics,* 100**,** 326-350.

HOVAKIMIAN, G. & TITMAN, S. 2006. Corporate Investment with Financial Constraints: Sensitivity of Investment to Funds from Voluntary Asset Sales. *Journal of Money, Credit and Banking,* 38**,** 357-374.

HUBBARD, R. G. 1998. Capital-Market Imperfections and Investment. *Journal of Economic Literature,* 36**,** 193-225.

JENSEN, M. 1979. Toward a Theory of the Press. *In:* BRUNNER, K. (ed.) *Economics Social Institutions.* Netherlands: Springer.

JENSEN, M. C. 1986. Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review,* 76**,** 323-329.

JENSEN, M. C. & MECKLING, W. H. 1976. Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics,* 3**,** 305-360.

JOE, J. R., LOUIS, H. & ROBINSON, D. 2009. Managers' and Investors' Responses to Media Exposure of Board Ineffectiveness. *Journal of Financial and Quantitative Analysis,* 44**,** 579-605.

JONES, J. J. 1991. Earnings Management During Import Relief Investigations. *Journal of Accounting Research,* 29**,** 193-228.

KAPLAN, S., MCELROY, J., RAVENSCROFT, S. & SHRADER, C. 2007. Moral Judgment and Causal Attributions: Consequences of Engaging in Earnings Management. *Journal of Business Ethics,* 74**,** 149-164.

KAPLAN, S. E. & RAVENSCROFT, S. P. 2004. The Reputation Effects of Earnings Management in the Internal Labor Market. *Business Ethics Quarterly,* 14**,** 453-478.

KARPOFF, J. M. 2012. Does Reputation Work to Discipline Corporatemisconduct? *In:* POLLOCK, T. G. & BARNETT, M. L. (eds.) *The Oxford Handbook of Corporate Reputation.* Oxford: Oxford University Press.

KARPOFF, J. M. & LOTT JR, J. R. 1993. THE REPUTATIONAL PENALTY FIRMS BEAR FROM COMMITTING CRIMINAL FRAUD. *Journal of Law & Economics,* 36**,** 757-802.

KEATING, A. S. & L. ZIMMERMAN, J. 1999. Depreciation-policy changes: tax, earnings management, and investment opportunity incentives. *Journal of Accounting and Economics,* 28**,** 359-389.

KHURANA, I. K., MARTIN, X. & PEREIRA, R. 2006. Financial Development and the Cash Flow Sensitivity of Cash. *Journal of Financial and Quantitative Analysis,* 41**,** 787-808.

KIM, J.-B., CHUNG, R. & FIRTH, M. 2003. Auditor Conservatism, Asymmetric Monitoring, and Earnings Management*. *Contemporary Accounting Research,* 20**,** 323-359.

KOTHARI, S. P., LEONE, A. J. & WASLEY, C. E. 2005. Performance matched discretionary accrual measures. *Journal of Accounting & Economics,* 39**,** 163-197.

KOTHARI, S. P., LI, X. & SHORT, J. E. 2009. The Effect of Disclosures by Management, Analysts, and Business Press on Cost of Capital, Return Volatility, and Analyst Forecasts: A Study Using Content Analysis. *The Accounting Review,* 84**,** 1639-1670.

KOTHARI, S. P., MIZIK, N. & ROYCHOWDHURY, S. 2016. Managing for the Moment: The Role of Earnings Management via Real Activities versus Accruals in SEO Valuation. *The Accounting Review,* 91**,** 559-586.

KREPS, D. M., MILGROM, P., ROBERTS, J. & WILSON, R. 1982. Rational cooperation in the finitely repeated prisoners' dilemma. *Journal of Economic Theory,* 27**,** 245-252.

KREPS, D. M. & WILSON, R. 1982. Reputation and imperfect information. *Journal of Economic Theory,* 27**,** 253-279.

KREPS, D. M. & WILSON, R. 1982. Sequential Equilibria. *Econometrica,* 50**,** 863-894.

KRISHNAN, G. V. 2003. Does Big 6 Auditor Industry Expertise Constrain Earnings Management? *Accounting Horizons,* 17**,** 1-16.

