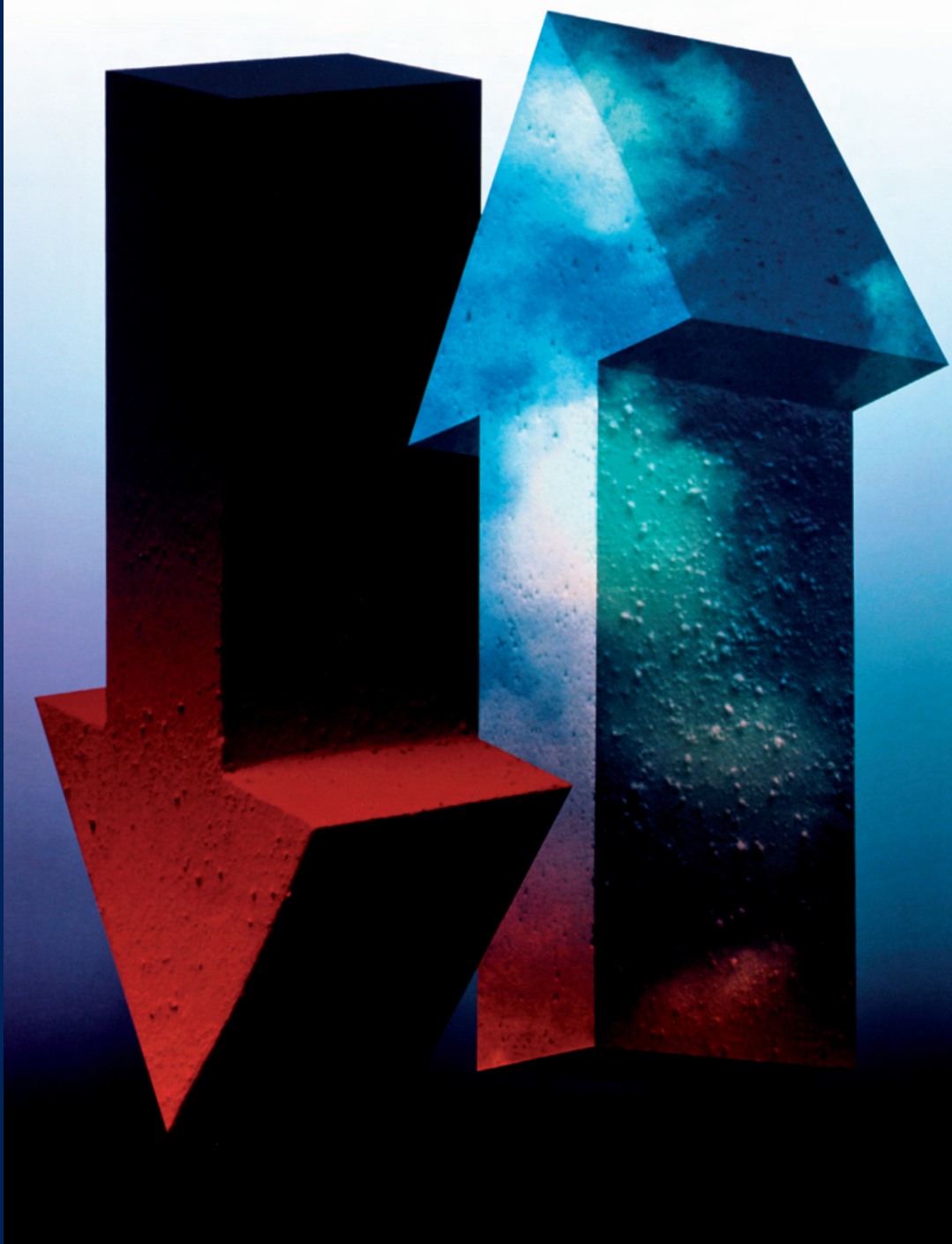
TAO JIAO

Essays in Financial Accounting



Essays in Financial Accounting

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Preface

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Yu, my dear husband, your love and your insight are the necessary conditions for me to produce this dissertation. I am happy to dedicate this book to you.

Tao Jiao

Irvine, California, U.S.A.

April 15, 2009

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Chapter 1: Introduction

1.1. Background

The capital market has become an indispensable part of today's economy. Investors and companies meet in this market to optimize the allocation of capital among them and to attempt to maximize their wealth. Financial information plays an imperative role, in that it helps investors and companies with the optimization process. However, there are two problems with the use of financial information. First, compared to investors, companies have superior information about investment plans, which creates information asymmetry. In order to attract new investors or retain existing ones, companies can selectively disclose information that is in their best interests. Second, companies may have an incentive to inflate the value of their investment plans so that investors are misled to invest in projects that cannot ultimately realize the returns promised. Because investors have an information disadvantage, it is difficult for them to detect such misleading behavior from the start. These problems—insufficient disclosure and incentives for value inflation—taken together, lead to the necessity to have information intermediaries who can provide credible and sufficient information to investors. Financial reports allow such reliable information to flow between companies and investors.

Financial reports provide comprehensive information about public firms' business activities, including both performance and company strategy. Such information provides the basis for investors to make their investment decisions, evaluate their investments' performance, and measure managers' performance. The Financial Accounting Standards Board ("FASB") also states the objective of financial reporting in No. 1, *Objectives of Financial Reporting by Business Enterprises* [1978]:

> *[F]inancial reporting should provide information to help present and potential investors and creditors and other users in assessing the amounts, timing, and uncertainty of prospective cash receipts… Thus, financial reporting should provide*

information to help investors, creditors, and others assess the amounts, timing, and uncertainty of prospective net cash inflows to the related enterprise.

Similarly, IAS 1.7 states that the purpose of a financial statement is *"to provide information about the financial position, financial performance, and cash flows of an entity that is useful to a wide range of users in making economic decisions."*

A high-quality accounting system is the prerequisite for realizing these functions of accounting information. In such a system, both the quality of accounting standards and firms' compliance with them are critical to ensuring high-quality accounting information.

The quality of accounting standards is normally evaluated using metrics such as disclosure level, the magnitude of earnings management, the timeliness of loss recognition, and the association of earnings with share price. Normally, high-quality financial standards can provide investors with a larger amount of more relevant information, leave less room for earnings management, and ensure timely loss recognition, allowing investors to evaluate their investment's performance in a more timely and accurate manner.

The quality of financial reporting standards is not the only factor bearing on the financial reporting process. Previous research (e.g., Ball, Robin, and Wu, 2003; Holthausen, 2003) argues that financial reporting outcomes also are affected by incentives for preparers and auditors, the legal and political system, ownership structure, financial market development, and other institutional features of the economy.

For instance, the legal system's influence derives from its enforcement of accounting standards and from litigation against the preparers and auditors of accounting reports. It has been documented that common law countries, such as the U.S., have higher levels of legal enforcement than code law countries, such as France and Germany, and, what is more, have a better investor protection mechanism (La Porta et al., 1998). Hung (2001) shows that accrual accounting is more value-relevant in countries with a higher level of investor protection. This may be because, on the one hand, the punishment for managers who exert opportunistic behavior is more severe in countries with a higher level of investor protection (La Porta et al., 1998), or, on the other hand, because the detection process is

stricter in these countries, increasing the possibility of litigation against auditors. Fan and Wong (2002) find that concentrated ownership is associated with lower degrees of disclosure of earnings information. From the point of view of accounting report preparers, Francis et al. (2005) document that the disclosure level of firms which need external financing is normally higher than their local country's minimal disclosure requirements.

The effects of ownership come from both the type of ownership (e.g., public or private) and the concentration of ownership. Burgsthaler et al. (2007) find that public firms in countries with large and highly developed markets engage in less earnings management than private firms in these countries. Francis and Wang (2008) find that in countries with stronger investor protection, earnings quality is higher for firms audited by Big-4 auditors than by non-Big-4 auditors.

This dissertation aims to contribute to this literature by investigating the quality of accounting information and companies' external environments—the institutions and factors under which they operate, such as industry and stock exchange. The research in this dissertation is comprised of three empirical essays, which deal with (a) the motivation for earnings management (chapter 2), (b) the consequences of accounting frauds for the failure rate of IPO firms (chapter 3), and (c) the effectiveness of actions taken by standards-setters to improve the quality of accounting information (Chapter 4). The following section will briefly introduce the topics addressed in these three chapters.

1.2. Outlines

Chapter 2 examines whether the external environment has an impact on earnings management. More specifically, this chapter tests whether the level of industry valuation is a motivation for earnings management. The chapter's contribution is that it links external environment and earnings management; in contrast, most existing studies examine motivations for earnings management from a firm-specific point of view, such as the pressure to meet analyst forecasts (Burgstahler and Eames, 1998; Degeorge et al., 1999),

or from a transaction-specific point of view, such as before an IPO or seasoned equity offerings (Teoh et al., 1998).

Not many studies have examined how the external environment influences a firm's earnings management decisions. As Healy and Wahlen (1999, p. 380) conclude, "Most academic studies attempt to document earnings management, but do not provide evidence on its extent and scope. Consequently, existing evidence does not help standard-setters to assess whether current standards are largely effective in facilitating communications with investors, or whether they encourage widespread earnings management."

This chapter focuses on firms' industry environment and investigates whether industry valuation has an impact on a given management's decisions to manage earnings. We argue that a higher industry valuation increases the perceived benefits of earnings management at a time when the punishment associated with accrual reversal and the probability of detection are perceived to be lower. The increase in net benefit of earnings management will lead to an increase in earnings management. Using a sample of quarterly data of U.S. firms from 1985 to 2005, we examine whether the four-quarter lagged aggregate industry valuation has a significantly positive relationship with aggregate (current) discretionary accruals. Overall, we find a positive relationship between lagged industry valuation and these proxies of earnings management. Empirical results suggest that an increase of one standard deviation in the aggregate stock market valuation is associated with a significant increase of 2.4 cents in quarterly earnings per share for an average firm. This empirical finding also indicates that earnings management behavior is a result of firms' external environments, which have large-scale effects on all firms. Therefore, standard-setters may try harder to curb earnings management behavior when the stock market heats up.

Chapter 3 will examine the consequences of large-scale earnings management—that is, accounting scandals—on a firm's external environment. This chapter chooses the European new markets, including the German Neuer Markt, the French Nouveau Marché, the Dutch NMAX, EuroNM Belgium, and the Italian Nuovo Mercato, as its empirical

background. All five markets failed after the discovery of insider trading and accounting scandals.

The European new markets copied the institutional structure of NASDAQ, which has low criteria for admitting firms but strict disclosure requirements. At their inception, European new markets quickly attracted hundreds of entrepreneurial firms. However, after a short period, the legitimacy of this institutional setting was challenged by insider trading scandals and accounting frauds. Investors' confidence dwindled, stock prices subsequently plunged, and trading volumes shrank. Such a situation finally led to the closure of all five markets.

We analyze whether this failure of the new stock markets can be attributed at least partially to design flaws in their institutional setting. For example, Burghof and Hunger (2004) show that the original setup of Germany's Neuer Markt suffered from a lack of (ex-ante) disclosure for insider sales, insufficient penalties for rules violations, and an inadequate delisting regime for failed penny stocks. Therefore, we investigate whether a stock market's institutional structure is one of the factors influencing whether its listed firms survive. Using propensity score matching, we select a comparable sample from official markets to match the characteristics of firms in new markets and compare the two groups' survivability, after controlling for several accounting variables, such as leverage, auditor reputation, and profitability. Our results suggest that listing on a new stock market nearly doubles IPO firm failure compared with listing on long-established stock markets. This finding suggests that the institutional legitimacy of newly-established stock markets is vulnerable and that this vulnerability alone exposes the IPO firm to additional risk of failure.

Another finding of this chapter is that firms' accounting characteristics have an impact on IPO firms' survivability. We find that firms with Big-5 auditors and higher profitability have a lower probability of failure. Our results show that on average, IPO firms with Big-5 auditors have a 22% lower failure risk than those with non-Big-5 auditors. Further, profitable firms' failure risk is two times lower than non-profitable firms. These

findings are consistent with those of Demers and Joos (2007), who argue that accounting characteristics play a significant role in IPO firms' survivability.

Chapter 4 examines the effects of standard-setters' efforts to improve the quality of accounting information. The compulsory adoption, in 2005, of International Financial Reporting Standards (IFRS) in EU countries is one of the most influential actions taken by standard-setters in recent years. The main aim of this action is to improve the comparability and quality of accounting reports across EU countries. Researchers have investigated the consequence of IFRS/IAS adoption from several perspectives, and their empirical findings are mixed. For example, some studies find higher disclosure levels (Daske and Gebhardt, 2006), higher earnings quality (Barth et al., 2007), and lower cost of capital (Daske et al, 2008) after IFRS adoption. In contrast, other studies cannot conclude that IFRS/IAS adoption decreases cost of capital (Daske, 2006; Christensen et al., 2007).

These apparent inconsistencies are caused mainly by differences in sample characteristics. Most studies to date study only voluntary adopters, and therefore suffer from two methodological problems: self-selection bias and omitted variables (Soderstrom and Sun, 2007). Self-selection bias arises as voluntary adopters choose IFRS in order to gain the economic benefits expected from this adoption. The omitted variables problem refers, among other things, to differences in firms' external environments—e.g., legal and political origin, and financial market development—that influence the quality of accounting information.

This chapter uses the event of compulsory IFRS adoption as our empirical context. This context mitigates the previously-mentioned methodological problems, as mandatory adoption can be viewed as a natural experiment which forced all firms to switch to IFRS at the beginning of financial year 2005 regardless of their incentives and external environments. In this context, we investigate whether adopting IFRS has an impact on the quality of accounting information. We consider the impact by examining IFRS adoption's consequences for the quality of analyst forecasts. Equity analysts are among the most important and sophisticated users of financial reports. Their forecasts depend largely on

the disclosure level and quality of financial reports. We argue that changes in financial reporting standards are reflected in the quality of analyst forecasts. Therefore, we test whether compulsory IFRS adoption has increased the accuracy of analyst forecasts and decreased their dispersion.

We find that the quality of analyst forecasts for EU-listed firms has increased since the adoption of IFRS in 2005. The results show that these firms' analyst forecasts have become more accurate and less dispersed since 2005. We interpret these results as positive evidence of the effect of stock market regulators and accounting standards-setters on the quality of financial information.

Chapter 2: Industry Valuation Driven Earnings Management[1]

2.1. Introduction

The current earnings management literature has examined earnings management from either a transaction-specific or a firm-specific point of view. In their review of earnings management literature, Healy and Wahlen (1999) mention that firms manage their earnings when they raise capital, such as at the time of initial public offerings (IPOs) or seasoned equity offerings (SEOs), or when they need to meet analyst expectations or performance targets related to executive compensation schemes. However, these studies disregard the fact that market conditions, like economic growth and industry valuation, are not constant over time. Focusing on the latter, we hypothesize that industry valuation will influence managers' decisions to engage in earnings management. This can provide an explanation as to why earnings management occurs more frequently in some periods than in others.

Our study substantiates two streams of literature. This is accomplished first by providing evidence of industry effects on firms' earnings management decisions. Firms in the same industry face similar market conditions and growth prospects. Prior studies provide evidence that these industry prospects affect firms' financial decisions. Harford (2005) finds that merger waves occur in response to specific industry shocks that require large-scale reallocation of assets. Mackay and Phillips (2005) find that industry factors are important to firms' capital structure decisions. Given the importance of such industry effects, we investigate the impact of industry valuation on earnings management and aim to provide more empirical evidence for how industry effects can influence firms' decision making.

[1] This chapter is based on Jiao, T., Mertens, G., Roosenboom, P., 2007, "Industry Valuation Driven Earnings Management". ERIM Working Paper Series.

Second, our study provides new evidence about the relationship between stock market valuation and earnings management. Jensen (2004) argues that overvalued firms have incentives to sustain their overvaluation. Kothari et al. (2006) empirically test Jensen's argument and find that overvalued firms' discretionary accruals are much higher than those of firms with lower valuations. However, we differ from Kothari et al. (2006) in arguing that the level of industry valuation can influence the earnings management decisions of all firms in that industry, not only overvalued ones. This is because industry valuation level can change the benefits and costs of managing earnings for all firms in that industry.

Our study shows how different boom and bust in any industry change managers' incentives to manage earnings. We employ a large sample of U.S. firms taken from COMPUSTAT. The sample period covers twenty years, from 1985 to 2005. We test our hypothesis by examining the association between industry valuation and four-quarter forecasts of aggregate current discretionary accruals of individual firms in the industry. Following the behavioral finance literature (Baker et al., 2004), we use market-to-book ratio to proxy for the valuation level.

First, we find that after including the usual explanatory factors for earnings management, such as leverage, size, and performance, our measure for industry aggregate earnings management of each quarter remains significantly positively associated with the lagged industry market-to-book ratio. This result holds for both current and total discretionary accruals. In economic terms, this implies that one standard deviation increase in the industry valuation is associated with a significant increase of 2.4 cents in quarterly earnings per share for an average firm. Second, to exclude alternative explanations, we run several robust analyses, such as excluding high-tech firms and observations during bubble years. We continue to find a significant, positive association between aggregate current discretionary accruals and the industry market-to-book ratio.

This chapter is organized as follows: Section 2.2 discusses related literature and develops our hypotheses. Section 2.3 describes our data and construct variables. Section

2.4 presents our main results and analyzes their robustness. We then discuss our findings in Section 2.5.

2.2. Literature Review and Hypothesis Development

Firms make earnings management decisions after balancing the associated benefits with their costs. The underlying economic rationale for earnings management is that it increases when benefits outweigh the costs, and inversely, decreases if costs outweigh the benefits. Before analyzing the effects of industry valuation on earnings management, we start with a discussion of the relative benefits and costs.

2.2.1. Benefits of Earnings Management

Since Ball and Brown (1968), numerous studies have documented a positive association between earnings surprises and stock returns. This association gives managers an incentive to use earnings management to influence stock price. Prior studies have found evidence consistent with this argument. In their survey, Graham et al. (2005) report that CFOs' main motivation for engaging in earnings management is to influence the firm's stock price. Meanwhile, managers' personal wealth is closely linked with stock price because of equity-based compensation and human capital (Murphy, 1999). In the end, stock price will decline if firms miss their analyst forecasts (Skinner and Sloan, 2002).

Although incentives to use earnings management to influence stock price always exist, we argue that the extent to which stock prices react to earnings is positively associated with industry valuation. Veronesi (1999) investigates the effects of market fundamentals on investors' response to firms' earnings announcements. His analytical model demonstrates that investors will overreact to bad news when the market is performing well, but underreact to good news when the stock market is performing poorly. When this argument is applied at the industry level, it implies there is more severe

punishment for releasing disappointing earnings when the industry is expected to perform well than when it is expected to perform poorly. In addition, the benefits of meeting or exceeding earnings expectations are higher in good times than in bad. Therefore, earnings management has more appeal to managers when the industry valuation is higher. This argument is consistent with that of Dyck and Zingales (2002, p. 85), who argue that "during a downturn, the valuation of a stock depends more on its liquidation value than on its future growth, making it less sensitive to news." In sum, we argue that the benefits of earnings management are higher when the industry has a higher valuation. Rational managers will time earnings management according to the level of the industry valuation.

2.2.2. Costs of Earnings Management

2.2.2.1 Accruals Reversal

Accrual reversal is one of the most important costs associated with earnings management (Marquardt and Wiedman, 2004). The decrease in future earnings as a result of accrual reversal is not only associated with negative stock price reactions (e.g., Teoh et al., 1998a and 1998b), but also constrains the flexibility of future earnings. For example, an early recognition of income can potentially increase earnings in the current period. However, this early recognition decreases the growth of future earnings and limits the room for earnings management in the future. Nonetheless, we argue that the costs of accrual reversal are negatively associated with industry valuation (i.e., the costs decrease in cases of higher or increasing industry valuation, and increase if industry valuation is lower or decreasing). Prior studies (Fischer and Merton, 1985; Lee, 1992) find that stock price can predict future economic performance. Based on this finding, we expect that managers tend to have an optimistic outlook on economic prospects and expect an industry to have increasing future cash flows when its average stock price increases. As a consequence, it is more likely for managers to believe that earnings management imposes fewer constraints on future reporting flexibility, because the reversal of accruals will be covered, at least partially, by

increasing cash flows in the future. Hence, the negative influence from accrual reversal will be mitigated. In the case of lower or decreasing average industry stock prices, the problem with reporting flexibility will be more severe if managers engage in earnings management. Large amounts of accruals applied in the current period will mean greater difficulty in avoiding the negative consequences of an accrual reversal (i.e., a decrease of future earnings), since cash flow will decrease during an economic downturn or recession. Therefore, we conclude that the costs associated with reporting flexibility change with industry valuation. High industry valuation offers managers greater reporting flexibility.