KUHNEN, C. M. & NIESSEN, A. 2012. Public Opinion and Executive Compensation. *Management Science,* 58**,** 1249-1272.

LAFOND, R. 2008. Discussion of "CEO Reputation and Earnings Quality". *Contemporary Accounting Research,* 25**,** 149-156.

LAFOND, R. & ROYCHOWDHURY, S. 2008. Managerial Ownership and Accounting Conservatism. *Journal of Accounting Research,* 46**,** 101-135.

LAMONT, O. A. 2000. Investment Plans and Stock Returns. *The Journal of Finance,* 55**,** 2719-2745.

LANG, L., OFEK, E. & STULZ, R. 1996. Leverage, investment, and firm growth. *Journal of Financial Economics,* 40**,** 3-29.

LANG, L., POULSEN, A. & STULZ, R. 1995. Asset sales, firm performance, and the agency costs of managerial discretion. *Journal of Financial Economics,* 37**,** 3-37.

LARCKER, D. F. & RICHARDSON, S. A. 2004. Fees Paid to Audit Firms, Accrual Choices, and Corporate Governance. *Journal of Accounting Research,* 42**,** 625-658.

LARCKER, D. F., RICHARDSON, S. A. & TUNA, I. R. 2007. Corporate Governance, Accounting Outcomes, and Organizational Performance. *The Accounting Review,* 82**,** 963-1008.

LEVITT JR, A. 1998. The 'Numbers Game'. *CPA Journal,* 68**,** 14.

LI, E. X. N., LIVDAN, D. & ZHANG, L. 2009. Anomalies. *The Review of Financial Studies,* 22**,** 4301-4334.

LI, H., PINCUS, M., REGO, S., XA & OLHOFT 2008. Market Reaction to Events Surrounding the Sarbanes‐Oxley Act of 2002 and Earnings Management. *The Journal of Law & Economics,* 51**,** 111-134.

LIU, B. & MCCONNELL, J. J. 2013. The role of the media in corporate governance: Do the media influence managers' capital allocation decisions? *Journal of Financial Economics,* 110**,** 1-17.

LIU, L. X., SHERMAN, A. E. & ZHANG, Y. 2014. The Long-Run Role of the Media: Evidence from Initial Public Offerings. *Management Science,* 60**,** 1945-1964.

LU, T. & SAPRA, H. 2009. Auditor Conservatism and Investment Efficiency. *Accounting Review,* 84**,** 1933-1958.

LUCHS, C., STUEBS, M. & LI, S. 2009. Corporate Reputation And Earnings Quality. *Journal of Applied Business Research,* 25**,** 47-54.

MAKSIMOVIC, V. & PHILLIPS, G. 2001. The market for corporate assets: Who engages in mergers and asset sales and are there efficiency gains? *Journal of Finance,* 56**,** 2019-2065.

MALMENDIER, U. & TATE, G. 2005. Does Overconfidence Affect Corporate Investment? CEO Overconfidence Measures Revisited. *European Financial Management,* 11**,** 649-659.

MALMENDIER, U. & TATE, G. 2009. Superstar CEOs*. *The Quarterly Journal of Economics,* 124**,** 1593-1638.

MARIANNE BERTRAND & SENDHIL MULLAINATHAN 2003. Enjoying the Quiet Life? Corporate Governance and Managerial Preferences. *Journal of Political Economy,* 111**,** 1043-1075.

MASULIS, R. W., WANG, C. & XIE, F. 2007. Corporate governance and acquirer returns. *Journal of Finance,* 62**,** 1851-1889.

MCCONNELL, J. J. & MUSCARELLA, C. J. 1985. Corporate capital expenditure decisions and the market value of the firm. *Journal of Financial Economics,* 14**,** 399-422.

MCLEAN, R. D., ZHANG, T. & ZHAO, M. 2012. Why Does the Law Matter? Investor Protection and Its Effects on Investment, Finance, and Growth. *The Journal of Finance,* 67**,** 313-350.

MERTON, R. C. 1987. A Simple Model of Capital Market Equilibrium with Incomplete Information. *The Journal of Finance,* 42**,** 483-510.