2.2.2.2 The Probability of Detecting Earnings Management

A challenge to our argument about accrual reversal might be that stock market participants can see through the components of earnings and thus detect accounting discretion. However, Sloan (1996) finds that outsiders' probability of detecting earnings management is not high. Commensurately, we claim that this probability is likely even lower in the case of higher industry valuation.

First, investors, especially individual investors, lack the ability to see through earnings management—for example, to distinguish cash flow and accruals. Sloan (1996) examines the information content of both accruals and cash flow. He finds that investors react to earnings rather than to either of these components. This result implies that investors might not be able to see through earnings and identify the driver behind changes in them. This implication is consistent with managers' belief that earnings are a more important metric than cash flow for investors (Graham et al., 2005). Hence, we argue that a high industry valuation predicts growing future cash flow and thus leads investors to be (more) optimistic about a firm's performance. In this case, it is easier for investors to believe a firm's performance results are plausible even if they can be attributed to a higher level of earnings management. Conversely, a low industry valuation increases investors' skepticism and makes them more suspicious of firms' performance.

Second, several studies find that the probability that journalists will see through firms' discretion is low when an industry performs well. The financial press plays a key role in communicating information about corporate performance between firms and investors. Dyck and Zingales (2002) argue that journalists are less motivated to discover negative news when stock market valuation is high because: (1) firms are prone to release good news and are very selective in what they disclose to journalists during stock market booms; and (2) in exchange for access to information from firms, journalists have incentive to report more positive news. This result is also consistent with that of Solt and Statman (1988). They find that news writers' sentiments in the current period are positively related to the stock market return in the prior period. Based on these findings, we argue that industry valuation impacts the media's effectiveness in communicating information and monitoring firms. Periods of high industry valuation make it less likely that the media will alert investors about negative information, such as earnings management. Hence, we propose that the probability that investors will detect earnings management is lower when stock market valuation is high.

Combining the above arguments about the influence of industry valuation on the costs and benefits of earnings management, as well as the likelihood that earnings management will be detected, we predict that the incentives to engage in earnings management vary across time and are associated with aggregate levels of industry valuation: earnings management is expected to occur more frequently when industry valuation is high. Therefore, our main hypothesis is as follows:

H 2.1: Industry valuation has a positive impact on the degree of earnings management in that industry.

2.3. Data and Variables Definition

2.3.1. Sample Selection

To construct our sample, we start with quarterly financial data of all COMPUSTAT firms appearing between 1950 and 2005. Following prior studies that find that equity offers can provide incentives for earnings management, we identify observations at the time of IPOs and seasoned equity offerings in our initial sample using SDC dataset. As SDC dataset covers only the period between 1970 and 2005, our sample had to be cut down to cover only that period. Next, we screen our sample by deleting 4,858 financial companies (those with an SIC code beginning with 6). Third, we use a cross-sectional modified Jones model to delete the observations which do not have enough data to estimate discretionary accruals. Fourth, we eliminate those with fewer than ten observations in order to estimate the coefficients of total accruals. Fifth, we exclude observations that have missing market values, missing or negative book values, or missing control variables. Finally, we delete the outliers by excluding the bottom and top 1% of every variable. From the first to the final step, we obtain 164,320 observations containing 9,065 companies from the third quarter of 1985 to the fourth quarter of 2004. The steps in the sample screening are shown in Table 2.1.

Table 2.1

Sample Criteria

Table 2.1 presents the steps used to screen our initial sample. First, we screen this initial sample by eliminating non-U.S. stocks and financial companies (those with an SIC code beginning with 6). Second, we delete the observations that do not have enough data to estimate discretionary accruals. Third, we drop observations if there are fewer than ten observations to estimate the coefficients of total accruals. Fourth, we exclude observations that have a missing market value and book value, and other missing control variables. Finally, we delete the outliers by excluding the bottom and top 1% of every variable.

Screening Steps	No. of Obs. in Sample	No. of Firms in Sample	Sample Period
Initial sample	1871232	22382	1970.1~2005.4
Less: Financial firms	1475632	17524	1970.1~2005.4
Observations with less than necessary data for Modified Jones model	498315	15601	1972.3~2005.4
Less than 10 observations	382012	15267	1975.1~2005.4
Missing control variables	178683	9354	1985.3~2004.4
Top and bottom 1% outliers	164320	9065	1985.3~2004.4

2.3.2. Earnings Management Measurement

We use current discretionary accruals as the proxy for earnings management because current discretionary accruals are "the component most easily subject to successful managerial manipulation" (Teoh et al., 1998, p. 195). Prior audit quality research also argues that firms have the greatest discretion over current accruals (Becker et al., 1998). In contrast to discretionary accruals, current discretionary accruals do not include the portion of accruals that are associated with depreciation. Manzon (1992) and Hunt et al. (1996) find little evidence that firms manage depreciation to meet short-term earnings targets. As our analysis focuses on quarterly earnings management decisions, the quarterly frequency will be too short to use depreciation for earnings management. Therefore, responding to

the changes in quarterly industry valuation, managers probably first choose to manage accounts such as tax and current liabilities rather than depreciation. Thus, this study finds that current discretionary accruals will be a better measurement of the degree of earnings management.

We compute the quarterly current discretionary accruals based on the method used by Matsumoto (2002). The total current accruals (TCA_{ijtq}) of firm i in two-digit SIC code j in quarter q of year t are computed as follows (Equation 2.1):

$$TCA_{ijtq} = (\Delta CA_{ijtq} - \Delta Cash_{ijtq}) - (\Delta CL_{ijtq} - \Delta STDebt_{ijtq}) \quad (2.1)$$

Where ΔCA_{ijtq} = change in current assets (Compustat item # 40)

$\Delta Cash_{ijtq}$ = change in cash and cash equivalent (Compustat item # 36)

ΔCL_{ijtq} = change in current liabilities (Compustat item # 49)

$\Delta STDebt_{ijtq}$ = change in debt included in current liabilities (Compustat item # 45)

We use a second model to estimate current discretionary accruals (DCA_{ijtq}) and current nondiscretionary accruals ($NDCA_{ijtq}$). This model is similar to the modified Jones model. However, we exclude accruals associated with the growth of long-term assets since we are measuring the current portion of discretionary accruals. In addition, we add a dummy for the fourth quarter of every year because it is well established that accruals in the fourth quarter differ from those in other quarters (Matsumoto, 2002).

$$\frac{TCA_{ijtq}}{A_{ijtq-1}} = \alpha_{jt}\frac{1}{A_{ijtq-1}} + \beta_{1jt}\frac{\Delta REV_{ijtq} - \Delta AR_{ijtq}}{A_{ijtq-1}} + \beta_{2jt}Qtr4 + \varepsilon_{jt} \quad (2.2)$$

Where ΔREV_{ijtq} = change in revenue (Compustat item # 2)

ΔAR_{ijtq} = change in account receivable (Compustat item # 37)

$Qtr4$ = the fourth quarter dummy

A_{ijtq-1} = lagged total assets (Compustat item # 44)

We estimate Equation 2.2 for each firm-year using all firm quarters in that year in the same industry (two-digit SIC code). To get sufficient data for parameter estimations, firm years with fewer than ten observations are excluded. After estimating the parameters in Equation 2.2, we apply them to the same model and then get the estimation of *NDCAijtq*. The difference between TCA_{ijtq} and $NDCA_{ijtq}$ is the estimation of current discretionary accruals (DCA_{ijtq}), as shown in the following equation (Equation 2.3):

$$DCA_{ijtq} = TCA_{ijtq} - NDCA_{ijtq} \tag{2.3}$$

Industry current discretionary accruals are measured as the lagged asset weighted average of discretionary accruals of all firms in an industry. Equation 2.4 presents the way to calculate industry current discretionary accruals.

$$DCA_{jtq} = \frac{\sum_{i} DCA_{ijtq} \times A_{ijtq-1}}{\sum_{i} A_{ijtq-1}} \tag{2.4}$$

Where DCA_{jtq} = industry current discretionary accruals

2.3.3. Stock Valuation Measurement

In their review of behavioral corporate finance, Baker et al. (2004) suggest that market-to-book ratio is the most often used proxy for stock valuation. This study also uses it as the proxy, and adopts the definition of market-to-book ratio set out by Kaplan and Zingales (1997) and Gompers et al. (2003). According to this definition, a firm's market value is calculated as the book value of assets (Compustat item #44) plus the market value of common stocks, less the sum of the book value of common equity (Compustat item #59) and balance sheet deferred taxes (Compustat item #79). The market value of common stocks is the product of outstanding shares (Compustat item #61) and the stock price at the end of the fiscal quarter (Compustat item #14). The book value of assets is defined as total assets (Compustat item #44). Market-to-book ratio is a ratio of a firm's market value to its book value of assets.

The industry market-to-book ratio (MB_{jtq}) is used as our proxy for stock market valuation at the industry level. It is calculated as the ratio of the sum of the market capitalization of all stocks in quarter *q* of year *t* in industry *j* to the sum of the book value of these stocks in the same period and same industry.

$$MB_{jtq} = \frac{\sum_i M_{ijtq}}{\sum_i B_{ijtq}} \tag{2.5}$$

Where M_{ijtq} = the market value of firm *i* in quarter *q* of year *t* in industry *j*

B_{ijtq} = the book value of firm *i* in quarter *q* of year *t* in industry *j*

MB_{jtq} = the industry market-to-book ratio

2.3.4. Control Variables

Prior studies on earnings management have identified several factors that can influence earnings management decisions, so it is important for our study to control for these variables as well.

Firm valuation (VAL_{ijtq-4}): several studies (e.g., Degeorge et al., 1999, Burgstahler and Eames, 1998) argue that firms manage their earnings to meet stock market expectations and hence to sustain or increase their stock price. Jensen (2005) argues that overvalued equities count on their earnings to keep up the already-high valuation. Kothari et al. (2006) test Jensen's overvaluation theory empirically and find evidence consistent with this theory. However, Hirshleifer et al. (2009) find that undervalued equities also have incentive to manipulate earnings upward in order to show a performance comparable to that of industry peers. Therefore, the impact of a firm's stock market valuation on earnings management could be either positive or negative. We employ a market-to-book ratio at the individual firm level to proxy for the stock market valuation at the firm level.

Demand for external financing ($FreeC_{ijtq-4}$): An ex-ante measure of the demand for external financing *($FreeC_{ijtq-4}$)* is developed by Dechow et al. (1996), as seen in Equation 2.6. They argue that the demand for external financing depends not only on how much

cash is generated from operating and investment activities, but also on the "stock" of funds already available within the firm. When firms have fewer "stock" of funds, there is a higher demand for external financing, and hence, more incentives to manage earnings. Since current assets are convertible to cash, they represent the firm's "stock" of funds. We calculate the value of the ratio of current assets to cash from operations, less average capital expenditure. The inverse of this ratio indicates the number of years during which firms can fund their operations and investments through internal funding. Following Dechow et al. (1996), we use the inverted ratio *($FreeC_{ijtq-4}$)* to measure the demand for external financing. $FreeC_{ijtq-4}$ is coded as 1 if it is less than -0.5, and as 0 otherwise. The expected relationship between earnings management and $FreeC_{ijtq-4}$ is positive.

$$FreeC_{ijtq-4} = \frac{CashFromOperations_{ijtq-4} - AverageCapitalExpenditures_{(ijtq-4)-3TO(ijtq-4)-1}}{CurrentAssets_{(ijtq-4)-1}} \qquad (2.6)$$

Leverage (LEV_{ijtq-4}): Prior studies (such as Bowen et al. 1981; and Dechow et al. 1996) use leverage to measure the debt covenant motivation for earnings management. Assuming that firms with more leverage are closer to debt covenant violation, these firms are more inclined to engage in earnings management. We use leverage to measure firms' closeness to their potential debt covenant violation. Leverage is defined as total long-term debt (Compustat item #51) scaled by total assets (Compustat item #44).

Size ($SIZE_{ijtq-4}$): Several studies find that larger firms have more potential for earnings management. Bartov (1993) argues that larger firms have more room for using asset sales to manipulate earnings. Watts and Zimmerman (1990) argue that larger firms face higher political costs and hence have stronger incentives to manage earnings in order to reduce the potential political risk. Francis et al. (1996) show similar results for asset write-offs. Hence, the expected sign of the influence of size on earnings management is positive. We use the natural logarithm of sales (Compustat Item #2) as the proxy of firm size.

Performance (ROA_{ijtq-4}): Dechow et al. (1995, p. 193) show that accruals are correlated with not only the current performance, but also past performance. However, the (modified) Jones model only controls for current performance. Kothari et al. (2005) show

that models for estimating discretionary accruals are often mis-specified if they do not control for firms' performance. Bowen et al. (2009) include ROA as a control variable when analyzing the relationship between earnings management and corporate governance variables. We use return on assets (ROA_{ijtq}) to proxy for firms' performance and use ROA_{ijtq} as a control variable, where ROA_{ijtq} is defined as income before extraordinary items (Compustat Item #8), scaled by lagged total assets (Compustat Item #44).

Equity Issue (IPO_{ijtq+m}, SEO_{ijtq+m}): Several studies (e.g., Friedlan, 1994; Teoh et al. 1998) find that firms manage earnings upward before going public to attract investors. Similar income-increasing earnings management is found before seasoned equity offerings (Teoh et al. 1998b; Shivakumar, 2000). Lamont and Stein (2006) find that the scale and numbers of firms' financial activities are positively associated with aggregate stock market valuation. Therefore, our study faces the challenge that results might be driven partially by equity offerings. To control for this alternative explanation, dummies for both IPOs (IPO_{ijtq+m}) and seasoned equity offers (SEO_{ijtq+m}) are introduced into the analysis. IPO_{ijtq+m} and SEO_{ijtq+m} stand for the IPO dummies and SEO dummies of company i in the quarter $q+m$ of year t in the industry j, where m varies from -4 to 4. These dummies equal one for the four quarters before (m=[-4,0]) and after (m=(0, 4]) the quarter of either IPOs or seasoned equity offerings.

Industry and Quarter dummies (D_{in}, D_{qtr}): To control for unobservable factors, which are related to industry characteristics and might influence firms' earnings management decisions, we introduce industry (two-digit SIC code) and quarter dummies.

2.3.5. Descriptive Statistics

Descriptive statistics of the final sample appear in Table 2.2. To avoid the influence of outliers, we trim each variable at the first and 99th percentile. The mean of current discretionary accruals is 0.58%, and its median is 0.46%. The individual market-to-book ratio has a mean of 1.9875 and a median of 1.4189. The mean of the industry market-to-

book ratio is 1.8712, and the median is 1.637. Comparing the mean of other control variables with those reported by Bowen et al. (2009), it appears that our sample has firms with a larger degree of earnings management, higher leverage, and smaller size. This result is not surprising, since Bowen et al. (2009) include only firms in the S&P 500, S&P 400 mid cap, and S&P 600 small cap. The correlation matrix is reported in Table 2.3. Consistent with prior studies, total discretionary accruals have a positive relationship with free cash flows, firm size, and firm performance.

Table 2.2

Descriptive statistics

Table 2.2 presents the sample's descriptive statistics, with current discretionary accruals as the dependent variable. DCA_{ijtq} is quarterly current discretionary accruals estimated from the modified Jones model. MB_{ijtq-4} is industry market-to-book ratio with a four-quarter lag behind the quarter of DCA_{ijtq}. VAL_{ijtq-4}, LEV_{ijtq-4}, $FreeC_{ijtq-4}$, $SIZE_{ijtq-4}$, and ROA_{ijtq-4} represent individual firms' market-to-book ratio, leverage, demand for external capital, size, performance, and risk, respectively. All have a four-quarter lag behind the quarter when the *DCA* is estimated. VAL_{ijtq-4} is defined as the book value of assets (Compustat item #44) plus the market value of common stocks, less the sum of the book value of common equity (Compustat item #59) and balance sheet-deferred taxes (Compustat item #79). The market value of common stocks is the product of outstanding shares (Compustat item #61) and the stock price at the end of the fiscal quarter (Compustat item #14). The book value of assets is defined as total assets (Compustat item #44). Market-to-book ratio is a ratio of a firm's market value to the book value of its assets. LEV_{ijtq-4} is a ratio of total long-term debt (Compustat item #51) to total assets (Compustat item #44). $FreeC_{ijtq-4}$ is the absolute value of the ratio of current assets to cash from operations, except average capital expenditure. $SIZE_{ijtq-4}$ is defined as the natural logarithm of sales (Compustat Item #2) as the proxy of firm size. ROA_{ijtq-4} is income before extraordinary items (Compustat Item #8), scaled by lagged total assets (Compustat Item #44).

Variable	Firm-quarters	Mean	Median	Std. Dev	Min	Max
DCA_{ijtq}	164320	0.0058	0.0046	0.0879	-0.5254	0.6222
MB_{ijtq-4}	164320	1.8712	1.6370	0.7479	0.7520	6.0992
VAL_{ijtq-4}	164320	1.9875	1.4189	1.6869	0.5518	15.3904
LEV_{ijtq-4}	164320	0.1745	0.1228	0.1856	0	0.9055
$FreeC_{ijtq-4}$	164320	0.0753	0	0.2707	0	1
$SIZE_{ijtq-4}$	164320	3.1286	3.1361	2.1979	-3.2968	8.3825
ROA_{ijtq-4}	164320	-0.0088	0.0078	0.0638	-0.4764	0.1065

Table 2.3

Correlation Matrix

This table presents the correlation matrix of variables of the final sample.

	DCA_{ijtq}	MB_{ijtq-4}	VAL_{ijtq-4}	LEV_{ijtq-4}	$FreeC_{ijtq-4}$	$SIZE_{ijtq-4}$	ROA_{ijtq-4}
DCA_{ijtq}	1						
MB_{ijtq-4}	-0.0101	1					
VAL_{ijtq-4}	0.0124	0.2661	1				
LEV_{ijtq-4}	-0.0083	-0.1624	-0.2085	1			
$FreeC_{ijtq-4}$	0.0059	-0.0515	0.0247	0.1653	1		
$SIZE_{ijtq-4}$	0.0173	-0.0917	-0.2131	0.2433	-0.1285	1	
ROA_{ijtq-4}	0.0478	-0.1397	-0.2191	0.0305	-0.2267	0.4042	1

2.4. Empirical Tests and Results

2.4.1. Main Results

This section presents the results of our empirical analyses that test whether there is a relationship between industry market-to-book ratio and magnitude of earnings management at the industry level. In addition to controlling for the identifiable variables that affect firms' earnings management decisions, we include time dummies to control for all time-related factors. However, similar with time dummies, the key independent variable, industry market-to-book ratio, changes over time. Therefore, in including both time dummies and the industry market-to-book ratio, we may face a colinearity problem. To avoid this problem, this study uses a two-stage analysis. The first stage explains earnings management by regressing it on the control variables, including leverage, size, performance, demand for external financing, equity issue dummies, time dummies, and industry dummies. Control variables, excluding dummy variables (equity issue, time, and industry dummies), have a one-year lag behind the period of earnings management. As a result, the error terms from the first-step regression contain the component of earnings management that is not explained by the variables in the first-stage regression. We then aggregate the error terms for each industry quarter. The aggregation is a proxy for the

unexplained portion of earnings management at the industry level and thus the dependent variable in our second-stage regression. The second stage uses a univariate regression to examine the association between unexplained earnings management in industry quarters and the four-quarter lagged industry market-to-book ratio. The coefficient estimated from this regression provides us with an estimate of industry valuation's effect on that industry's degree of earnings management.

Equation 2.7 (see below) is the model we used in the first step of the regression, with current discretionary accruals as the dependent variable. Panel A of Table 2.4 shows the results based on this model. The coefficients of firm valuation, demand for external finance, and performance are in line with expectations. The signs of these coefficients are positive and significant at the 0.0001 level. The coefficient of firm size is positive and significant at the 0.1 level. This result is consistent with the argument that larger firms have more resources to manage earnings. For brevity's sake, we do not report the coefficients of quarter and industry dummies. The overall R square of Model 2.7 is 1.40%, suggesting that much of the variation in discretionary accruals remains unexplained. However, we should bear in mind that this low R square is not surprising because our sample is not constructed to be conditional on special events, as, for example, in the case of equity offerings. Moreover, prior studies on earnings management, such as Kasznik (1999) and Xie et al. (2002), report similar levels of explanatory power in their models.

$$DCA_{ijtq} = \alpha_0 + \alpha_1 VAL_{ijtq-4} + \alpha_2 LEV_{ijtq-4} + \alpha_3 FreeC_{ijtq-4} + \alpha_4 SIZE_{ijtq-4} + \alpha_5 ROA_{ijtq-4} + \sum_{n=6,m=-4}^{n=14,m=4} \alpha_n IPO_{ijtq+m} + \sum_{n=15,m=-4}^{n=23,m=4} \alpha_n SEO_{ijtq+m} + D_{qtr} + D_{in} + \varepsilon_{ijtq} \quad (2.7)$$

Where DCA_{ijtq} = Current discretionary accruals estimated by modified Jones model

VAL_{ijtq-4} = Market-to-book ratio of individual firms

LEV_{ijtq-4} = Leverage, the ratio of long-term debt to total assets

$FreeC_{ijtq-4}$ = Demand for external financing

$SIZE_{ijtq-4}$ = Firm size measured as ln(sales)

ROA_{ijtq-4} = Firm performance measured as return on assets

IPO_{ijtq+m} = IPO dummies

SEO_{ijtq+m} = Seasoned equity offer dummies

D_{qtr} = Quarter dummies

$D_{in,}$ = Industry dummies

After the first-stage analysis, we aggregate each industry's error term by quarter and regress the aggregated error terms on the industry market-to-book ratio (see equation 2.8).

$$\sum_i \varepsilon_{ijtq} = \lambda_0 + \lambda_1 MB_{jtq-4} + \nu_{jtq} \tag{2.8}$$

where $\sum_i \varepsilon_{ijtq}$ = Aggregated error terms from the first-stage analysis per industry

MB_{jtq-4} = Lagged aggregate industry market-to-book ratio

Table 2.4

Panel A of Table 2.4 presents the results of regression based on Equation 2.7, where the dependent variable is current discretionary accruals (DCA_{ijtq}) of firm i in industry j at the quarter q of year t. VAL_{ijtq-4}, LEV_{ijtq-4}, $FreeC_{ijtq-4}$, $SIZE_{ijtq-4}$, ROA_{ijtq-4}, and $RISK_{ijtq-4}$ represent individual firms' market-to-book ratio, leverage, demand for external capital, size, and performance, respectively. They all have a four-quarter lag behind the quarter in which DCA_{ijtq} is estimated. IPO_{ijtq+m} and SEO_{ijtq+m} are dummy variables for IPOs, and seasoned equity offerings from the four quarters before DCA is estimated to the four quarters after. The coefficients for quarter and industry dummies also are included in the regression but not reported here. Panel B of Table 2.4 presents the results of the second-stage regression based on Equation 2.8, where the dependent variable $\sum_i \varepsilon_{jtq}$ is each industry's quarterly aggregated error terms from the first step. The independent variable is the industry market-to-book ratio, which is the measurement of industry valuation.

Panel A: Results of First-Stage Analysis

Variable	Coefficient	P-Value	Variable	Coefficient	P-Value
VAL_{ijtq-4}	0.001	0.0001	IPO_{ijtq+3}	0.0039	-0.0389
LEV_{ijtq-4}	-0.0052	0.0001	IPO_{ijtq+4}	0.0264	-0.0178
$FreeC_{ijtq-4}$	0.0061	0.0001	SEO_{ijtq-4}	0.0039	0.0003
$SIZE_{ijtq-4}$	0.0002	0.092	SEO_{ijtq-3}	0.0043	0.0005
ROA_{ijtq-4}	0.0725	0.0001	SEO_{ijtq-2}	0.0085	0.0047
IPO_{ijtq-4}	0.0002	0.979	SEO_{ijtq-1}	0.0118	0.008
IPO_{ijtq-3}	-0.0075	-0.0417	SEO_{ijtq}	0.0126	0.0087
IPO_{ijtq-2}	0.0199	-0.015	$SEO_{ijtq-+1}$	0.0091	0.0051
IPO_{ijtq-1}	0.0035	-0.0322	SEO_{ijtq+2}	0.0042	0.0002
IPO_{ijtq}	-0.0017	-0.0432	SEO_{ijtq+3}	0.0015	-0.0026
IPO_{ijtq+1}	-0.0242	-0.0646	SEO_{ijtq+4}	0.0052	0.0011
IPO_{ijtq+2}	0.0178	-0.0226	*Intercept*	0.0433	0.39
Overall R-sqrt	0.014				
No. of Observations	164320				

Panel B: Results of Second-Stage Analysis			
Variable	**Predicted Sign**	**Coefficient**	**p-value**
MB_{jtq-4}	+	0.0014	0.0001
Intercept		0.0053	0.0001
Adjusted R-sqrt	0.007		
No. of observations	4549		

Table 2.5

This table presents the statistics of variables in the second-stage analysis.

Variable	Industry Quarters	Mean	Std. Dev	Min	Max
MB_{jtq-4}	4549	1.5957	0.5361	0.752	6.0992
$\sum_i \varepsilon_{jtq-4}$	4549	0.0075	0.0086	-0.0335	0.0608

Descriptive statistics for the variables used in the second stage are presented in Table 2.5. Panel B of Table 2.4 presents the results of the second-stage analysis. The coefficient of the industry valuation from the second step is significantly positive, which is consistent with our hypothesis.[2] These results show that after controlling for the usual suspects, the industry average valuation has a positive relationship with earnings management. The coefficient of the industry valuation is 0.0014, which is significant at the 0.0001 level. This result implies that one standard deviation increase in industry valuation leads to an increase of 0.08 percentage point in aggregated error terms, which is about 11% of its average value. To translate this result into earnings per share, we first calculate the quarterly average assets per share within each industry—the ratio of the sum of total assets to the sum of outstanding shares in each industry quarter. The mean assets per share in our sample is 30.06 dollars per share, which indicates that one standard deviation increase in industry market-to-book ratio will lead to an increase of about 2.4 cents (0.08% * 30.06= 2.4) earnings per share. This result indicates that on average, firms inflate their earnings

per share by 2.4 cents when the standard deviation of the industry market-to-book ratio increases by 1. In sum, our result suggests that industry valuation influences the degree of earnings management, especially the current component of accruals.

2.4.2. Robustness Checks

Most earnings management studies use total discretionary accruals to proxy for earnings management. Although total discretionary accruals are not the best proxy in the context of our analysis, we also examine the relationship between the industry valuation and discretionary accruals. Equation 2.9 shows the first stage of the analysis, with discretionary accruals as the dependent variable. In this stage, we still regress the firm-level discretionary accruals on the control variables, which have been examined by prior studies. The error terms from this analysis are assumed to represent the part not explained by the control variables. After the first-stage analysis, we aggregate the error terms for firms in the same industry of each quarter and regress the aggregated error terms on industry valuation in the second stage (Equation 2.10).

$$DA_{ijtq} = \alpha_0 + \alpha_1 VAL_{ijtq-4} + \alpha_2 LEV_{ijtq-4} + \alpha_3 FreeC_{ijtq-4} + \alpha_4 SIZE_{ijtq-4} + \alpha_5 ROA_{ijtq-4} + \sum_{n=6,m=-4}^{n=14,m=4} \alpha_n IPO_{ijtq+m} + \sum_{n=15,m=-4}^{n=23,m=4} \alpha_n SEO_{ijtq+m} + D_{qtr} + D_{in} + \varepsilon_{ijtq} \quad (2.9)$$

Where DA_{ijtq} = Discretionary accruals estimated by modified Jones model

$$\sum_i \varepsilon_{ijtq} = \lambda_0 + \lambda_1 MB_{jtq-4} + \nu_{jtq} \quad (2.10)$$

Table 2.6 presents the results of the analysis based on Equation 2.9. In Panel A of Table 2.6, except for the coefficient of firm valuation (VAL_{ijtq-4}), the coefficients of other independent variables are similar to those in prior studies. The signs of these coefficients correspond with expectations. Panel B of Table 2.6 shows the result of equation 2.10.

[2] A Wooldridge (2002) test for autocorrelation in panel data suggests that first-order autocorrelation exists in the current model. However, our results do not change qualitatively when using fixed-

Table 2.7 presents the statistics of the variables in the second-stage analysis. The positive coefficient of the industry average market-to-book ratio indicates a positive relationship between industry valuation and earnings management, beyond the control variables. The coefficient of the industry valuation is 0.0027 and significant at the 0.0001 level. One standard deviation increase in the industry valuation leads to an increase of 0.14 percentage points in aggregated error terms, which is about 16% of its average value.

effects regression with an AR(1) disturbance.

Table 2.6

Panel A of Table 2.6 presents the results of regression based on Equation 2.9, where the dependent variable is discretionary accruals (DA_{ijtq}) of firm i in industry j at the quarter q of year t. VAL_{ijtq-4}, LEV_{ijtq-4}, $FreeC_{ijtq-4}$, $SIZE_{ijtq-4}$, and ROA_{ijtq-4} represent individual firms' market-to-book ratios, leverage, demand for external capital, size, and performance, respectively. All have a four-quarter lag behind the quarter in which DA_{ijtq} is estimated. IPO_{ijtq+m} and SEO_{ijtq+m} are dummy variables for IPOs, and seasoned equity offers from the four quarters before DA is estimated to the four quarters after. The coefficients for quarter and industry dummies also are included in the regression but not reported here. Panel B of Table 2.6 presents the results of the second-stage regression based on Equation 2.10, where the dependent variable $\sum_i \varepsilon_{jtq}$ is each industry's quarterly aggregated error terms from the first step. The independent variable is the industry market-to-book ratio, which is the measurement of industry valuation.

Panel A: Results of First-Stage Analysis

Variable	Coefficient	P-Value	Variable	Coefficient	P-Value
VAL_{ijtq-4}	-0.0005	0.0440	IPO_{ijtq+3}	-0.0051	0.8640
LEV_{ijtq-4}	0.0077	0.0010	IPO_{ijtq+4}	0.0191	0.5270
$FreeC_{ijtq-4}$	0.0078	0.0001	SEO_{ijtq-4}	-0.0038	0.2370
$SIZE_{ijtq-4}$	-0.0006	0.0001	SEO_{ijtq-3}	0.0010	0.7630
ROA_{ijtq-4}	0.1136	0.0001	SEO_{ijtq-2}	0.0055	0.0850
IPO_{ijtq-4}	0.0000	0.9990	SEO_{ijtq-1}	0.0063	0.0600
IPO_{ijtq-3}	0.0010	0.9760	SEO_{ijtq}	0.0111	0.0010
IPO_{ijtq-2}	0.0303	0.3430	$SEO_{ijtq-+1}$	0.0067	0.0520
IPO_{ijtq-1}	-0.0087	0.7800	SEO_{ijtq+2}	0.0008	0.8220
IPO_{ijtq}	-0.0307	0.4010	SEO_{ijtq+3}	0.0038	0.2790
IPO_{ijtq+1}	-0.0335	0.3600	SEO_{ijtq+4}	0.0087	0.0150
IPO_{ijtq+2}	0.0142	0.6580	*Intercept*	0.0677	0.4680
Overall R-sqrt	0.029				
No. of Observations	127257				

Panel B: Results of Second-Stage Analysis			
Variable	**Predicted Sign**	**Coefficient**	**p-value**
MB_{jtq-4}	+	0.0027	0.0001
Intercept		0.0043	0.0001
Adjusted R-sqrt	0.004		
No of observations	4391		

Table 2.7

This table presents the statistics of variables in the second-stage analysis.

Variable	Industry Quarters	Mean	Std. Dev	Min	Max
MB_{jtq-4}	4391	1.5909	0.5325	0.7520	6.0992
$\sum_i \varepsilon_{jtq-4}$	4391	0.0086	0.0237	-0.0501	0.0847

To exclude alternative explanations for the previous results, we conduct several sensitivity analyses. First, it is possible that our results are driven by high-tech firms because they use more stock-based compensation than other firms do. A higher level of stock-based compensation can create more incentives for firms to manage earnings. To control for these effects, we follow the definition of high-tech firms given by Loughran and Ritter (2004) and exclude them from our sample. We find that the relationship between industry valuation and earnings management is still significantly positive. This result shows that the positive association between industry valuation and earnings management is not driven by the high-tech sector.

Second, during the stock market boom of the late 1990s, the likelihood of detecting earnings management was higher than in other periods. Accounting fraud cases may have increased investor scrutiny. Therefore, our results may be driven by the stock market bubble, such as in the years 1999 and 2000. To mitigate this effect, we exclude observations in 1999 and 2000 from our sample and re-run the analyses. The results remain significantly positive, indicating an association between industry valuation and earnings management. Hence, our results are not driven by bubble years.

Third, we test our hypothesis using four-quarter lagged industry valuation because we assume that managers manage earnings by evaluating industry valuation levels for the same quarter in the previous year. To examine this assumption's sensitivity in our results, we also test the relationship between earnings management and industry valuation for three quarters, two quarters, and one quarter ago. The results show that earnings management also has a positive relationship with the industry valuation with three-quarter lag, two-quarter lag, and one-quarter lag.

2.5. Summary and Conclusions

This study investigates the relationship between industry valuation and earnings management behavior. Previous academic research has investigated several capital market motivations for earnings management. However, most of these studies take the industry environment as constant and focus on earnings management motivated by firm-specific and transaction-specific factors. We argue that the industry valuation affects the expected payoff and cost of earnings management, and thus has an impact on earnings management. Our main hypothesis is that industry valuation has a positive impact on the degree of earnings management in an industry.

We apply a two-stage empirical model to explore the association between industry aggregate earnings management and industry valuation. We use current discretionary accruals as our proxy for earnings management because it is "the component most easily subject to successful managerial manipulation" (Teoh et al., 1998, p. 195). Besides using current discretionary accruals, we also follow other earnings management studies and use discretionary accruals as another proxy for earnings management. After controlling for some usual incentives for earnings management, such as leverage, firm size, and firm performance, we find a significant positive relationship both between industry valuation and aggregate discretionary current accruals, and between industry valuation and aggregate discretionary accruals. The coefficients of control variables are also consistent with prior

studies. Therefore, we conclude that industry valuation is another motivation for earnings management.

Despite its contribution, the current study has several limitations. The first is the shortened sample period due to data availability. This study relies on the length of the sample period to show the boom and bust of the industry cycle. Yet, due to data availability requirements, we lose data in the period from 1950 to 1970. The second limitation is the stock market valuation measure. A potential challenge to this study is our use of market-to-book ratio as our valuation measure. Although after surveying behavioral finance literature, Baker et al. (2004) claim that market-to-book ratio is a usual proxy for valuation, many studies in finance and accounting use it to measure firms' growth opportunities. This difference in interpreting market-to-book ratio raises the question of whether our findings are the result of firms' growth opportunities. Just as McNichols (2000) finds that expected future growth (measured by analyst earnings growth forecast) is positively associated with the level of discretionary accruals, the current finding may reflect the relationship between growth opportunities (as measured by market-to-book ratio) and discretionary accruals. We argue that in theory, firms' market value is determined not only by growth opportunities, but also by other factors, such as profitability, risk, and mis-valuation. Therefore, the market-to-book ratio measures more than growth opportunities. However, we cannot decompose market-to-book ratio into growth opportunity-related and non-growth opportunity-related parts. Therefore, in future extensions of this work it may be worthwhile to control for analyst earnings growth forecast, although doing so may reduce the sample size greatly due to the sparseness of analyst earnings growth forecast observations. We leave these challenges to such future extensions.

Chapter 3: IPO Firm Failures and Institutional Linkages[3]

3.1. Introduction

Nearly twenty competing new stock markets opened their doors in twelve Western European countries between 1995 and 2005 (Posner, 2005). These stock markets copied the model of NASDAQ, with its low barriers to entry and tight disclosure rules, and had one common aim: to attract untested, early-stage, innovative, and high-growth ventures that, until then, had not been considered viable candidates for public equity financing in Europe. However, most new markets were not able to attract sufficient listings to sustain market interest, or suffered from inadequate rule enforcement. For example, insider trading scandals and accounting frauds tarnished the reputation of the Neuer Markt, once billed as Europe's answer to NASDAQ (Burghof and Hunger, 2004). As a result, investor confidence quickly dwindled, as did many of the new stock markets themselves, with the closure of EuroNM Belgium in 2001, the German Neuer Markt in 2003, and the French Nouveau Marché in 2004.

In this chapter, we conjecture that the legitimacy of the stock market can be viewed as a contextual factor that impacts IPO firm failure. In their formative years, new stock markets themselves still have to build trust, reliability, reputation, and finally, legitimacy. Suchman (1995, p. 574) defines legitimacy as a generalized perception or assumption that an entity's actions are desirable, proper, or appropriate within some socially-constructed system of norms, values, beliefs, and definitions. Institutional theorists argue that legitimacy-building is behind many decisions about institutional strategies (Meyer and Rowan, 1977; DiMaggio and Powell, 1983), and that an institution's acceptance and subsequent survival depend on attaining and maintaining support of the relevant

[3] This chapter is based on Jiao, T., Roosenboom, P. & Giudici, G. "IPO Firm Failures and

stakeholders in its environment (Baum and Oliver, 1992; Ruef and Scott, 1998). A stock market's institutional legitimacy can be considered particularly crucial because its "institutional capital" attenuates potential concerns among investors who invest in the stocks of high-growth ventures and because it co-determines continued access to funds and the social capital of the firms that list on it.

This research contributes to the emerging literature that explains IPO firm failure from firm-level characteristics, such as accounting variables (Jain and Kini, 2000; Weber and Willenborg, 2003; Demers and Joos, 2007) or social capital (Fischer and Pollock, 2004; Gulati and Higgins, 2004; Cohen and Dean, 2005). To our knowledge, none of these existing studies explore the question of whether and how stock markets' institutional legitimacy influences IPO firm failure. Investigation of institutional linkages' effects on IPO firm failures is important for two reasons. First, with the exception of Baum and Oliver (1991, 1992), few empirical studies have examined the link between institutional legitimacy and firm survival prospects in general. We argue that IPO firms draw on the stock market's "institutional capital," and once the stock market's institutional legitimacy is challenged, it can be expected to increase the possibility of IPO firm failure. However, to date there has been no attempt to examine whether the stock market's institutional legitimacy has an impact on IPO firm failure Second, this chapter helps to explain how new institutional arrangements impact a firm's chances of survival. Deciding which stock market to list on is an important business decision for firms because it is one of the factors determining their access to finance and social capital. Our analysis investigates whether managers' listing decisions impact IPO firm failure. To this end, we compare IPO firm failure on Europe's newly-established stock markets with that on Europe's well-established, official stock markets. This provides valuable insights to managers by showing how their listing decisions could potentially expose their firms to additional risk of failure.

Institutional Linkages."

We consider the five largest new stock markets in Europe: the German Neuer Markt, the French Nouveau Marché, the Dutch NMAX, EuroNM Belgium, and the Italian Nuovo Mercato. Our key finding is that the IPO firm failure rate on Europe's new stock markets is almost double the IPO firm failure rate on long-established, official stock markets in these countries. We attribute this difference to the challenged institutional legitimacy of the new stock markets in Continental Europe. In addition, consistent with other studies about IPO failure, we find that firms' accounting characteristics—such as auditors' reputations, leverage, and profitability—play significant roles in IPO firms' survivability. Our results show that firms that suffer loss and employ non-Big-5 auditors have significantly lower survivability than other firms.