MICHAEL, L. B. & TIMOTHY, G. P. 2012. Charting the Landscape of Corporate Reputation Research. *In:* TIMOTHY, G. P. & MICHAEL, L. B. (eds.) *The Oxford Handbook of Corporate Reputation.* Oxford: 'Oxford University Press'.

MILLER, G. S. 2006. The Press as a Watchdog for Accounting Fraud. *Journal of Accounting Research,* 44**,** 1001-1033.

MIZIK, N. 2010. The Theory and Practice of Myopic Management. *Journal of Marketing Research,* 47**,** 594-611.

MIZIK, N. & JACOBSON, R. 2008. The Financial Value Impact of Perceptual Brand Attributes. *Journal of Marketing Research,* 45**,** 15-32.

MODIGLIANI, F. & MILLER, M. H. 1958. The Cost of Capital, Corporation Finance and the Theory of Investment. *The American Economic Review,* 48**,** 261-297.

MOORE, M. L. 1973. Management Changes and Discretionary Accounting Decisions. *Journal of Accounting Research,* 11**,** 100-107.

MORCK, R., SHLEIFER, A. & VISHNY, R. W. 1990. Do Managerial Objectives Drive Bad Acquisitions? *The Journal of Finance,* 45**,** 31-48.

MULLAINATHAN, S. & SHLEIFER, A. 2005. The Market for News. *The American Economic Review,* 95**,** 1031-1053.

MULLAINATHAN, S. & SHLEIFER, A. 2005. Persuasion in finance. *Working Paper.* Harvard University.

MYERS, S. C. 1984. The Capital Structure Puzzle. *The Journal of Finance,* 39**,** 575-592.

MYERS, S. C. & MAJLUF, N. S. 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics,* 13**,** 187-221.

NELSON, M. W., ELLIOTT, J. A. & TARPLEY, R. L. 2002. Evidence from Auditors about Managers' and Auditors' Earnings Management Decisions. *The Accounting Review,* 77**,** 175-202.

NIKOLAEV, V. V. 2010. Debt Covenants and Accounting Conservatism. *Journal of accounting research,* 48**,** 51-89.

OLAGBEMI, F. O. 2011. *The Effectiveness Of Federal Regulations And Corporate Reputation In Mitigating Corporate Accounting Fraud*, Xlibris, Corp.

PERESS, J. 2010. Product Market Competition, Insider Trading, and Stock Market Efficiency. *The Journal of Finance,* 65**,** 1-43.

PETERSEN, M. A. 2009. Estimating Standard Errors in Finance Panel Data Sets: Comparing Approaches. *Review of Financial Studies,* 22**,** 435-480.

POTERBA, J. 1988. Comment: financing Constraints and Corporate Investment. *Brookings Papers on Economic Activity,* 1**,** 7.

POURCIAU, S. 1993. Earnings management and nonroutine executive changes. *Journal of Accounting and Economics,* 16**,** 317-336.

PRESTON, L. E. 2004. Reputation as a source of corporate social capital. *Journal of General Management,* 30**,** 43-49.

QIANG, C., JIMMY, L. & SHEVLIN, T. 2016. Internal Governance and Real Earnings Management. *The Accounting Review,* 91**,** 1051-1085.

RAJAN, R. G. & ZINGALES, L. 1998. Financial Dependence and Growth. *The American Economic Review,* 88**,** 559-586.

RANGAN, S. 1998. Earnings management and the performance of seasoned equity offerings. *Journal of Financial Economics,* 50**,** 101-122.

RAO, H. 1994. The Social Construction of Reputation: Certification Contests, Legitimation, and the Survival of Organizations in the American Automobile Industry: 1895–1912. *Strategic Management Journal,* 15**,** 29-44.

REUTER, J. & ZITZEWITZ, E. 2006. Do Ads Influence Editors? Advertising and Bias in the Financial Media. *The Quarterly Journal of Economics,* 121**,** 197-227.

RIAHI-BELKAOUI, A. 2001. *The role of corporate reputation for multinational firms : accounting, organizational, and market considerations,* Westport, Conn. ; London, Quorum Books.

RICHARDSON, S. 2006. Over-investment of free cash flow. *Review of Accounting Studies,* 11**,** 159-189.

RICHARDSON, S. A., SLOAN, R. G., SOLIMAN, M. T. & TUNA, İ. 2005. Accrual reliability, earnings persistence and stock prices. *Journal of Accounting and Economics,* 39**,** 437-485.

RINDOVA, V. P., WILLIAMSON, I. O., PETKOVA, A. P. & SEVER, J. M. 2005. Being Good or Being Known: An Empirical Examination of the Dimensions, Antecedents, and

Consequences of Organizational Reputation. *The Academy of Management Journal,* 48**,** 1033-1049.

ROYCHOWDHURY, S. 2006. Earnings management through real activities manipulation. *Journal of Accounting and Economics,* 42**,** 335-370.

SANKAR, M. R. & SUBRAMANYAM, K. R. 2001. Reporting Discretion and Private Information Communication through Earnings. *Journal of accounting research,* 39**,** 365-386.

SCHIPPER, K. 1989. COMMENTARY on Earnings Management. *Accounting Horizons,* 3**,** 91-102.

SCHWAIGER, M. 2004. COMPONENTS AND PARAMETERS OF CORPORATE REPUTATION -- AN EMPIRICAL STUDY. *Schmalenbach Business Review (SBR),* 56**,** 46-71.

SCOTT, W. R. 2009. *Financial accounting theory,* Toronto, Ont., Pearson Prentice Hall.

SHAPIRO, C. 1983. Premiums for High Quality Products as Returns to Reputations. *The Quarterly Journal of Economics,* 98**,** 659-679.

SHILLER, R. J. 2005. *Irrational exuberance,* Princeton, N.J. ; Oxford, Princeton University Press.

SHIN, H. H. & KIM, Y. H. 2002. Agency costs and efficiency of business capital investment: evidence from quarterly capital expenditures. *Journal of Corporate Finance,* 8**,** 139-158.

SHIVAKUMAR, L. 2000. Do firms mislead investors by overstating earnings before seasoned equity offerings? *Journal of Accounting and Economics,* 29**,** 339-371.

SHROFF, N., VERDI, R. S. & YU, G. 2014. Information Environment and the Investment Decisions of Multinational Corporations. *The Accounting Review,* 89**,** 759-790.

SMITH, C. W., JR. 1993. A Perspective on Accounting-Based Debt Covenant Violations. *The Accounting Review,* 68**,** 289-303.

SMITH, E. D. 1976. The Effect of the Separation of Ownership from Control on Accounting Policy Decisions. *The Accounting Review,* 51**,** 707-723.

SOLOMON, D. H. 2012. Selective Publicity and Stock Prices. *The Journal of Finance,* 67**,** 599-638.

SOLOMON, D. H., SOLTES, E. & SOSYURA, D. 2014. Winners in the spotlight: Media coverage of fund holdings as a driver of flows. *Journal of Financial Economics,* 113**,** 53-72.

SPENCE, A. M. 1974. *Market signaling : informational transfer in hiring and related screening processes,* Cambridge, Harvard University Press.

SPENCE, M. 1973. Job Market Signaling*. *The Quarterly Journal of Economics,* 87**,** 355-374.

SRIVASTAVA, R. K., MCINISH, T. H., WOOD, R. A. & CAPRARO, A. J. 1997. Part IV: How Do Reputations Affect Corporate Performance?: The Value of Corporate Reputation: Evidence from the Equity Markets. *Corporate Reputation Review,* 1**,** 61-68.

STEIN, J. C. 2003. Chapter 2 - Agency, Information and Corporate Investment. *In:* CONSTANTINIDES, G. M., HARRIS, M. & STULZ, R. M. (eds.) *Handbook of the Economics of Finance.* Philadelphia, PA: Elsevier.

STOUGHTON, N., WONG, K. P. & YI, L. 2015. Investment Efficiency and Product Market Competition. *Journal of Financial and Quantitative Analysis*.

STRöMBERG, D. 2015. Media and Politics. *Annual Review of Economics,* 7**,** 173-205.