The next section, 3.2, presents conceptual foundations and substantiates our main hypothesis. Section 3.3 discusses our data and methodology. This is followed by our results in section 3.4. Section 3.5 concludes this chapter.

3.2. Conceptual Foundations

New stock markets face the critical question of how to establish institutional legitimacy. Institutional legitimacy is important, as both investors and companies that plan to list on the stock market may not fully understand the market's nature and its conformity to established institutional rules. Aldrich and Fiol (1994) distinguish between cognitive and sociopolitical legitimacy. In this context, cognitive legitimacy refers to the spread of knowledge about a new stock market. Sociopolitical legitimacy refers to the process by which policy makers, investors, and the general public accept the stock market as appropriate and right, given existing norms and laws.

Europe's new stock markets for entrepreneurial firms in high-technology sectors were founded during the second half of the 1990s. Posner (2005) shows that these new stock markets present a remarkable turn in Europe's history by which, beginning in 1995, the

financial elites suddenly became fervent advocates of improving capital market access for untested firms. However, until 1994, none of the leading European exchanges had any plans for new stock market segments. The sudden institutional change can be attributed to European Commission officials who proposed a pan-European copy of NASDAQ in June 1994. This sparked a contest to become the leading center of entrepreneurial finance among national stock exchanges. In rapid succession, nearly twenty competing new stock markets were opened in twelve Western European countries.

A central insight of institutional theory is that organizations become legitimate by adopting practices and behaving in ways that are considered appropriate by different groups of stakeholders (Meyer and Rowan, 1977; DiMaggio and Powell, 1983; Suchman, 1995). Stock markets rest on a web of relations between financial intermediaries, (institutional) investors, and companies seeking capital (Posner, 2005), and compete in large part to attract global institutional investors. Because these institutional investors were familiar with the NASDAQ form, new Continental European stock markets perceived the NASDAQ model, with its low barriers to entry and tight disclosure rules, as the most efficient and legitimate way to organize a stock market for entrepreneurial companies (Bottazzi and Da Rin, 2002; Posner, 2005). The NASDAQ model's tight disclosure rules were intended to induce self-selection of high-quality firms and to bridge the information gap between companies and investors. For example, companies listing on the German Neuer Markt had to provide information in English, quarterly reports, and accounts in accordance with international accounting standards (Leuz, 2003). Besides adopting the familiar NASDAQ model, Europe's new stock markets also tried to create cognitive legitimacy by developing a high media presence through presenting listed companies and IPO candidates in special publications, advertising campaigns, a separate section in financial newspapers' stock pages, and intensive public relations activities (Burghof and Hunger, 2004). Pollock and Rindova (2004) show how positive media coverage can indeed assist IPO firms to accumulate firm-level legitimacy. The new markets met with early

runaway success, with more than 600 companies listing on Continental Europe's new stock markets until 2000 (Bottazzi and Da Rin, 2002; Giudici and Roosenboom, 2004).

These same stakeholders and actors can, however, also challenge institutional legitimacy when they believe that an institution's practices or behavior are out of line with their expectations or broader norms of appropriateness (Elsbach, 1994; Elsbach, 2006). This disapproval can take the form of public criticism and demands for change, or the withdrawal of support for an institution. The most common legitimacy challenges stem from single events, such as scandals. This is what happened to Continental Europe's new stock markets, which were plagued by insider trading scandals and accounting frauds. The challenged institutional legitimacy could be attributed in part to design flaws in the new stock markets' institutional setup. For example, Burghof and Hunger (2004) show that the original setup of Germany's Neuer Markt suffered from a lack of (ex-ante) publicity for insider sales, insufficient penalties in the case of rules violations, and an inadequate delisting regime for failed penny stocks. German courts even barred the Frankfurt Stock Exchange from delisting companies that were accused of fraud and insider trading. These companies, therefore, tarnished the Neuer Markt's reputation. Institutional investors became wary of investing in entrepreneurial companies whose transparency was somewhat suspect, and withdrew their support for new markets.

Institutions often take action to defend their legitimacy when it is in trouble (Ashforth and Gibbs, 1990; Suchman 1995). Defensive actions include the construction and dissemination of verbal accounts to explain, justify, excuse, or deny illegitimate actions (Elsbach 1994; Suchman 1995), or the restructuring of practices and policies criticized as illegitimate (Suchman, 1995; Elsbach, 2006). After the scandals, the stock exchanges tried to strengthen the requirements for admission to new markets. On the French Nouveau Marché, companies going public needed to have filed audited accounts for three fiscal years and an income statement showing a pre-tax profit for the preceding twelve months, but the new rules only came into effect in 2003. When stock prices on the Neuer Markt collapsed, due largely to scandals rooted in poor compliance with the disclosure rules, the

Frankfurt Exchange redoubled its enforcement efforts (*Financial Times*, July 23, 2000). In 2001 the German government proposed a Financial Market Promotion Act that was designed to improve investor confidence in the country's equity market by making companies liable for damages if they provided false or misleading ad hoc announcements, or if they did not make announcements about market-sensitive information on a timely basis. However, it was a case of too little too late. Introducing new rules to close the gaps ex post facto sent an ambivalent signal. It was understood as a sign of the defectiveness of the entire system, which seemingly had been constructed to deceive investors (Burghof and Hunger, 2004). The hasty adoption of the NASDAQ model had not been accompanied by changes in legal investor protection, and therefore lacked institutional legitimacy. Although the early runaway success of the new stock markets had resulted in more widespread share ownership, the laws protecting shareholders' interests had not kept pace. The German Neuer Markt closed in 2003, and the French Nouveau Marché followed in 2004.

This chapter argues that the new stock markets' (lack of) institutional legitimacy influences IPO firm failure. Previous studies show that new ventures' probability of survival is rather limited (Freeman et al., 1983). Stinchcombe (1965) dubbed this phenomenon the "liability of newness," and argued that new ventures' resource poverty, lack of legitimacy, and weak ties to external actors provide them with reduced capacity when they compete with established firms. Therefore, for survival and growth, it is crucial for entrepreneurial firms to have continued access to three kinds of resources: social, financial, and operational/productive (Rao, 1994; Suchman, 1995). Access to finance has been widely shown to particularly influence entrepreneurial firms' chances of survival (Eisenhardt and Schoonhoven, 1990; Martin and Justis, 1993; Mudambi and Treichel, 2005). It is exactly this access to financial resources that may be jeopardized when the stock market's institutional legitimacy is challenged and investors lose confidence.

Entrepreneurial firms acquire at least part of their organizational legitimacy from their ties with legitimate actors and institutions (Baum and Oliver, 1991; Carter and

Manaster, 1991; Podolny, 1994; Fischer and Pollock, 2004; Gulati and Higgins, 2004; Cohen and Dean, 2005). Reputable actors and institutions that are willing to certify the quality of the firm going public confer external legitimacy on it through their association. Therefore, the firm's organizational legitimacy is derived from its relationships with other legitimate organizations and actors who are a valuable source of social capital (Portes, 1998). In the context of IPOs, three actors have been found to enhance the social capital of firms going public: underwriters (Carter and Manaster, 1990), auditors (Titman and Trueman, 1986; Michaely and Shaw, 1995; Weber and Willenborg, 2003), and venture capitalists (Megginson and Weiss, 1991; Fischer and Pollock, 2004). Previous research has found that investors look at these reputable actors as cognitive anchors and that these actors help to decrease the likelihood of IPO firm failures (Demers and Joos, 2007; Fischer and Pollock, 2004). Building on this research, we argue that stock markets themselves can also act as legitimate institutions which endorse the quality of firms going public. We argue that a challenge to a stock market's institutional legitimacy negatively impacts all firms that list on it, since they draw part of their organizational legitimacy from the stock market's institutional capital. Hence, we conjecture that the stock market's institutional legitimacy is inversely related to IPO firm failures.

H3.1: A stock market's institutional legitimacy is inversely related to IPO firm failure.

3.3. Data and Methodology

3.3.1. Sample Description

Our initial sample consists of all IPO firms in France, Germany, the Netherlands, Belgium, and Italy for the period of 1996 to 2000. This period starts with the opening of the Nouveau Marché in France. We exclude 65 IPO firms on new markets that fail to meet official stock markets' criteria for firm age and size. The listing requirements of both new

and official stock markets in Europe can be found in the Appendix.[4] Most IPO firms, therefore, had the opportunity to list on both the new and official stock markets in their country. Our final sample comprises 509 new market IPOs and 452 official market IPOs. Table 3.1 summarizes the distribution of IPOs in each stock market. In terms of IPO numbers, the largest new stock markets are in France, Germany, and Italy. With the exception of Germany, official stock markets had more IPO activities than new stock markets. In particular, in France, the Second Marché had 174 IPOs from 1996 to 2000. This market was set up for small firms, though it has higher admission criteria for initial entry than the Nouveau Marché does.

[4] Although in principle loss-making firms are not allowed to be listed in official markets, these markets allowed some deviations in order to attract new-economy firms during our sample period. Therefore, in our sample, 16 IPO firms listed on an official market had loss-making history.

Table 3.1

Sample Distribution

This table displays the firm distribution of different stock exchanges.

		1996	1997	1998	1999	2000	Total
Official Stock Markets							
Germany	Amtlicher Handel	5	10	15	28	14	72
	Geregelter Markt	4	3	9	9	6	31
France	Premier Marché	2	2	4	4	13	25
	Second Marché	29	36	68	27	14	174
Italy	Mercato Principale	12	10	15	21	12	70
Netherlands	Officiële Markt	4	9	10	13	5	41
Belgium	Eerste Markt	1	11	13	10	4	39
	Total Official Markets	57	81	134	112	68	452
New Stock Markets							
Germany	Neuer Markt	0	10	42	129	132	313
France	Nouveau Marché	14	17	40	31	44	146
Italy	Nuovo Mercato	0	0	0	4	24	28
Netherlands	NMAX	0	1	3	1	0	5
EuroNM in Belgium	Euro.NM Belgium	0	2	6	6	3	17
	Total New Markets	14	30	91	171	203	509

3.3.2. Empirical Methods

This chapter examines whether the choice of stock market is a determinant of IPO firm failure. To measure this effect, we compare the failure rates of firms listed on official markets to those of firms listed on the new markets. However, the comparison between these two groups is only unbiased when IPO firms on the new markets are comparable to those listed on the official markets. Therefore, we use propensity score matching (Rosenbaum and Rubin, 1983; Villalonga, 2004; Li and Zhao, 2006), a technique that can identify a sub-sample from IPO firms on official markets with a similar propensity to be listed on the new markets as the IPO firms that actually chose to list on new markets. We measure this probability based on a range of ex-ante IPO firm characteristics.

3.3.2.1. Propensity Score Matching

We use a logistic model to identify a group of official market IPO firms that have similar firm characteristics, and therefore, a similar probability to be listed on a new market as that of the new market IPO firms. The dependent variable is a dummy variable (*List_choice*), which equals 1 if firms are listed on new markets and 0 if companies are listed on official markets. Equation (3.1) presents our logistic model:

$$Ln(\frac{p_i}{1-p_i}) = \beta_0 + \beta_1 age_i + \beta_2 size_i + \beta_3 part_i + \beta_4 loss_i + \beta_5 vc\_back_i + \beta_6 cash_i + \beta_7 internet_i + \beta_8 high\_tech_i + \beta_9 hot\_issue_i + \varepsilon_i \quad (3.1)$$

where i denotes IPO firm i listing on either official markets or new markets, p is the probability for an IPO firm to be listed on a new stock market, and ε denotes the error term. We refer to Table 3.2 for variable definitions.

Table 3.2
Variable Definition

Variable	Description	Measure
list_choice	Listing choice dummy	1 if a firm decides to list on one of the new markets, 0 otherwise
size	Firm size	Natural log of total assets
age	Firm age	Natural log of one plus firm age
cash	Pre-IPO cash position	Natural log of cash before IPO scaled by total assets
loss	Profitability	1 if the firm's net income is positive, 0 otherwise
lev	Leverage	The ratio of total liabilities to total assets
part	Participation ratio	The number of secondary shares sold relative to pre-IPO shares outstanding
initial_return	First-day return	Closing price on the IPO date less offer price as % of offer price
vc_back	Venture capital dummy	1 if IPO is backed by venture capital, 0 otherwise
insider_post	Ownership of insiders after the IPO	Post IPO stake of insiders, including CEO, executive directors, non-executive directors, families, employees
underwriter	Underwriter reputation	Underwriter's market share within a country
auditor	Auditor reputation	1 if the auditor firm is one of the Big-5, 0 otherwise
weight_lock	Average lock-up period	weighted average length of the total lockup agreement of single largest post-IPO shareholder; weights are % of shareholdings locked
hot_issue	Hot issue period	market buy-and-hold returns during a 90 trading day interval before IPO (ending 1 day before IPO date)
internet	Internet firms	1 if a firm is from Internet industry, 0 otherwise. Defined by Knauff et al. (2003).
high_tech	High-tech firms	1 if a firm is from high-tech industry, 0 otherwise. Defined by Loughran and Ritter (2004).

We choose a range of firm characteristics based on the main differences in admission criteria between official and new markets. First, new markets' admission criteria allow younger and smaller companies to go public. Therefore, the first two variables we include in the logistic regression model are age (measured as the natural log of one plus age) and size (measured as the natural log of total assets). We thus expect that younger and smaller firms are more likely to go public on new markets.

Secondly, we include the participation ratio (*part*). The participation ratio is measured as the number of existing shares sold by the pre-IPO shareholders at the time of the IPO expressed as a percentage of the outstanding shares before the IPO. The new markets' admission requirements stipulate that half of the offered shares at the time of the IPO must be newly issued by the company. Hence, shareholders who want to sell shares at the time the firm goes public are better off opting to go public on the official markets, where these IPO rules do not apply.

We also include other variables that previous studies have shown to be the main characteristics of IPO firms on new stock markets (Bottazzi and Da Rin, 2002; Giudici and Roosenboom, 2004). The model incorporates a loss dummy (*loss*) and a venture capital backing dummy (*vc_back*). Giudici and Roosenboom (2004) compare the characteristics of new market firms with those of official market firms. They report that on new markets, a significantly larger number of less profitable and even loss-making firms go public, and a larger fraction of firms are backed by venture capitalists. Our model also includes the amount of cash on the pre-IPO balance sheet (*cash*). Given the easier access to new stock markets, it is more likely that cash-constrained firms tap them. Therefore, cash-constrained firms are more likely to go public on new stock markets. Bottazzi and Da Rin (2002) report that the composition of new market firms is more concentrated in Internet and high-tech industries. Therefore, our model also incorporates an internet dummy (*internet*) and high-tech dummy (*high_tech*). Finally, we include the market buy-and-hold returns during a 90-trading-day interval before the IPO (*hot_issue*). It is more attractive for firms to go public when the stock market as a whole is performing well and investors are more

interested in buying stocks. This is especially true for young startup firms, which are more inclined to list on new markets than on official markets.

Table 3.3 presents the descriptive statistics of the variables included in the logistic regression. The logit model includes 29 firms (17 new market firms and 12 official market firms) with missing data on one or more of the variables. This leaves 932 observations included in the logistic regression. For completeness, we include the descriptive statistics for both the untransformed and log-transformed variables.

Table 3.4 shows the results of logistic regression, which explains the propensity to list on Europe's new stock markets. Except for *hot_issue,* the coefficients of the other independent variables are significant. We find that younger, smaller, and more cash-constrained firms are more likely to list on new markets. The results also show that loss-making firms and firms with venture capital backing are more likely to be listed on new stock markets than official stock markets. Both Internet firms and high-tech firms tend to be listed on new markets.

Table 3.3

Descriptive Statistics of Firms Used in the Logit Estimation

Table 3.3 presents the descriptive statistics of the variables included in the logistic regression. The second half of the table shows the sample statistics after taking the logarithm of *Age, Size and Cash*.

	Observations	**Mean**	**Std. dev.**	**Median**	**Min**	**Max**
Age	932	24.473	35.737	13.000	1.000	527.000
Size	932	955.574	9218.548	20.459	0.005	216230.500
Cash	932	115.754	1761.239	2.172	0.000	45535.460
Participation	932	0.121	0.136	0.090	0.000	0.906
Loss	932	0.160	0.367	0.000	0.000	1.000
Hot_issue	932	0.093	0.142	0.075	-0.228	0.552
Vc_back	932	0.401	0.490	0.000	0.000	1.000
Internet	932	0.122	0.328	0.000	0.000	1.000
Tech	932	0.352	0.478	0.000	0.000	1.000
Logistic regression variables						
Propensity _score	932	0.528	0.337	0.546	0.000	0.998
LogAge	932	2.739	0.940	2.639	0.693	6.269
LogSize	932	3.345	1.936	3.018	-5.292	12.284
LogCash	932	-2.633	1.859	-2.415	-13.428	6.146
Participation	932	0.121	0.136	0.090	0.000	0.906
Loss	932	0.160	0.367	0.000	0.000	1.000
Hot_issue	932	0.093	0.142	0.075	-0.228	0.552
Vc_back	932	0.401	0.490	0.000	0.000	1.000
Internet	932	0.122	0.328	0.000	0.000	1.000
Tech	932	0.352	0.478	0.000	0.000	1.000

Table 3.4

Logit Estimation:

Prediction of Propensity Score to Be Listed on a New Stock Market

Table 3.4 shows the results of logistic regression, which explains the propensity to list on Europe's new stock markets.

Variable	Coefficient	Std. error	z-statistic	P>|z|
LogAge	-0.415	0.124	-3.360	0.001
LogSize	-0.639	0.073	-8.800	0.000
LogCash	-0.097	0.054	-1.800	0.072
Participation	-5.405	0.909	-5.950	0.000
Loss	0.845	0.348	2.430	0.015
Hot_issue	0.245	0.616	0.400	0.690
Vc_back	0.623	0.190	3.280	0.001
Internet	1.545	0.519	2.980	0.003
Tech	1.308	0.202	6.480	0.000
Intercept	2.824	0.417	6.780	0.000
No.of observation	932			
Log likelihood	-389.172			
Prob > chi2	<0.000			
Pseudo R2	0.396			

Applying the regression coefficients from the logistic regression, we estimate the likelihood of each IPO firm to be listed on the new market. Based on these estimated propensity scores, we identify a matching official market IPO firm for each of the new market IPO firms. In particular, we locate a comparable official market IPO firm with a propensity score with a difference less than 0.01 from that of the new market IPO firm. We allow matching with replacement, in order to match each firm from the official market sample with multiple firms from the new market sample as long as the distance between their propensity scores is smaller than 0.01. The replacement condition is an accepted technique when the control sample includes a smaller number of observations. For twelve new market firms we cannot find an appropriate match.[5]

The remaining 480 new market firms are matched with 138 official market firms. About 50% of the 138 official market firms are uniquely matched to one new market firm, and about 78% of the 138 official market firms are matched to less than three new market firms. Unreported results show that the propensity scores of official market firms are similar to those listed on the new markets. Both new market firms and the matched official market firms had similar firm characteristics, and therefore, a similar propensity to go public on Europe's new stock markets.

3.3.2.2. Cox Proportional Hazard Regression Model

In survival tests, we compare the failure rates of 480 new market firms with those of the 138 matched official market firms. Hence, our survivorship test does not allow for multiple matches. This allows for an unbiased estimation of IPO failure rate and an unbiased comparison of IPO firm failure between new and official stock markets. Firms included in

[5] Caliper matching first identifies firms under common support with a criterion of 0.01 units of propensity score. This step eliminates new market firms, whose propensity score is higher than the highest propensity score of official market firms by more than 0.01, and whose propensity score is lower than the lowest propensity score of official market firms by more than 0.01. Twelve new market firms are not under common support.

our survivor test thus meet two conditions: (1) they have an option to go public on a new market or an official market, and (2) they have similar firm characteristics, and therefore, a propensity to list on the new markets.

Prior studies have defined IPO failure in different ways. Demers and Joos (2007) define a firm's failure as delisting from the stock market, excluding transfers to another stock exchange, acquisitions, and going private transactions. This definition limits the sample to firms which fail and are removed from stock exchanges. However, new stock markets in Europe had the difficulty of not being able to remove failing penny stocks with little trading volume (Hunger and Burghof, 2004). We define IPO firm failure as the time it takes for an IPO firm's share price to drop below 10% of its IPO price. This definition is more general and includes failed firms that were delisted.

We use a Cox proportional hazard regression to further test whether institutional linkages influence the time to IPO failure, while controlling for other factors' effects. This method is often applied in the IPO firm failure literature (e.g., Jain and Kini, 2000). For more information about the method, we refer to Cox (1972). Equation 3.2 shows the Cox hazard model, in which we estimate:

$$\begin{aligned}\ln\left(\frac{H(t)}{H_0(t)}\right) &= \lambda_1 list\_choice_i + \lambda_2 age_i + \lambda_3 size_i + \lambda_4 loss_i + \lambda_5 lev_i + \lambda_6 part_i \\ &+ \lambda_7 insider\_post_i + \lambda_8 lockup_i + \lambda_9 vc\_back_i + \lambda_{10} initial\_return_i \\ &+ \lambda_{11} underwriter_i + \lambda_{12} auditor_i + \lambda_{13} \text{int}ernet_i + \lambda_{14} high\_tech_i + \lambda_{15} hot\_issue_i + \nu_i\end{aligned} \tag{3.2}$$

where *i* denotes a sample firm *i*, which could be listed on either official or new markets. $\frac{H(t)}{H_0(t)}$ is the hazard ratio, which shows the risk for a new market IPO firm to fail at time *t* relative to the failure risk of its official market counterpart. We refer to Table 3.2 for variable definitions. *List_choice* is our key independent variable. It is a dummy variable equal to 1 when firms opt to be listed on one of the new markets, and is 0 otherwise. This variable is used in the Cox regression to show whether firms that opt to list on a new market have a higher failure rate than those that choose to list on official markets. Hence,

this variable tests our hypothesis that the stock market's institutional legitimacy is inversely related to IPO firm failure, controlling for other factors that we outline below.

We also include a set of control variables. Table 3.2 shows variable definitions, and Table 3.5 shows the descriptive statistics.

Table 3.5

Descriptive Statistics for Firms Used in the Cox Proportional Hazard Regression

This table presents the statistics for the sample used in the Cox proportional hazard regression.

	No. of Obs.	Mean	SD	Median	Min	Max
list_choice	614	0.779	0.416	1.000	0.000	1.000
age	614	14.041	13.643	10.000	1.000	128.000
LogAge	614	2.428	0.739	2.398	0.693	4.860
size	614	50.558	219.462	12.884	0.005	3921.361
LogSize	614	2.625	1.429	2.556	-5.292	8.274
loss	614	0.231	0.422	0.000	0.000	1.000
lev	614	0.318	0.348	0.258	-0.270	6.676
part	614	0.080	0.089	0.063	0.000	0.508
insider_post	614	0.480	0.245	0.538	0.000	0.900
vc_back	614	0.459	0.499	0.000	0.000	1.000
lockup	614	11.364	11.110	10.570	0.000	66.979
initial_return	614	0.359	0.619	0.125	-0.300	4.444
underwriter	614	0.040	0.061	0.011	0.000	0.253
auditor	614	0.534	0.499	1.000	0.000	1.000
internet	614	0.179	0.384	0.000	0.000	1.000
tech	614	0.477	0.500	0.000	0.000	1.000
hot_issue	614	0.087	0.142	0.069	-0.228	0.427

We control for age differences by including the natural logarithm of 1 plus firm age (*age*) in the Cox regression model. Older firms have passed the test of time and have an established track record. Therefore, they are less likely to fail in the post-IPO period. We also control for the natural logarithm of total assets (*size*). Firm size is a proxy for firms' position in the market. Larger firms' economic scale enables them to have lower costs and higher market share. Therefore, they have a lower risk of failure (Schultz, 1993; Hensler et

al., 1997). Demers and Joos (2007) consider profitability as one of the accounting predictors of IPO failure. They use gross margin percentage as the proxy for profitability and find a significant negative relationship between gross margin percentage and IPO failure rate. However, most European IPO firms do not report costs of goods. Without this necessary item to calculate gross margin, we choose to use loss dummy (*loss*) as the proxy for profitability. This dummy is 1 when firms have a negative net income and 0 otherwise. Given this definition, we expect a positive coefficient for this variable.

Leverage is a widely-used predictor of firm failure in non-IPO settings (Ohlson, 1980; Shumway, 2001). Consistent with these studies, our analysis includes leverage as a control variable. It is calculated as the ratio of total liabilities to total assets (*lev*). We use the participation ratio (*part*) as a measure of pre-IPO shareholders' belief in firms' outlook. This ratio is calculated as secondary shares sold at IPO to shares outstanding pre-IPO. Fewer shares sold during IPO show pre-IPO shareholders' confidence in firms' potential for value improvement in the post-IPO period. In turn, it is less likely for these IPO firms to fail (Jain and Kini, 1994). *insider_post* is the insider ownership post-IPO. Insiders include CEO, executive directors, non-executive directors, families, and employees. Ownership helps to align the interests of managers and shareholders, and thus mitigates the agency problem (Jensen and Meckling, 1976). In addition, insiders have more information about IPO firms than that conveyed in IPO prospectuses. The higher insider ownership in the post-IPO period signals insiders' belief in IPO firms' prospects. Therefore, insider ownership can be a potential candidate for predicting IPO firm failure (Mikkelson and Partch, 1997; Demers and Joos, 2007).

Another signal relates to the period during which the CEO has agreed not to sell his shares in the period following the IPO. This so-called lockup period (*lockup*) is calculated as the number of months for which the CEO has agreed not to sell his shares. This requirement aims at avoiding excess supply of shares in the aftermarket (which could depress stock price) and at preventing insider trading (Brav and Gompers, 2003). If no lockup period is in place, pre-IPO investors could sell their shares to take advantage of

temporarily overoptimistic valuation. By committing to the lockup period, these pre-IPO shareholders signal their confidence in the future. Therefore, the lockup period is expected to be negatively related to IPO firm failure.

Prior studies (Megginson and Weiss, 1991; Jain and Kini, 1995; Brav and Gompers, 1997) find that IPO firms that are backed by venture capitalists display lower initial return and better long-term performance. In addition, Jain and Kini (2000) find that IPO firms that are backed by a venture capitalist have a higher survival profile than those without such backing. Therefore, we include a venture capital backing dummy (*vc_back*) that is equal to 1 if a venture capitalist owns shares in the IPO firm, and is 0 otherwise.

Based on Rock's (1986) model, Beatty and Ritter (1986) demonstrate a monotonic relation between underpricing and investors' uncertainty about IPO value. Therefore, we expect that a positive relation between IPO underpricing and failure rate can be predicted. We define underpricing (i*nitial_return*) as the percentage of the difference between the offer price and the closing price on the first day of trading.

Given the limited pre-IPO information available to investors, the quality and the opinion of experts involved in IPO process become important information sources for investors. IPO firms can enhance their social capital from their ties to reputable underwriters (Carter and Manaster, 1990; Schultz, 1993; Carter et al., 1998; Demers and Joos, 2007) and auditors (Titman and Trueman, 1986; Michaely and Shaw, 1995; Weber and Willenborg, 2003). We expect a negative relationship between these actors' reputations and IPO firm failure. We measure underwriter prestige (*underwriter*) as the underwriter's market share in the IPO market of its home country, and we measure auditor reputation as a dummy variable (*auditor*) that takes the value 1 if the auditor belongs to the top five audit firms, and is 0 otherwise.

We also control for industry differences. In particular, we include an Internet (i*nternet*) dummy and a high-tech (*high_tech*) dummy variable that are equal to 1 if IPO firms belong to the Internet or the high-tech industry, respectively. Prior studies (Ibbotson and Jaffe, 1975; Lowry and Schwert, 2002) find hot issue periods during which investor

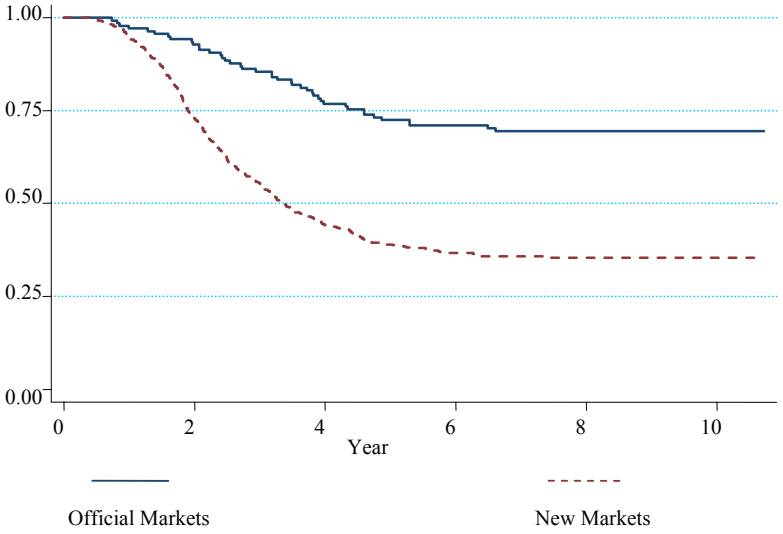
demand is high, resulting in high initial returns and an increase in the number of firms going public. During such periods, it is easier for lower-quality firms to go public. These firms are more likely to fail in the long run. We use stock market returns during a 90-trading-day interval before IPO as our proxy for hot issue periods (*hot_issue*).

3.4. Results

3.4.1. Plots of Survival Functions

We construct survival functions for both new market IPO firms and the matched official market IPO firms using the Kaplan-Meier estimation. Figure 3.1 shows the plot of the survival functions of new market firms and official market firms. Both groups start with a 100% survival rate at the time of IPO (year 0). After that point, the number of survival firms in both groups drops gradually. At year six, more than 65% of official market firms trade above 10% of their IPO price. In contrast, after six years only about 45% of new market IPO firms still trade above 10% of their IPO price. At the same time, during the whole period, the plotted survival function of the new market IPO firms is always below that of the matched official market firms, and the difference between these two is significant at 1 percent level. This result provides preliminary evidence that although both groups of IPO firms have an equal propensity to list on the new markets, those that actually do list on these markets display a significantly lower survival rate.

Figure 3.1
Survival Distribution Function Stratified by Stock Markets



3.4.2. Survival Analysis

Table 3.6 presents the results of the Cox proportional hazard regression. Consistent with our argument, the coefficient of our independent variable, market choice (*list_choice*), is significantly positive. This result suggests that if firms have a similar probability to be listed on a new market, the choice to actually list on the new market is associated with almost double the failure rate compared to those listing on official markets. In particular, new market IPO firms have a failure rate 2.18 times higher than that of matched official market IPO firms.

The regression coefficients of the loss-making dummy, participation ratio, venture capital backing dummy, underwriter prestige, and Internet industry dummy are statistically significant. As expected, the loss and Internet dummies are shown to have a positive impact on IPO firm failure. Loss-making firms have twice the potential for IPO failure of profitable firms. Firms from the Internet industry are 1.82 times more likely to fail in stock markets than firms from other industries. However, high-tech firms do not have

significantly higher failure rates than other firms. Consistent with prior studies (e.g., Stultz, 1993; Demers and Joos, 2007), our results show that hiring prestigious underwriters and reputable auditors can lower firms' IPO failure rate. A one standard increase in underwriter's market share decreases an IPO firm's failure rate by about 5%. IPO firms with auditors that belong to the top five audit firms have 22% lower risk of failure than IPO firms with less reputable auditors. This result shows that reputable actors enhance an IPO firm's social capital and thereby improve its survival prospects. Our analysis shows that the participation ratio has a negative impact on IPO firm failure. A one standard deviation increase in the participation ratio correlates with a 7% lower IPO firm failure.

Table 3.6

Cox Proportional Hazard Regression of the Time to Fail

This table presents the results based on the Cox Proportional Hazard Regression based on Equation 3.2.

	Hazard ratio	**Standard error**	**z-statistic**	**P>|z|**	**[95% Conf. Interval]**	
List_choice	2.184	0.401	4.260	0.000	0.421	1.141
Logage	0.917	0.082	-0.980	0.328	-0.262	0.088
LogSize	0.962	0.041	-0.920	0.356	-0.122	0.044
Loss	2.012	0.287	4.910	0.000	0.420	0.978
Lev	0.957	0.183	-0.230	0.816	-0.419	0.330
Participation	0.181	0.134	-2.300	0.021	-3.159	-0.255
Insider_post	0.683	0.168	-1.550	0.122	-0.864	0.102
Vc_back	0.925	0.108	-0.670	0.503	-0.308	0.151
lockup	0.999	0.005	-0.110	0.909	-0.011	0.010
Initial_return	0.975	0.092	-0.270	0.789	-0.210	0.159
Underwriter	0.110	0.112	-2.160	0.031	-4.218	-0.205
Auditor	0.780	0.091	-2.130	0.033	-0.476	-0.020
Internet	1.822	0.268	4.070	0.000	0.311	0.888
Tech	1.174	0.137	1.370	0.170	-0.069	0.389
Hot_issue	0.962	0.386	-0.100	0.923	-0.826	0.747
No. of obs.	614					
LR chi2(15)	165.740					
Prob > chi2	0.000					

3.4.3 Sensitivity Analyses

We conduct several sensitivity analyses to check our results' robustness. First, we change the propensity score matching procedure. We match each new market IPO firm to a comparable official market IPO firm with a propensity score that differs by less than one-quarter of the standard deviation of the propensity score. In our case, this comes down to 0.084 units of propensity score instead of the more restrictive 0.01 matching criterion used in prior analysis. We find that changing the propensity score matching procedure does not impact our findings.

Our analysis implicitly allows a new market IPO firm to be matched with an official market IPO firm listed in another country. However, stock markets in Europe may not be integrated to such an extent that IPO firms list freely across countries. To avoid this problem, we match new market firms only to official market firms from the same country. This constraint limits our sample size, but the results still show a significantly higher failure rate for new market IPO firms than for official market IPO firms.

As a final sensitivity check, we vary our definition of IPO failure. We define IPO failure as the point when the firm's stock price drops below either 20% or 30% of its offer price. Our results are robust enough to use these alternative definitions of IPO firm failure.

3.5. Discussion and Conclusions

Choosing which stock exchange to list on is an important business decision. Each exchange is designed for different target firms and enforces different rules of admission and supervision. When IPO firms qualify for listing on several stock markets, the question is which institutional setting, including admission criteria and supervision rules, is most suitable for their future development and can enhance their survival prospects. None of the existing studies on IPO firm failure have looked at this issue.

This chapter examines firms that list on Europe's new stock markets. These new stock markets copied the NASDAQ model, with its low barriers to entry and tight disclosure rules, and had one common aim: to attract untested, early-stage, innovative, and high-growth ventures that, until then, had not been considered viable candidates for public equity financing in Europe. However, after a promising start, most of these new stock markets ended in failure, amidst accounting frauds and insider trading scandals that challenged their institutional legitimacy. We test the hypothesis that IPO firms derive their organizational legitimacy partly from their institutional linkage with the stock market. If the stock market faces a challenge to its institutional legitimacy, it is no longer viewed as a legitimate institution that can endorse firms' quality. A stock market's institutional legitimacy thus is expected to influence the survival prospects of all firms listed on it.

Beginning in 1996, European firms could opt to go public on new markets or on the existing official stock markets. We employ propensity score matching to identify official market IPO firms that have similar probabilities of listing on the new markets as do the new market IPO firms themselves. We then compare the failure rates between these matched official market and new market firms. Our results show that the IPO firm failure rate on new stock markets is almost double that of the official market, controlling for other factors the prior literature has shown to impact IPO firm failure. We attribute this finding to the challenges to the institutional legitimacy of these new markets.

Overall, our study contributes to the understanding of new institutional arrangements' impact on survival prospects. These results suggest that managers of IPO firms should make careful decisions about the stock market on which they choose to list. They must realize that new stock markets still need to build their institutional legitimacy, and that this lack of establishment exposes the IPO firm to additional failure risk. New stock markets' institutional legitimacy can be challenged if it fails to adequately enforce listing rules or is unable to remove firms that commit fraud. Our analysis shows that such a challenge to institutional legitimacy impacts the survivability of firms that are listed on that stock market (and not only those that do not comply with the rules). Our study, therefore, has

important policy implications for stock exchanges that plan to set up new stock market segments as well as for managers who must decide which stock market to go public on.

Appendix 3.1

New Markets' Listing Requirements

Stock Market	Country	Firm Age and Size	Issue Size and IPO Rules	Floating Capital	Lockup Provisions
Neuer Markt	Germany	Three years; equity book value higher than €1.5 million	Half of the offered shares must be newly issued; IPO proceeds higher than €5 million	25% or 10% if offer size is larger than €5 million (at least 100,000 shares)	Compulsory for 6 months
Nuovo Mercato	Italy	One year; equity book value higher than €1.5 million	Half of the offered shares must be newly issued; IPO proceeds higher than €5 million	20% (at least 100,000 voting shares)	Compulsory for one year (insiders must lock at least 80% of their shares)
Nouveau Marché (Euronext)	France	Equity book value higher than €1.5 million	Half of the offered shares must be newly issued; IPO proceeds higher than €5 million	20% (at least 100,000 voting shares)	Compulsory for one year (insiders must lock at least 80% of their shares)
NMAX (Euronext)	The Netherlands	Equity book value higher than €1.5 million	Half of the offered shares must be newly issued; IPO proceeds higher than €5 million	20% (at least 100,000 voting shares)	Discretionary
Euro.NM Belgium (Euronext)	Belgium	Three years; market capitalization higher than €2 million	Half of the offered shares must be newly issued; IPO proceeds higher than €5 million	25% (in some cases 10%)	Compulsory for 12 months

Appendix 3.1 (continued)

Europe's Official Stock Markets' Listing Requirements (December 2002)

Stock Market	Country	Firm Age and Size	Issue Size and IPO Rules	Floating Capital	Lockup Provisions
Amtlicher Handel Geregelter Markt (Deutsche Börse)	Germany	Three years (no constraint for Geregelter Markt); expected capitalization no lower than €1.25 million (minimum equity book value equal to €250,000 for Geregelter Markt)	No specific rule	At least 25% (20% on SMAX segment); no specific rule for the Geregelter Markt	Not compulsory
Mercato Telematico Azionario	Italy	Three years; expected capitalization larger than €5 million	No specific rule	At least 25% (35% on STAR segment)	Not compulsory
Premier Marché and Second Marché (Euronext Paris)	France	Two years; recommended expected capitalization larger than €15 million	No specific rule	At least 10% (25% on Premier Marché)	Not compulsory
Officiële Markt (Euronext Amsterdam)	The Netherlands	Three years; equity book value larger than €5 million; the company must have reported profits at least three times out of five years	No specific rule	At least 10%	Compulsory (for at least 180 days) only if the company reports losses
Eerste Markt (Euronext Brussels)	Belgium	Three years; expected capitalization larger than €15 million	No specific rule	No lower than 10%; Floating capital must capitalize at least €5 million	Not compulsory

Chapter 4: The Mandatory IFRS Adoption in the EU and Analyst Forecast Properties[6]

4.1. Introduction

This chapter addresses the question of whether the adoption of International Financial Reporting Standards (IFRS) has increased the quality of accounting information. We examine this question through the impact of IFRS adoption on the quality of analyst forecasts. In particular, we test whether analyst forecasts become more accurate and less dispersed after the adoption. As our empirical context, we apply the mandatory adoption of IFRS for all firms listed on the exchanges of European Union (EU) countries. This uniform and compulsory adoption in 2005 provides a "natural experiment" through which to examine our research question. After controlling for company, industry, and country-level differences, we find that the quality of analyst forecasts to EU-listed companies increases after the adoption of IFRS in 2005. More specifically, the results show that analyst forecasts about these firms become more accurate and less dispersed after 2005. We interpret these results as the evidence of IFRS's positive effects on the quality of accounting information.