SUH, T. & AMINE, L. S. 2007. Defining and Managing Reputational Capital in Global Markets. *Journal of Marketing Theory and Practice,* 15**,** 205-217.

SUN, Y., LEE, K. J., LI, D. & JIN, J. J. 2010. THE EFFECTS OF UNDERWRITER REPUTATION ON PRE-IPO EARNINGS MANAGEMENT AND POST-IPO OPERATING PERFORMANCE. *Academy of Accounting & Financial Studies Journal,* 14**,** 1-18.

SWEENEY, A. P. 1994. Debt-covenant violations and managers' accounting responses. *Journal of Accounting and Economics,* 17**,** 281-308.

TAN, H. 2007. Does the Reputation Matter? Corporate Reputation and Earnings Quality. *SSRN eLibrary*.

TEOH, S. H., WELCH, I. & WONG, T. J. 1998. Earnings Management and the Long-Run Market Performance of Initial Public Offerings. *The Journal of Finance,* 53**,** 1935-1974.

TEOH, S. H., WELCH, I. & WONG, T. J. 1998. Earnings management and the underperformance of seasoned equity offerings. *Journal of Financial Economics,* 50**,** 63-99.

TETLOCK, P. C. 2010. Does Public Financial News Resolve Asymmetric Information? *The Review of Financial Studies,* 23**,** 3520-3557.

TETLOCK, P. C., SAAR-TSECHANSKY, M. & MACSKASSY, S. 2008. More Than Words: Quantifying Language to Measure Firms' Fundamentals. *The Journal of Finance,* 63**,** 1437-1467.

TITMAN, S. & TRUEMAN, B. 1986. Information quality and the valuation of new issues. *Journal of Accounting and Economics,* 8**,** 159-172.

TITMAN, S., WEI, K. C. J. & XIE, F. 2009. Capital Investments and Stock Returns. *Journal of Financial and Quantitative Analysis,* 39**,** 677-700.

TOBIN, J. 1969. A General Equilibrium Approach To Monetary Theory. *Journal of Money, Credit and Banking,* 1**,** 15-29.

WALKER, K. 2010. A Systematic Review of the Corporate Reputation Literature: Definition, Measurement, and Theory. *Corporate Reputation Review,* 12**,** 357-387.

WARFIELD, T. D., WILD, J. J. & WILD, K. L. 1995. Managerial ownership, accounting choices, and informativeness of earnings. *Journal of Accounting and Economics,* 20**,** 61-91.

WARTICK, S. L. 1992. The Relationship between Intense Media Exposure and Change in Corporate Reputation. *Business & Society,* 31**,** 33-49.

WARTICK, S. L. 2002. Measuring Corporate Reputation. *Business & Society,* 41**,** 371-392.

WARUSAWITHARANA, M. 2008. Corporate asset purchases and sales: Theory and evidence. *Journal of Financial Economics,* 87**,** 471-497.

WATTS, R. L. & ZIMMERMAN, J. L. 1986. *Positive accounting theory,* Englewood Cliffs, N.J :, Prentice-Hall.

WEIGELT, K. & CAMERER, C. 1988. Reputation and Corporate Strategy: A Review of Recent Theory and Applications. *Strategic Management Journal,* 9**,** 443-454.

WHITED, T. M. 2006. External finance constraints and the intertemporal pattern of intermittent investment. *Journal of Financial Economics,* 81**,** 467-502.

WURGLER, J. 2000. Financial markets and the allocation of capital. *Journal of Financial Economics,* 58**,** 187-214.

YANG, L. I. U. 2008. The Real Determinants of Asset Sales. *The Journal of Finance,* 63**,** 2231-2262.

YU, F. 2008. Analyst coverage and earnings management. *Journal of Financial Economics,* 88**,** 245-271.

ZANG, A. Y. 2012. Evidence on the Trade-Off between Real Activities Manipulation and Accrual-Based Earnings Management. *The Accounting Review,* 87**,** 675-703.

ZHANG, J. 2008. The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics,* 45**,** 27-54.

ZHANG, Y. 2009. Are Debt and Incentive Compensation Substitutes in Controlling the Free Cash Flow Agency Problem? *Financial Management,* 38**,** 507-541.