This study contributes to the literature on the consequences of harmonizing international accounting standards by investigating how IFRS adoption has impacted the quality of accounting information. Harmonization of accounting standards is a global trend. More than 100 countries around the world, including the whole EU, currently require or permit IFRS reporting (Ball, 2006). The U.S. Securities and Exchange Commission (SEC) also is considering allowing U.S. firms to prepare their financial reports in accordance with IFRS. During this increasing trend of IFRS adoption, researchers, investors, and standard-setters have frequently asked questions about the quality and effects of IFRS. However,

[6] This chapter is based on Jiao, T., Mertens, G., Roosenboom, P., 2008, "The Quality of Accounting

previous studies' empirical findings have been mixed. Some studies suggest that increased quality of accounting information can improve the information environment of the firms adopting IFRS standards, which is associated with lower cost of capital (Daske et al., 2008), increased earnings quality (Barth et al., 2007), and increased disclosure level (Daske and Gebhardt, 2006). Other studies, however, failed to find that IFRS had a positive effect on the quality of accounting information. For example, Daske (2006) fails to find decreased cost of capital for German firms that adopted IFRS. By examining short-run market reactions and long-run changes in capital costs, Christensen et al. (2007) conclude that the mandatory adoption of IFRS in the UK does not benefit all firms.

This chapter examines the effect of IFRS adoption on the quality of accounting information from the perspective of the quality of analyst forecasts. Analysts are among the most important and sophisticated users of financial reports. Their forecasts rely heavily on the accounting information provided by such reports. Hence, changes in accounting information can be reflected in the quality of analyst forecasts (Vergoosen, 1993; McEwen and Hunton, 1999; Hope, 2003). Existing literature has provided some evidence of accounting standards' impacts on analyst forecasts. For example, Peek (2005) finds that discretionary accounting changes in the Netherlands from 1998 to 1999 have had an impact on the accuracy of analyst forecasts. Ashbaugh and Pincus (2001) find that the accuracy of analyst forecasts improves after the adoption of IAS in non-U.S. firms around the world. Extending the work of this body of literature, we examine whether the conversion from local GAAPs to IFRS of EU-listed firms is reflected subsequently in changes in the quality of analyst forecasts. Improvements in the quality of analyst forecasts can be regarded as evidence of improved quality of accounting information under IFRS.

The quality of analyst forecasts has two dimensions: accuracy and dispersion. Dispersion reflects differences in analysts' understandings and expectations of firms' performance. The uniform adoption of IFRS in the EU aims to increase the comparability

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Information and Analyst Forecasts Properties."

of financial reports of all EU-listed firms. It requires these firms to report under the same accounting standards and in the same formats. The IFRS thus provides equity analysts with a consistent guideline for understanding and comparing accounting information presented in accounting reports from different countries. Hence, those aspects of dispersion of analyst forecasts that are caused by differences in local GAAPs can be mitigated. Therefore, we expect the dispersion of analyst's reports will decrease subsequently.

Different from local GAAPs, IFRS is a set of fair value-based accounting standards which present the value of assets at the price at which the subject assets can be sold or bought as of the transaction date. In this case, accounting information prepared under IFRS is closer to actual economic conditions and provides a better benchmark for analysts to understand the economic position of the firms they follow. Hence, we expect that IFRS can also impact the accuracy of analysts' forecasts.

Our empirical setting helps to mitigate two concerns faced by prior studies. The first concern, which is a potential cause of prior studies' mixed findings, is the use of samples composed of voluntary adopters (i.e., those who adopted IFRS before 2005). Prior studies (Christensen et al., 2007) have documented that IFRS's economic consequences on voluntary adopters are more significant than on other firms. Voluntary adopters time their adoptions of IFRS to get expected gains: for example, to attract external financing (Ashbaugh, 2001; Cuijpers and Buijink, 2005). This self-selection issue can bias either for or against identifying the impact of IFRS adoption on the quality of analyst forecasts. Second, there is a potential problem of omitted variables. In addition to changes in accounting standards, other factors—such as financial market development, capital, ownership structure, and the legal and political system—also may affect the quality of accounting information. For instance, using the enforcement index developed by La Porta et al. (1998), prior studies find that accounting quality is higher in countries with a common law origin and high protection of shareholder rights (Ali and Hwang, 2000; Ball et al. 2000; Leuz et al., 2003). These factors can be both firm-specific and country-specific, and can be difficult to control for. However, in the current study, EU listed firms'

simultaneous adoption of IFRS at the beginning of 2005 acts as a natural experiment that forces all firms to follow the same set of accounting standards, IFRS, in the same way, regardless of differences in different countries' institutional environments. Moreover, we control for the other unobservable factors by including country and industry effects in our analyses.

This chapter is organized as follows: Section 4.2 develops the hypothesis about the effects of compulsory IFRS adoption on analyst forecast accuracy and dispersion. Section 4.3 describes the data and methodology. Section 4.4 reports the results of empirical analysis. Section 4.5 discusses the findings and conclusions.

4.2. Hypotheses

4.2.1 Accuracy

Our first hypothesis addresses how IFRS adoption impacts the accuracy of analyst forecasts. Lang and Lundholm (1996) find that disclosure level can impact the accuracy of analyst forecasts. Among all other sources of information, financial reports are an important channel for communication between firms and analysts. It has been observed that IFRS adoption increases disclosure levels in financial reports. For example, prior studies (Ding et al., 2007; and Bae et al., 2007) find that firms' financial reports prepared under IAS become more comprehensive than those prepared under local GAAPs. Daske and Gebhardt (2006) investigate whether voluntary IFRS adoption increases the disclosure quality of firms in Austria, Germany, and Switzerland. Their study uses the available disclosure scores published by major business journals in these three countries and finds that the level of disclosure, being a metric of disclosure quality, increased significantly after IFRS adoption. Hence, we expect the quality of analyst forecasts to improve when IFRS increases firms' disclosure levels.

Meanwhile, the quality of analyst forecasts relies not only on disclosure level, but also on disclosure quality. High-quality disclosure conveys information which is closer to a firm's actual economic position. Consequently, analyst forecasts are expected to be more accurate if higher-quality financial information is available for analysts' use. IFRS is a set of valuation-based accounting standards which requires that accounting measurements better reflect a firm's economic position and performance. Some evidence already shows that IFRS improves the quality of accounting information, as reflected in less earnings management, more timely loss recognition, and more value relevance of accounting amounts (Barth et al, 2007).

Besides such characteristics of IFRS, their uniform adoption across EU countries intends to force firms to provide higher-quality financial reports. On the one hand, the mandatory uniform adoption requires firms to use the same set of accounting standards, which limits their chances of deliberately shopping for accounting standards that are more beneficial to them. Also, by complying with the same accounting standards, managers cannot threaten to opt for auditors who give an unqualified opinion on a more favorable rule (Ball, 2006). On the other hand, the uniform accounting standards and reporting formats provide investors greater ease in comparing financial reports. By comparing accounting reports across peer companies, investors increase their chances of detecting unusual reporting behavior and hence can force management to provide higher-quality financial reports. Consequently, the accuracy of analyst forecasts is expected to increase.

H 4.1: Analyst forecasts have become more accurate after the IFRS adoption in EU countries.

4.2.2. Dispersion

Financial analysts specialize in collecting, analyzing, and disseminating financial information (Bae et al., 2007). They use not only public information disclosed by the firm, but also private information which they themselves collect. Before the uniform adoption of

IFRS, differences in financial reports (i.e., different accounting rules and language) made the interpretation and understanding of financial information inconsistent. As a result, analysts may interpret financial reports in different ways. Differences in accounting reports may also cause analysts to rely less on the public information disclosed by the firm, and more on their own private information. Consequently, earnings forecasts for firms under domestic GAAP are expected to be more dispersed.

Although the founding of the EURO zone removed differences in currencies and trading practices, accounting reporting standards were still diverse before the adoption of IFRS. Differences in accounting standards may come from differences in history, culture, and legal and institutional frameworks. For example, La Port et al. (1998) compares the quality of accounting standards for 44 countries (including major European countries) based on their legal origins. They find that the quality of accounting standards in countries from English and Scandinavian origins is significantly higher than those from French and German origins. These differences in accounting standards have made it more costly for analysts to acquire information and more complicated for them to understand and interpret financial reports (Ashbaugh and Pincus, 2001).

With the uniform adoption of IFRS in EU countries, listed firms must prepare financial reports under the same set of accounting standards and in the same formats. Under these circumstances, financial reports from different firms and countries are supposed to be more comparable for financial analysis. Meanwhile, the increase in disclosure level and quality provides equity analysts with more public information, which can reduce the weight of private information in their forecasts and hence increase consensus among their forecasts (Lang and Lundholm, 1996). Therefore, we expect:

H 4.2: Analyst forecasts have become less dispersed after the IFRS adoption in EU countries.

4.3. Data

Our tests begin by composing a sample of public firms listed on the EU stock exchanges at the end of 2005. Since the beginning of 2005, the EU committee has been requiring all these firms to prepare their financial reports under IFRS. Although some of them had voluntarily adopted IFRS before 2005, we do not identify them in our sample. One reason is that many of them are light adopters, whose adoption of the IFRS had little economic consequence (Daske et al., 2008). Therefore, we expect to observe the effects of uniform adoption of IFRS in post-2005 period.

Our initial sample covers the years 2004 and 2006. Out of the initial sample, we exclude firms listed on Alternative Investment Markets (AIM) in the UK and firms dually listed on exchanges outside the EU. AIM firms were allowed to delay their adoption of IFRS until 2007. This implies that many of them may still have followed UK GAAPs in 2005 and 2006. Dually-listed firms (i.e., firms that also are listed in the U.S.) may have to prepare their financial reports under other GAAPs. Therefore, both AIM and dually-listed firms may not have converted to IFRS in 2005.

We retrieve the consensus analyst forecasts of our sample firms from IBES for the periods of 2004 and 2006. A consensus analyst forecast is the average of available earnings forecasts at any time. Our study retains only the latest consensus forecast before the announcement of annual earnings, as it is based on all the available information in the market and thus is the most informative. Our sample has excluded consensus forecasts made during 2005, first, because the different financial year-ends caused the conversion to IFRS to take place during the course of 2005. Under this circumstance, it is possible that some analyst forecasts for firms with non-December ends to their financial years were still estimated under local GAAPs. Second, except for financial institutions, other firms assess their real economic conditions primarily through periodic impairment tests, as these firms must adjust their balance sheet items to reflect the items' updated fair value. However, the

analyst forecasts for 2005, the first year of adoption, did not include impairment tests in their references. Therefore, our sample excludes 2005.

For the sub-sample to test analyst dispersion, we remove observations followed by only one analyst in order to avoid artificially lowering the dispersion of analyst forecasts. This is because in cases followed by only one analyst, the dispersion of analyst forecasts by definition is zero. However, this zero dispersion cannot be attributed to any economic factors that bridge differences in analyst estimates.

We use Thomson One Banker to collect the financial information necessary for our analyses. To construct the volatilities of firms' performance, we require that firms have five consecutive years of performance reported in Thomson One Banker. This requirement excludes firms with short histories from our sample. After removing all the missing variables, our final sample covers firms in 65 industries based on the two-digit SIC code in 19 countries. Table 4.1 shows the distribution of observations within the sample period in each country. France, Germany, and the UK are the countries with the three highest numbers of observations.

Table 4.1.

Country Distribution

This table shows the number of observations for each country-year applied to the sample for regressions.

	Accuracy Sample			Dispersion Sample		
Country	**2004**	**2006**	**Total**	**2004**	**2006**	**Total**
Austria	5	8	13	4	7	11
Belgium	19	23	42	14	21	35
Germany	65	125	190	50	93	143
Spain	17	23	40	16	21	37
France	61	124	185	54	104	158
Poland	1	2	3	1	2	3
Greece	2	14	16	1	9	10
Italy	23	34	57	14	29	43
Luxembourg	0	1	1			
Hungary	2	2	4	1	1	2
Netherlands	20	37	57	18	32	50
Portugal	3	4	7	3	4	7
Switzerland	59	79	138	45	69	114
United Kingdom	268	322	590	220	256	476
Ireland	13	15	28	13	15	28
Denmark	14	19	33	12	14	26
Finland	36	59	95	31	55	86
Norway	22	32	54	17	31	48
Sweden	22	37	59	16	35	51
Total	**652**	**960**	**1,612**	**530**	**798**	**1,328**

4.4. Methodology

To test our hypotheses about whether the EU's uniform adoption of IFRS in 2005 has impacted the accuracy and dispersion of analysts' forecasts, we use univariate testing and multivariate regressions.

4.4.1. Mean Comparison

In the univariate test, we use the paired mean comparison to check whether the accuracy and the dispersion of analyst forecasts for the same firm have changed over the course of IFRS adoption. We compare the mean of accuracy and dispersion between 2004 and 2006, respectively. Following other studies (Ashbaugh and Pincus, 2001), the accuracy of analyst forecasts is defined as the absolute difference between consensus earnings forecast and actual earnings, scaled by the stock price at the end of December of one year before the forecasted year. The following formula describes the accuracy of analyst forecasts:

$$Accuracy_{t,i} = \frac{\left| ConsensusForecast_{t,i} - ActualEPS_{t,i} \right|}{P_{t-1,i}} \tag{4.1}$$

Subsequently, we identify the dispersion of analyst forecasts, which is defined as the absolute difference between the highest and the lowest forecast, scaled by the stock price at the end of December of one year before the forecasted year. The following formula describes the dispersion of analyst forecasts:

$$Dispersion_{t,i} = \frac{(Forecast_{H,t,i} - Forecast_{L,t,i})}{P_{t-1,i}} \tag{4.2}$$

4.4.2 Regressions

In multivariate regressions, we regress the accuracy and dispersion of analyst forecasts on an IFRS Dummy (*IFRS*) and several control variables. The IFRS dummy is a variable that captures the changes in financial reporting practices that were caused by the adoption of IFRS in 2005. We define this variable to be 1 if it is after 2005 and 0 otherwise.

In addition, we draw on past literature to identify a series of variables that also may influence analyst forecasts. By including these variables, we aim to investigate their incremental effects on the accuracy and dispersion of analyst forecasts. The list of control variables covers firm characteristics and country characteristics.

Firm Size (LnMktCap): We use firm size to proxy for firms' media exposure. Larger firms tend to have higher levels of media coverage than small firms. Hence, it is easier for outsiders, such as analysts, to estimate firms' economic situations. Firm size control has been used by similar studies, such as that of Ashbaugh and Pincus (2001). Following these studies, we define firm size as the natural log of market capitalization at the calendar year end before the end of the financial year.

Number of Analyst Forecasts (LnNEstimate): Analysts collect various kinds of information to predict firms' performance. In addition to accounting information, other kinds of information also impacts the accuracy of analyst forecasts. If more analysts are analyzing a firm's performance, we assume that there is a higher possibility of including information other than accounting information in the forecast. Lang and Lundholm (1996) find that analyst forecasts have fewer errors when there are a larger number of analyst followings. Hence, we use the number of analyst followings to proxy for the width of non-accounting information coverage of firms. We expect that the higher the number of analyst followings, the more accurate the analyst forecasts will be. However, the relation between the number of analyst followings and dispersion is negative, as opinions about a single firm can be more diverse when more analysts follow the firm. We retrieve the number of following analysts from the IBES dataset and take the associated logarithm.

Performance volatility (StdROE): Performance volatilities indicate the predictability of a firm's performance. More volatility implies that earnings are less predictable. Therefore, it is possible that the accuracy of forecasts for this type of firm is lower and the dispersion is higher. We calculated the standard deviation of return on earnings in the five years before the forecast year to proxy for firms' performance volatility.

Industry, Country and Year Dummies (IndustryDummy, CountryDummy, YearDummy): Finally, we also include industry, country, and year dummies to control for the unobservable factors associated with the characteristics of industry, country, and year that may influence the accuracy and dispersion of analyst forecasts.

Table 4.2 summarizes the definition of variables. Our regression model can be described as follows:

$$\begin{aligned} Accuracy_{t,i} &= \alpha + \beta_1 \times IFRS_t + \beta_2 \times LnMktCap_{t-1,i} + \beta_3 \times LnNEstimate_{t,i} \\ &+ \beta_4 \times StdROE_{t-1,i} + \sum_{j=1}^{69} \beta_{5,j} \times IndustryDummy_{j,i} + \sum_{c=1}^{20} \beta_{6,c} \times CountryDummy_{c,i} \\ &+ \sum_{t=2004}^{2006} \beta_{7,t} \times YearDummy_{t,i} + \varepsilon_{t,i} \end{aligned} \tag{4.3}$$

$$\begin{aligned} Dispersion_{t,i} &= \chi + \lambda_1 \times IFRS_t + \lambda_2 \times LnMktCap_{t-1,i} + \lambda_3 \times LnNEstimate_{t,i} \\ &+ \lambda_4 \times StdROE_{t-1,i} + \sum_{j=1}^{64} \lambda_{5,j} \times IndustryDummy_{j,i} + \sum_{c=1}^{19} \lambda_{6,c} \times CountryDummy_{c,i} \\ &+ \sum_{t=2004}^{2006} \lambda_{7,t} \times YearDummy_{t,i} + \delta_{t,i} \end{aligned} \tag{4.4}$$

Table 4.2

Variable Definitions

This table defines the dependent and independent variables used in the analyses.

Variable	Definition
Accuracy	*Accuracy* is the accuracy of analysts' consensus forecasts. It is the absolute difference between the consensus forecast of EPS and the actual EPS scaled by the stock price at the end of year t-1.
Dispersion	*Dispersion* is the dispersion of analysts' consensus forecast for EPS. It is defined as the absolute difference between the highest estimate and the lowest estimate contained in consensus forecasts scaled by the stock price at the end of year t-1.
IFRS	*IFRS* is a dummy, which is equal to 1 for years before 2005 and to 0 otherwise.
MktCap	*MktCap* is a firm's market capitalization at the end of year t-1. This variable controls for the effects of firm size.
NEstimate	*NEstimate* stands for the number of estimations contained in consensus forecasts.
StdROE	*StdROE* is a variable control for the volatility of firm performance. It is calculated as the standard deviation of ROE based on the five years before year *t*.
Industry Dummy	This is the dummy for the industry to which a firm belongs. Industry is defined as the two-digit SIC code.
Country Dummy	*Country Dummy* is a dummy for the country where firms are registered.
YearDummy	This is the year dummy that controls for year effects.

4.5. Empirical Tests and Results

4.5.1. Sample Statistics

Descriptive statistics and correlations are presented in Table 4.3. On average, the accuracy and dispersion of earnings forecasts are about 2% of the stock prices. Analyst coverage ranges from 1 to 43, with a mean of 7. Our sample covers large firms with a mean firm size of 7.3 billion euros, which confirms that analysts tend to follow firms with longer histories and larger sizes. There is no significant correlation between the independent variables. With regard to the correlation between the dependent and independent variables, the accuracy and dispersion of earnings forecasts are negatively correlated with the IFRS dummy. In addition, both had a negative correlation with performance variance and a positive correlation with size variable. As for the correlation of earnings forecasts with analyst coverage, the accuracy of analyst forecasts has a positive correlation, and the dispersion with analyst forecasts has a negative correlation. This result is consistent with the argument that consensus analyst forecasts tend to be more accurate when more analysts are following a firm, but more dispersed when more analysts provide forecasts.

Table 4.3

Descriptive Statistics

The following two tables report the statistics for the sample for accuracy test and for the dispersion test. *Accuracy* is defined as the absolute difference between actual earnings in year *t* and the latest corresponding consensus forecast, scaled by the stock price in December of year *t-1*. *Dispersion* is the absolute difference between the highest and the lowest forecast used to calculate the consensus forecast, scaled by the firm's stock price at the end of year *t-1*. *MktCap* stands for the market capitalization of the sample firms at the end of year *t-1*. *NEstimate* is the number of estimations contained in the last consensus forecasts before the earnings disclosure. *StdROE* is the standard deviation of ROE, which is defined as the ratio of income before extraordinary items to common equities.

Statistics for the Sample for Accuracy Analysis

		Sample Statisics					Correlation Matrix			
	Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**	**(1)**	**(2)**	**(3)**	**(4)**
(1)	*Accuracy*	1612	0.0187	0.0423	0.0000	0.3878				
(2)	*MktCap*	1612	2544.5170	9023.9960	0.9331	175747.1000	-0.0614 *			
							(0.0136)			
(3)	*NEstimate*	1612	7.3375	7.0288	1.0000	43.0000	-0.1892 *	0.4305 *		
							(0.0000)	(0.0000)		
(4)	*StdROE*	1612	0.3056	0.8319	0.0027	8.4700	0.059 *	-0.0526 *	-0.0729 *	
							(0.0172)	(0.0347)	(0.0034)	
(5)	*IFRS*	1612	0.5955	0.4909	0	1	-0.0789 *	0.0197	0.0229	0.0461
							(0.0015)	(0.4290)	(0.3592)	(0.0643)

Statistics for the Sample for Dispersion Analysis

		Sample Statisics					Correlation Matrix			
	Variable	**Obs**	**Mean**	**Std. Dev.**	**Min**	**Max**	**(1)**	**(2)**	**(3)**	**(4)**
(1)	*Dispersion*	1328	0.0201	0.0238	0.0000	0.1798				
(2)	*MktCap*	1328	3048.6200	9921.5150	0.8996	175747.1000	0.0339			
							(-0.2166)			
(3)	*NEstimate*	1328	8.7319	7.0297	2.0000	43.0000	0.1206 *	0.4196 *		
							(0.0000)	(0.0000)		
(4)	*StdROE*	1328	0.2793	0.7535	0.0026	8.1900	0.0375	-0.0538	-0.0625 *	
							(0.1721)	(0.0501)	(0.0228)	
(5)	*IFRS*	1328	0.6009	0.4899	0	1	-0.0535	0.0213	0.0208	0.0418
							(0.0514)	(0.4381)	(0.4495)	(0.1279)

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%, 2-sides.

4.5.2. Empirical Results

Table 4.4 presents the results of a paired mean comparison of analyst forecast accuracy and dispersion in 2004 and 2006. The results show that analyst forecast accuracy in 2006, after the mandatory adoption of IFRS, is significantly higher than analyst forecast accuracy in 2004, before the mandatory adoption of IFRS ($p<0.01$). Analyst forecast dispersion in 2006, after the mandatory adoption of IFRS, is also significantly lower than analyst forecast dispersion in 2004, before the mandatory adoption of IFRS, although the significance is weaker ($p<0.1$). This suggests that on average, the accuracy of analyst forecasts increases about 1.8 percent of the stock price, and the dispersion of analyst forecasts decreases about 0.1 percent of the stock price, after the mandatory adoption of IFRS in EU countries in 2005.

Table 4.4

Paired T-test

These two tables show the results of the paired mean comparison between the accuracies of 2004 and 2006, and between the dispersions of 2004 and 2006.

Results for Accuracy Sample

Variable	No. of Obs	Mean	Std. Dev.	[95% Conf. Interval]	
Accuracy of 2006	558	0.0139	0.0399	0.0106	0.0172
Accuracy of 2004	558	0.0219	0.0508	0.0176	0.0261
Diff	558	-0.0080	0.0618	-0.0131	-0.0028
mean(diff) = mean(*Accuracy* of 2006 – *Accuracy* of 2004)					
t = -3.047					
p= 0.000 ***					

Results for Dispersion Sample

Variable	No. of Obs	Mean	Std. Dev.	[95% Conf. Interval]	
Dispersion of 2006	580	0.0161	0.0234	0.0142	0.0180
Dispersion of 2004	580	0.0177	0.0227	0.0158	0.0195
Diff	580	-0.0016	0.0277	-0.0039	0.0006
mean (diff) = mean(*Dispersion* of 2006 - *Dispersion* of 2004)					
t = -1.403					
p= 0.081 *					

Table 4.5 presents the results of a regression analysis for analyst forecast accuracy and dispersion in 2004 and 2006.[7] Models 1 and 6 present the results of the baseline models. Although both firm size (*MktCap*) and performance volatilities (*StdROE*) have insignificant effects on both accuracy and dispersion of analyst forecasts, the number of estimates has a positive and significant effect on both analyst forecast accuracy (b=-0.011, p<0.01) and dispersion (b=0.007, p<0.01). These results show that an increase in the number of estimates helps to increase the accuracy of earnings forecasts; however, the dispersion of analyst forecasts increases when more analysts are providing forecasts.

Models 2 and 7 present the regression results with the IFRS dummy. Model 2 shows that the IFRS dummy has a positive and significant effect on analyst forecast accuracy (b=-0.007, p<0.01). This suggests that on average, analyst forecast accuracy increases by 0.6 percent of the stock price after mandatory IFRS adoption in 2005. Model 7 shows that the IFRS dummy has a negative and significant effect on analyst forecast dispersion (b=-0.003, p<0.05). This suggests that on average, the dispersion of analyst forecasts decreases 0.3 percent of the stock price after mandatory IFRS adoption in 2005. F-tests also show that the explanatory power of Models 2 and 7 improves significantly from that of Models 1 and 6. Combined with the results of the mean comparison, the improvement in explanatory power is mainly the result of adding the IFRS dummy to the models.

Models 3 and 8 present the regression results, controlling for the industry dummies. The results for the IFRS dummy and other control variables do not change in terms of magnitude or significance. Models 4 and 9 present the regression results, controlling for the industry and country dummies. In the accuracy regression, the results for the IFRS dummy do not change materially in terms of magnitude or significance either. In the dispersion regression, the IFRS dummy's significance increases further compared with Model 8.

[7] Observations used in paired mean comparison contain only those included in both the pre- and post-IFRS periods. For this reason, the total number of observations in the paired mean comparison is smaller than in the regression.

Table 4.5

Regression Analyses

This table reports the empirical results of Equation 4.3 based on samples from 2004 and 2006. Model 1 regresses *Accuracy* on the logged market cap (*lnMktCap*), logged number of analyst forecasts (*lnNEstimate*), and standard deviation of ROE (*StdROE*). Model 2 adds the IFRS dummy (*IFRS*) into the regression based on Model 1. Model 3 takes *Industry Dummy* as an additional control variable. Based on Model 3, Model 4 further added *Country Dummy*.

Accuracy	**Model 1**		**Model 2**		**Model 3**		**Model 4**	
IFRS			-0.0065	***	-0.0064	***	-0.0069	***
			(0.0021)		(0.0021)		(0.0021)	
lnMktCap	-0.0007		-0.0008		-0.0010		-0.0007	
	(0.0007)		(0.0007)		(0.0008)		(0.0008)	
lnNEstimate	-0.0114	***	-0.0112	***	-0.0110	***	-0.0116	***
	(0.0017)		(0.0017)		(0.0017)		(0.0018)	
StdROE	0.0018		0.0020		0.0019		0.0019	
	(0.0013)		(0.0012)		(0.0013)		(0.0013)	
Constant	0.0432	***	0.0469	***	0.0321		0.0085	
	(0.0037)		(0.0039)		(0.0207)		(0.0241)	
Industry Dummy	No		No		Yes		Yes	
Country Dummy	No		No		No		Yes	
Observations	1612		1612		1612		1612	
R-squared	0.0607		0.0663		0.1073		0.1257	
F test			9.5679	**	1.1073		1.7844	**

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%, 2-sides.

This table reports the empirical results of Equation 4.4 based on samples from 2004 and 2006. Model 6 regresses *Accuracy* on the logged market cap (*lnMktCap*), logged number of analyst forecasts (*lnNEstimate*), and standard deviation (*StdROE*). Model 7 added the IFRS dummy (*IFRS*) into the regression on Model 6. Model 8 takes *Industry Dummy* as an additional control variable. Based on Model 8, Model 9 further added *Country Dummy*.

Dispersion	**Model 6**		**Model 7**		**Model 8**		**Model 9**	
IFRS			-0.0030	**	-0.0030	**	-0.0041	***
			(0.0013)		(0.0013)		(0.0013)	
lnMktCap	-0.0013		-0.0013	***	-0.0012	**	-0.0005	
	(0.0005)		(0.0005)		(0.0005)		(0.0005)	
lnNEstimate	0.0065		0.0066	***	0.0059	***	0.0032	**
	(0.0012)		(0.0012)		(0.0012)		(0.0012)	
StdROE	0.0011		0.0012		0.0009		0.0011	
	(0.0009)		(0.0009)		(0.0009)		(0.0009)	
Constant	0.0147	***	0.0164	***	0.0089		-0.0054	
	(0.0026)		(0.0027)		(0.0136)		(0.0151)	
Industry Dummy	No		No		Yes		Yes	
Country Dummy	No		No		No		Yes	
Observations	1328		1328		1328		1328	
R-squared	0.0239		0.0276		0.1029		0.1723	
F test			5.4560	*	1.7867	**	6.1571	***

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%, 2-sides.

4.5.3. Robustness Check

4.5.3.1. Expanding Sample Period

To ensure the robustness of the results, we extend our analyses to the samples from 2003 and 2007. Table 4.6 presents the results of regression analysis for analyst forecast accuracy and dispersion in 2003-2004 and 2006-2007. Models 2 and 7 present the regression results with the IFRS dummy. Model 2 shows that the IFRS dummy has a positive and significant effect on analyst forecast accuracy ($b=-0.015$, $p<0.01$). This suggests that analyst forecast accuracy increases on average 1.5 percent of the stock price after mandatory IFRS adoption. Model 7 shows that the IFRS dummy has a negative and significant effect on analyst forecast dispersion ($b=-0.007$, $p<0.05$). This suggests that the dispersion of analyst forecasts decreases on average 0.7 percent of the stock price after mandatory IFRS adoption. Again, F-tests show that the explanatory power of Models 2 and 7 improves significantly compared with that of Models 1 and 6. These outcomes are consistent with our hypothesis that the uniform adoption of IFRS increases the quality of analyst forecasts by increasing accuracy and decreasing dispersion.

Models 3 and 8 present the regression results, controlling for *Industry Dummy*. Models 4 and 9 present the regression results, controlling for *Industry Dummy* and *Country Dummy*. Finally, Models 5 and 10 include *Year Dummy* based on Models 4 and 9. From Model 2 to Model 5, and from Model 7 to Model 10, the effect of the IFRS dummy is significantly negative, which again is consistent with our hypothesis.

Table 4.6

Robustness Check with Regression Analyses

This table reports the results of regressions based on Equation 4.3 with a sample covering 2003, 2004, 2006, and 2007. Model 1 regresses accuracy (*Accuracy*) on logged market capitalization (*lnMktCap*), logged number of analyst estimations (*lnNEstimate*), and the standard deviation of ROE (*StdROE*). Based on Model 1, Model 2 includes the IFRS dummy *(IFRS*). Model 3 adds *Industry Dummy* to Model 2. Model 4 adds *Country Dummy* to Model 3, and Model 5 adds *Year Dummy* to Model 5.

Accuracy	**Model 1**		**Model 2**		**Model 3**		**Model 4**		**Model 5**	
IFRS			-0.0151	***	-0.0151	***	-0.0159	***	-0.0222	***
			(0.0021)		(0.0021)		(0.0021)		(0.0029)	
lnMktCap	-0.0008		-0.0007		-0.0007		-0.0003		-0.0001	
	(0.0008)		(0.0007)		(0.0008)		(0.0008)		(0.0008)	
lnNEstimate	-0.0149	***	-0.0141	***	-0.0146	***	-0.0160	***	-0.0162	***
	(0.0017)		(0.0017)		(0.0018)		(0.0018)		(0.0018)	
StdROE	0.0025	*	0.0028	**	0.0026	*	0.0032	**	0.0032	**
	(0.0013)		(0.0013)		(0.0014)		(0.0014)		(0.0014)	
Constant	0.0543	***	0.0605	***	0.0442	*	0.0257		0.0324	
	(0.0038)		(0.0038)		(0.0228)		(0.0336)		(0.0336)	
Industry Dummy	No		No		Yes		Yes		Yes	
Country Dummy	No		No		No		Yes		Yes	
Year Dummy	No		No		No		No		Yes	
Observations	2836		2836		2836		2836		2836	
R-squared	0.0554		0.0722		0.0997		0.1187		0.1232	
F test			51.1650	***	1.3181		3.2943	***	7.0264	***

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%, 2-sides.

This table reports the results of regressions based on Equation 4.4 with a sample covering 2003, 2004, 2006, and 2007. Model 6 regresses *Dispersion* on logged market capitalization (*Lnmktcap*), logged number of analyst estimations (*LnNEstimate*), and the standard deviation of ROE (*StdROE)*. Based on Model 6, Model 7 includes the IFRS dummy (*ifrs*). Model 8 adds *Industry Dummy* to Model 7. Model 9 adds *Country Dummy* to Model 8, and Model 10 adds Y*ear Dummy* to Model 9.

Dispersion	**Model 6**		**Model 7**		**Model 8**		**Model 9**		**Model 10**	
IFRS			-0.0071	***	-0.0073	***	-0.0083	***	-0.0131	***
			(0.0011)		(0.0011)		(0.0011)		(0.0016)	
lnMktCap	-0.0018		-0.0017	***	-0.0018	***	-0.0010	**	-0.0009	**
	(0.0004)		(0.0004)		(0.0004)		(0.0004)		(0.0004)	
lnNEstimate	0.0065	***	0.0066	***	0.0062	***	0.0035	***	0.0034	***
	(0.0010)		(0.0010)		(0.0010)		(0.0010)		(0.0010)	
StdROE	0.0017	***	0.0018	***	0.0020	***	0.0025	***	0.0024	***
	(0.0006)		(0.0006)		(0.0007)		(0.0007)		(0.0007)	
Constant	0.0199	***	0.0238	***	0.0165		0.0379	*	0.0447	**
	(0.0022)		(0.0022)		(0.0113)		(0.0218)		(0.0218)	
Industry Dummy	No		No		Yes		Yes		Yes	
Country Dummy	No		No		No		Yes		Yes	
Year Dummy	No		No		No		No		Yes	
Observations	2715		2715		2715		2715		2715	
R-squared	0.0189		0.0337		0.0853		0.1343		0.1443	
F test			41.9294	***	2.3991	***	8.2780	***	15.7855	***

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%, 2-sides.

4.5.3.2 Non-financial Firms

Among all the firms, financial institutions are impacted more significantly by fair value accounting, as their financial assets are required to be booked as fair value. In comparison with financial institutions, non-financial institutions are still allowed to use historical values in cases where impairment tests are not relevant to them. Under this circumstance, it is a challenge to determine whether our findings are driven mainly by financial institutions and how the quality of analyst forecasts for non-financial institutions changes after the mandatory adoption of IFRS. To address these problems, we exclude financial institutions and redo the analyses based on equations 4.3 and 4.4. The results show that the IFRS dummy still consistently has a significant impact on the quality of analyst forecasts. Following IFRS adoption, for non-financial institutions analyst forecast accuracy increases and dispersion decreases. The coefficients' magnitudes are similar to those presented in Table 4.6. Table 4.7 presents the results for non-financial institutions.

Table 4.7

Robustness Check with Regression Analyses

This table reports the results of regressions based on Equation 4.3 with a sample of non-financial institutions covering 2003, 2004, 2006, and 2007. Model 1 regresses accuracy (*Accuracy*) on logged market capitalization (*lnMktCap*), logged number of analyst estimations (*lnNEstimate*), and the standard deviation of ROE (*StdROE*). Based on Model 1, Model 2 includes the IFRS dummy *(IFRS*). Model 3 adds *Industry Dummy* to Model 2. Model 4 adds *Country Dummy* to Model 3, and Model 5 adds *Year Dummy* to Model 5.

Accuracy	**Model 1**		**Model 2**		**Model 3**		**Model 4**		**Model 5**	
IFRS			-0.0150	***	-0.0150	***	-0.0155	***	-0.0213	***
			(0.0022)		(0.0022)		(0.0022)		(0.0030)	
lnMktCap	-0.0008		-0.0007		-0.0006		-0.0002		-0.0001	
	(0.0008)		(0.0008)		(0.0008)		(0.0008)		(0.0008)	
lnNEstimate	-0.0145	***	-0.0137	***	-0.0145	***	-0.0158	***	-0.0160	***
	(0.0018)		(0.0018)		(0.0019)		(0.0019)		(0.0019)	
StdROE	0.0019		0.0021		0.0018		0.0024	*	0.0023	*
	(0.0014)		(0.0014)		(0.0014)		(0.0014)		(0.0014)	
Constant	0.0534	***	0.0596	***	0.0437	*	0.0371		0.0430	
	0.00392		(0.0040)		(0.0228)		(0.0597)		(0.0597)	
Industry Dummy	No		No		Yes		Yes		Yes	
Country Dummy	No		No		No		Yes		Yes	
Year Dummy	No		No		No		No		Yes	
Observations	2596		2596		2596		2596		2596	
R-squared	0.0527		0.0695		0.0986		0.1183		0.1217	
F test			46.8	***	1.4	*	3.1	***	4.9	***

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%, 2-sides.

This table reports the results of regressions based on Equation 4.4 with a sample of non-financial institutions covering 2003, 2004, 2006, and 2007. Model 6 regresses *Dispersion* on logged market capitalization (*Lnmktcap*), logged number of analyst estimations (*LnNEstimate*), and the standard deviation of ROE (*StdROE)*. Based on Model 6, Model 7 includes the IFRS dummy (*ifrs*). Model 8 adds *Industry Dummy* to Model 7. Model 9 adds *Country Dummy* to Model 8, and Model 10 adds Y*ear Dummy* to Model 9.

Dispersion	**Model 6**		**Model 7**		**Model 8**		**Model 9**		**Model 10**	
IFRS			-0.0078	***	-0.0079	***	-0.0089	***	-0.0141	***
			(0.0011)		(0.0011)		(0.0011)		(0.0016)	
lnMktCap	-0.0018		-0.0018	***	-0.0018	***	-0.0011	***	-0.0010	**
	(0.0004)		(0.0004)		(0.0004)		(0.0004)		(0.0004)	
lnNEstimate	0.0071	***	0.0072	***	0.0066	***	0.0041	***	0.0040	***
	(0.0010)		(0.0010)		(0.0010)		(0.0011)		(0.0011)	
StdROE	0.0018	***	0.0019	***	0.0021	***	0.0026	***	0.0024	***
	(0.0007)		(0.0007)		(0.0007)		(0.0007)		(0.0007)	
Constant	0.0190	***	0.0231	***	0.0161		0.0378	*	0.0451	**
	(0.0022)		(0.0023)		(0.0112)		(0.0216)		(0.0216)	
Industry Dummy	No		No		Yes		Yes		Yes	
Country Dummy	No		No		No		Yes		Yes	
Year Dummy	No		No		No		No		Yes	
Observations	2517		2517		2517		2517		2517	
R-squared	0.0215		0.0396		0.0939		0.1408		0.1520	
F test			48.0	***	2.6	***	7.4	***	16.8	***

Standard errors in parentheses; * significant at 10%; ** significant at 5%; *** significant at 1%, 2-sides.

4.5.3.3 Sample Selection Bias

Our study may face a challenge in that its observation numbers are small. This problem stems from two sources. First, in comparison with the coverage for American firms, IBES has relatively smaller coverage of European firms. Second, we control for the volatility of firms' performance as measured by the standard deviation of ROE, which is calculated based on the ROEs of the past five years. Because this calculation excludes IPO firms and firms with less than a five-year history, the size of the regression samples is smaller. To test our results in a large sample, we run our tests again without controlling for performance volatility, releasing the criteria so that only firms with more than a five-year history are included. The regression results are not materially different from our main results presented in previous sections. These results are still consistent with our hypothesis and suggest that the quality of analyst forecasts increased after the uniform IFRS adoption in the EU.

4.6. Discussion and Conclusion

This study uses the event of the EU's compulsory adoption of IFRS to examine the impact of IFRS adoption on the quality of accounting information, using the quality of analyst forecasts as a gauge. By comparing analyst forecasts before and after the EU's compulsory adoption of IFRS, we find that analyst forecasts became more accurate and less dispersed after IFRS adoption. These effects persist after controlling for factors such as firm size; number of analysts following performance volatility; and country, industry, and year dummies.

Empirically, we interpret these results as evidence that accounting reporting quality improved with compulsory IFRS adoption in EU countries. Although this study tests the effects of IFRS adoption indirectly, we claim that it is reasonable to attribute the improvement of analyst forecast quality to improvements in the quality of accounting

information following compulsory IFRS adoption, since IFRS adoption is the only systematic difference between the two samples in our study. The empirical design also allows us to limit concerns about methodological problems prevalent in prior studies: namely, the problems of selection bias and omitted variables. As a result, we believe this study provides more robust and convincing evidence compared with that in prior studies.

Theoretically, our study also contributes to the literature on accounting standards' effects on the quality of accounting information. The results show that more homogenous, value-relevant accounting standards such as IFRS can actually help improve the quality of accounting information and reduce information asymmetries among managers, analysts, and investors. Therefore, it is possible for policy makers to improve the information disclosure environment by improving accounting standards.

In practical terms, our study's findings also help to address concerns about the quality and effects of IFRS. Using a more recent sample and a cleaner, more powerful study design, we find strong and significant improvements in the quality of analyst earnings forecasts after EU countries' compulsory adoption of IFRS in 2005. This demonstrates the value of more universal, value-relevant international accounting for financial analysts and investors.

Although our study is one of the first to examine the effects of accounting standards on the quality of accounting information using the EU countries' compulsory adoption of IFRS in 2005 as the empirical context, we expect and hope that this event will attract more research interest in relation to other dimensions of the quality of accounting information. We believe that further examination of these dimensions will lead to more fruitful findings about the effects of accounting standards on the quality of accounting information and contribute more generally to our knowledge about the effects of accounting standards on the quality of accounting information.

Chapter 5: Summary and Conclusions

This dissertation has examined different topics related to accounting quality, including incentives for earnings management, consequences of accounting frauds in newly-established stock exchanges, and the effectiveness of changes in accounting standards. This chapter summarizes the findings and conclusions of the preceding chapters, and suggests topics for further research.

Chapter 2 investigates the association between earnings management and firms' external environments, namely the level of industry valuation. The existing literature analyzes incentives for earnings management mainly from a firm-specific point of view or a transaction-specific point of view while ignoring that as part of its industry environment, the benefits and costs of earnings management for a firm can be interchanged with its industry valuation. Therefore, we argue that the net benefits of managing earnings increase with the level of industry valuation, leading to increases in the level of earnings management as well. We use a sample of U.S. publicly-traded firms from 1985 to 2005, and find a positive relationship between lagged industry valuation and the proxies of earnings management. Empirical results suggest that a one standard deviation increase in the aggregate stock market valuation is associated with a significant increase of 2.4 cents in quarterly earnings per share. This study's findings suggest that higher industry valuation is an additional incentive for earnings management of all firms in that industry, so that market regulators may need to be more cautious about earnings management behavior in a boom market.

Chapter 3 is formed against the background of the failure, in the early 2000s, of the European new markets, including the German Neuer Markt, the French Nouveau Marché, the Dutch NMAX, EuroNM Belgium, and the Italian Nuovo Mercato. After this market's short period of success, its legitimacy was challenged by scandals involving insider trading and accounting frauds. As a new market, the European New Market failed to solve the crisis and was forced to close. This chapter investigates whether the weak legitimacy of

EU new markets is one of the factors leading to IPO failure, as it is challenging for the legitimacy of a newly-established market to survive the impact of major accounting scandals and insider trading. This study is the first in IPO failure literature to investigate the effects of the legitimacy of stock exchanges on IPO failure rate. After controlling for the effects of some firm characteristics and accounting characteristics, such as leverage, profitability, and auditors' reputations, we find that listing on a new stock market nearly doubled the IPO firms' failure risk compared with listing on long-established stock markets. In addition, our results show that firms with high profitability and Big-5 auditors have a lower risk of IPO failure. These results suggest that managers of IPO firms must make careful decisions about the stock market on which they will list. They should realize that the institutional legitimacy of newly-established stock markets is still vulnerable and that this exposes the IPO firm to additional risk of failure.

In Chapter 4, we turn our focus to the effects of the EU countries' compulsory adoption of IFRS in 2005, and test whether this adoption increases the quality of accounting information. We examine the changes in the quality of accounting information through the effects of IFRS adoption on the quality of analyst forecasts. After controlling for a series of company, industry, and country-level differences, we find that the quality of analyst forecasts of EU listed firms increases after IFRS adoption in 2005. More specifically, the results show that analyst forecasts for these firms become more accurate and less dispersed after 2005. We interpret these results as evidence of IFRS's positive effects on the quality of accounting reports.

Chapter 4 provides additional evidence in relation to the existing literature's mixed findings about the consequences of adopting IFRS. The EU countries' adoption of IFRS forced firms to switch to IFRS regardless of their incentives to adopt IFRS or the characteristics of their institutional environment. Therefore, this compulsory adoption mitigates the empirical problems faced by prior studies (i.e., self-selection bias and omitted variables).

This dissertation attempts to contribute to several streams of literature, including earnings management, accounting regulation, and institutional theory. The evidence presented in these essays highlights the important role of firms' external environments on their earnings management behavior, as well as the consequences of the firms' accounting frauds and insider trading behavior on the failure rate of IPO firms. We also show that improving the effectiveness of accounting rules, such as the implementation of IRFS, may help improve the quality of accounting information.

Obviously, this dissertation opens several new directions for further investigation. Chapter 2 has shown that industry valuation influences firms' earnings management decisions. However, there is no direct evidence showing how the behavior of other parties, such as analysts, auditors and market regulators, might respond to changes in industry valuation.

Chapter 3 shows that in general, the IPO failure rate in EU new markets is lower than that in established ones. But because of the established markets' high admission thresholds, young firms still have to resort to new markets to get external financing. This raises questions as to what types of firms are more sustainable in new markets and how the institutional design of entrepreneurial firms' markets could be adjusted in order to improve their ability to react to challenges.

Chapter 4 tests the effects of the introduction of IFRS on the quality of accounting information. Future research could investigate whether and how the detailed differences between IFRS and (previously existing) local GAAPs improve the quality of accounting information.

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Nederlandse Samenvatting (Summary in Dutch)

De hoofdstukken van dit proefschrift behandelen winststuring (hoofdstuk 2), het gevolg van boekhoudschandalen op de overlevingskansen van beursgangers (hoofdstuk 3) en de doeltreffendheid van maatregelen die door regelgevers op het terrein van externe verslaggeving worden genomen om de kwaliteit van externe verslaggeving te verbeteren (Hoofdstuk 4).

Hoofdstuk 2 concentreert zich op de vraag of winststuring samenhangt met omgevingsfactoren. De hoofdhypothese luidt dat winststuring positief samenhangt met de marktwaarde van de gehele bedrijfstak. Meer in het bijzonder, winststuring door middel van accruals zal frequenter plaatsvinden bij een hogere marktwaardering omdat het voor een individuele onderneming meer voordelen oplevert bij een hogere marktwaardering van de gehele bedrijfstak, omdat de negatieve effecten verbonden aan de omkering van accruals en de waarschijnlijkheid van het kunnen detecteren van winststuring lager worden verondersteld in een dergelijke periode. Aldus zal de verhoging van het netto voordeel leiden tot een winststuring op grotere schaal. Wij onderzoeken een steekproef van Amerikaanse ondernemingen op basis van kwartaal data over een periode van 20 jaar; vanaf 1985 tot 2005. Wij vinden wij een positief verband tussen de waarding van de gehele bedrijfstak en winststuring, gemeten aan de hand van de totale gezamenlijke (huidige) hoeveelheid accruals. De empirische resultaten tonen aan dat één standaard deviatie verhoging van de waardering van de gehele bedrijfstak gepaard gaat met een significante verhoging van 2.4 cent van het kwartaal winst per aandeel van een gemiddelde onderneming. Onze studie toont aan dat niet alleen bedrijfsspecifieke omstandigheden aanleiding kunnen zijn voor winststuring, maar dat ook macro economische en marktomstandigheden hierop van invloed zijn. Tot op heden is hieraan weinig aandacht besteed in de literatuur. De resultaten zouden ook aanleiding moeten zijn voor regelgevers

en gebruikers van financiële informatie extra kritisch te zijn op signalen die mogelijk duiden op winststuring in een periode waarin effectenbeurzen sterk opleven.

Hoofdstuk 3 is gewijd aan het in kaart brengen van de gevolgen van boekhoudschandalen op de overlevingskansen van beursgangers. In dit hoofdstuk kijken we naar nieuwe Europese markten, dat wil zeggen, de Duitse Neuer Markt, de Franse Nouveau Marché, de Nederlandse NMAX, de EuroNM België en de Italiaanse Nuovo Mercato,. Elk van deze vijf markten faalden na de ontdekking van handel met voorkennis en boekhoudschandalen.

Wij zijn in het bijzonder geïnteresseerd of het falen van deze nieuwe effectenbeurzen deels kan worden toegeschreven aan institutionele gebreken en onderzoeken of het falingspercentage van beursgangen hoger is voor deze nieuwe effectenbeurzen in vergelijking met de officiële markten. Op basis van een vergelijkbare steekproef van officiële markten berekenen wij de kans op overleving zowel op de nieuwe als op de officiële effecten beurzen. Hierbij controleren wij tevens voor verscheidene karakteristieken, zoals de hoeveelheid vreemd vermogen, de reputatie van de controlerend accountant en de rentabiliteit van de onderneming. Onze resultaten tonen aan dat het falingspercentage van beursgangen dubbel zo groot is op nieuwe effectenbeurzen dan op de reeds lang gevestigde officiële effectenbeurzen. Wij stellen dat de institutionele context en legitimiteit van de onlangs tot stand gebrachte nieuwe effectenbeurzen gebrekkig en kwetsbaar is en dat dit nieuwe beursgaande ondernemingen aan extra risico's en dientengevolge mislukking kan blootstellen. Een andere bevinding van dit hoofdstuk is dat ex-ante boekhoudkundige informatie invloed heeft op de slagingspercentage van beursgangen. Tevens vinden wij dat ondernemingen met een controlerend accountant van een de vier grote kantoren (*big four*) en de hogere winstgevendheid lagere kans hebben om te falen. Deze bevindingen zijn in overeenstemming met Demers en Joos (2007), die beargumenteren dat boekhoudkundige informatie een belangrijke rol speelt bij het verklaren van de overlevingskansen van beursgangers.

In hoofdstuk 4 doen wij onderzoek naar de gevolgen van de maatregelen van regelgevers om de kwaliteit van externe verslaggeving te verbeteren. De verplichte goedkeuring van de *International Financial Reporting Standard* ("IFRS") in de landen van de EU in 2005 is één van de belangrijkste maatregelen die door regelgevers is opgelegd. Het belangrijkste doel hiervan is om de vergelijkbaarheid en de kwaliteit van boekhoudkundige informatie te verbeteren. Recent hebben diverse onderzoekers gepoogd de gevolgen van de implementatie IFRS vanuit verscheidene perspectieven te onderzoeken. De voorlopige conclusie is dat de empirische bevindingen niet eenduidig zijn. Ter illustratie, een aantal studies levert bewijs dat de invoering van IFRS positieve gevolgen heeft, zoals bijvoorbeeld een lagere kostenvoet (Daske et al, 2008), hogere winstkwaliteit (Barth et al. 2007) en toegenomen transparantie (Daske en Gebhardt, 2006). Echter, andere auteurs bestrijden deze positieve gevolgen en komen onder meer tot de conclusie dat implementatie van IFRS geen significante invloed heeft op de kostenvoet van ondernemingen (Daske, 2006; Christensen et al., 2007). In dit hoofdstuk, onderzoeken wij of de verplichte goedkeuring van IFRS in de Europese Unie invloed heeft op de kwaliteit van boekhoudkundige informatie, gemeten aan de hand van de kwaliteit van analistenvoorspellingen. Analisten zijn belangrijke en professionele gebruikers van financiële verslaggeving door ondernemingen en hun voorspellingen hangen grotendeels af van de kwaliteit en transparantie van deze verslagen. Op basis hiervan beargumenteren wij dat veranderingen in boekhoudregels de kwaliteit van verslaggeving hebben beïnvloedt, welke weerspiegeld worden in de kwaliteit van analistenvoorspellingen. Daarom testen wij of de verplichte goedkeuring van IFRS de nauwkeurigheid van analistvoorspellingen heeft verbeterd en tevens heeft geleid tot een lagere spreiding van deze voorspellingen. Ons empirisch onderzoek toont aan dat de analistenvoorspellingen nauwkeuriger zijn en een lagere standaard deviatie hebben na 2005, het jaar van de invoering van IFRS. Deze resultaten rechtvaardigen de conclusie dat de verplichte invoering van IFRS de kwaliteit van financiële verslaggeving en daarvan afgeleid informatie heeft verbeterd.

中文摘要 (Summary in Chinese)

资本市场是现代经济不可或缺的一部分。投资机会和融资需求在这里完成了互相匹配的过程。在这个过程中，会计信息是投资者做出投资决策的重要依据。然而，相对于融资者，投资者在对信息的取得和认知方面处于劣势。首先为了吸引投资，融资者可以有选择地披露有利于自身的信息；其次融资者可以通过利润管理甚至操纵造假来提升自身的价值。然而即使融资者采用这两种手段，即选择性披露和会计操纵，由为缺乏更有效的信息渠道，投资者也很难发现。因此，为了保护投资者的利益和维持资本市场的秩序，会计信息的质量至关重要。

会计信息的质量通常通过多个方面进行评价，例如信息披露是否完整，利润管理是否过度，损失确认是否及时。通常高质量的会计准则能够提供高度，完整的信息披露，限制利润管理的空间，并且要求及时的损失确认。同时，除了高质量的财务会计准则之外，对财务会计准则的执行力度也是保证高质量财务信息的关键。研究（Ball 等，2003; Holthausen, 2003）发现公司及审计的动机，法律和政治体系，所有者结构，金融市场的发达程度等都会影响会计信息的质量。例如 Burgsthaler 等(2007)发现在发达金融市场，上市公司的利润操纵的程度比较低。Francis 和 Wang (2008) 发现聘请四大会计师事务所的公司能够提供较高质量的会计信息。Francis 等(2005)发现当公司需要外部融资的时候，他们总是提供多于最低会计规则要求的信息。

这篇论文旨在为会计信息质量文献提供更多的发现。论文第二章研究行业估值与利润操纵动机的关系，第三章探讨了新兴市场（new markets）在内幕交易和会计造假影响下失败的原因，第四章分析国际会计准则（IFRS）的采用是否能够提高分析师业绩预测能力。

论文第二章提出行业估值是利润管理的另一动机。在行业估值高涨时，利润管理的成本下降，收益升高，因此净收益也随之升高。相反，行业估值低迷时，利润

管理的净收益下降。由此推断公司有更大的动机在行业估值高涨时，进行更多的利润管理。文章分析了美国市场 1985 年至 2005 年所有上市公司的数据，发现行业中公司的平均利润操纵程度与行业估值成正比。这一发现与行业估值和利润管理的程度成正比的假说一致。

第二章探讨了上市公司外部环境对上市公司利润管理动机的影响，第三章进一步研究公司的内幕交易，利润操纵是否会影响公司的外部环境，即资本市场。这一章借助欧洲新兴市场（European new markets）为实证背景。欧洲新兴市场成立于 2000 年前后，包括西欧五个国家（荷兰，比利时，法国，德国，意大利）的新兴市场。这些市场最初完全采用了纳斯达克交易所的模式，即较低的上市要求和严格的信息披露制度。但随着一系列内幕交易，会计丑闻的揭发，投资者对新兴市场信心剧减，新兴市场交易量下降，股价暴跌，最终导致五大欧洲新兴市场的关闭。这一章认为选择在新兴市场上市是导致很多的上市公司失败的一大原因。在这一章中，我们根据上市公司上市之前的特征，挑选出一批符合主板上市要求的新兴市场上市公司并对这些公司上市新兴市场倾向打分。同时我们用同样的标准和方法对同时期在主板上市的公司进行打分。通过将新兴市场公司的分数与同时期主板上市公司的分数比较，我们从两个市场挑选出分数最接近的样本公司进行匹配（Propensity Score Matching）并得到了最终的研究样本。在对样本中来自不同市场的公司的生存能力进行分析之后（Cox Proportional Hazard Regression），我们发现新兴市场公司的上市失败风险 (IPO Failure Rate)是主板上市的两倍。但是同时我们发现，聘用高知名度的审计，例如五大会计师事务所，能够将此失败风险降低 22%。

论文第四章以 2005 年欧盟国家执行国际会计准则为背景，分析国际会计准则的采用是否提高分析师的预测能力。会计信息是证券分析师的重要分析依据。会计信息的质量影响着最终预测的质量。尽管国际会计准则被认为是一套高质量的会计准则，但是一直以来学术界并不能就是否国际会计准则提高了会计信息的质量给出一致的答案。学术界认为不能得出一致答案的主要原因是早期的研究样本多是由自愿

采用国际会计准则的公司构成。这些公司选择国际会计准则多是出于对自身利益的考虑，并且在执行力度上存在差异。然而欧盟国际会计准则的强制执行去除了因为一系列其他动机而转换会计准则的可能，为我们提供一个天然的实验机会。在这一章，我们通过对国际会计准则采用前后证券分析师利润预测质量的分析比较，从侧面判断是否会计信息的质量得到了提高。我们的实证研究包括了所有欧盟国家上市公司 2003-2004 及 2006-2007 的数据。通过均值比较和回归分析，结果显示，采用国际会计准则之后证券分析师利润预测的准确度提高，分散度降低。这表明国际会计准则的采用提高了证券分析师的预测表现。

Biography

Tao Jiao was born in Yinchuan, China on June 27, 1979. She obtained her B.A. degree from Shanghai Jiao Tong University (Shanghai, China) in 2001 with a major in industrial foreign trade. In 2004, she obtained her M.Sc degree in finance from Shanghai Jiao Tong University. In the same year, she joined the Department of Finance and Accounting, Rotterdam School of Management, Erasmus University, and the ERIM PhD program. Her research focuses on corporate governance and financial accounting. She has presented her work at the European Accounting Association (EAA) annual conference and has served as a discussant in the Executive Compensation Workshop organized by University of Stirling. At Erasmus, she has taught several courses, including Corporate Finance, Financial Accounting and International Financial Management. She has also supervised a number of graduate students with their master's theses. From January 2008 to January 2009, she worked as a valuation consultant at Duff and Phelps BV, Amsterdam, the Netherlands.

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ESSAYS IN FINANCIAL ACCOUNTING

This dissertation investigates the interaction between the quality of accounting information and firms' external environment – the institutions under which they operate, such as industry and stock exchange. The research in this dissertation deals with the motivation for earnings management (chapter 2), the consequence of accounting frauds on the failure rate of IPO firms (chapter 3), and the effectiveness of actions taken by standard-setters to improve the quality of accounting information (Chapter 4).

Chapter 2 focuses on firms' industry environment and investigates whether industry valuation has an impact on managers' decisions to manage earnings. Based on U.S. market data between 1985 and 2005, we find that industry valuation is positively correlated with the magnitude of earnings management in that industry. Chapter 3 examines the consequences of insider trading and accounting scandals on firms' external environment and uses the failure of European new markets as the empirical background. Using propensity score matching and Cox proportional hazard regression, we find that listing on a European new market doubles an IPO firm's failure rate as compared with listing on an official market. Finally, Chapter 4 examines whether the uniform adoption of IFRS by EU countries in 2005 improved the quality of accounting information through the investigation of changes in the quality of analyst forecasts. The empirical results show that the accuracy of analyst forecasts increased, and the dispersion decreased, after the adoption of IFRS.

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