Three Empirical Essays on the Role of Information in the Public Debt Markets

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Abstract

This thesis consists of three related essays that examine the role of information in the market for corporate debt. The three essays collectively examine the role of information produced by the firm and its agents on alleviating information asymmetries facing public debtholders. In particular, the thesis examines the impact of bondholders' demand for reputation and information on the firm's disclosure choices and accounting attributes; and the impact of information produced by monitoring the firm's private debt before its entry to the public debt market on the yield spread of its initial bond.

The first essay investigates the influence of public corporate debt on the willingness of UK firms to issue profit warnings. UK firms operate within a legal environment that is less litigious compared to their US counterparts. This setting allows for motives other than fear of litigation to affect UK companies' decision to warn. The results of this essay indicate that UK firms with public debt are more forthcoming with the disclosure of permanent negative news. Also, the results show that UK firms without public debt are more likely to hide bad news when they are closer to financial distress. However, for firms with public debt, the results indicate that the effect of closeness to financial distress on the willingness to warn is attenuated. These findings suggest that firms with public debt are deterred from hiding negative news for fear of damaging their reputation for truthful and timely disclosure. Public debt appears to act as a disciplinary mechanism on corporate disclosure policy.

The second essay examines the impact of the initial public debt offering (IPDO) on the timeliness properties of the firm's accounting income. Firms are more likely to communicate with private lenders on a private, insider-basis, while they are more likely to communicate with bondholders using public information. Therefore, bondholders, compared to private lenders, are expected to be more sensitive to the quality of public information. The results indicate that firms adopt a timelier policy of economic loss recognition after their initial public debt offering using Basu's (1997) time series measure of timely loss recognition. These findings suggest that firms face higher demand for public information from a large number of external and dispersed bondholders.

The third essay investigates the impact of information associated with prior private debt financing on the yield spread of companies' initial public debt offerings. Specifically, this essay focuses on information produced through monitoring by credit rating agencies and monitoring by banks. The findings indicate that IPDOs with the same or upgraded credit ratings enjoy significantly lower yield spreads. This finding suggests that changes in credit ratings could convey new information to investors regarding the firm's commitment to maintain a high credit quality. In addition, the findings of this essay indicate that strong banking relationships significantly reduce yield spreads for initial public debt offerings. This suggests that a strong banking relationship conveys a positive signal to bondholders regarding the bank's assessment of the quality of the firm.

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Declaration

I hereby declare that no portion of the work referred to in this thesis has been submitted in support of an application for another degree or qualification of this or any other university or other institute of learning.

December 2011

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Copyright Statement

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To Hashem, I dedicate this thesis.

Chapter 1

Introduction

1.1. Motivation of the Thesis

The fundamental objective of this thesis is to empirically assess the role of favourable reputation; accounting information quality; and prior monitoring by rating agencies and banks in mitigating information asymmetries facing bondholders. I propose that investors in the market for corporate debt demand reputations for faithful and timely disclosure and demand high quality financial reporting. Therefore, a public debt issuer must promote investors' confidence in its accounting and financial communication by committing to high quality disclosure and accounting policies in order to manage potential costs of information asymmetry. Also, I propose that monitoring the firm's private debt by credit rating agencies and banks conveys valuable information to prospective bondholders about the quality of the firm. This in turn mitigates the information asymmetries facing prospective bondholders, and therefore, reduces the yield spread of corporate debt.

The first proposition focuses on the impact of public debtholders' demand for timely information on the evolution of the firm's disclosure choices and accounting attributes. Bondholders are not likely to rely on monitoring to resolve information asymmetry problems as it may result in information production inefficiencies (Diamond, 1991; Fama, 1985; Smith & Warner, 1979). Instead, bondholders induce a demand for favourable reputation and high quality public information to alleviate information asymmetries. The firm respond to public debtholders' demand because the firm's credible commitment to these attributes creates valuable reputations that may reduce agency costs. Reneging on these reputations, on the other hand, could result in adverse price effects (Armstrong, Guay, & Weber, 2010; Diamond, 1989). In addition, producing information jointly useful for several agents can be cost efficient for firms contracting with multiple uncoordinated bondholders because it reduces the duplication of monitoring costs (Fama, 1985).

To examine the first proposition of this thesis, I investigate the firm's policy of informing bondholders of bad news in a timely fashion. I focus on unexpected bad news because debtholders are subject to the downside risk of the firm but they do not share the upside gains. Therefore, they are more sensitive to the firm's losses than they are to its profits. In other words, debtholders are concerned with unexpected events that increase the probability of default. It follows that debtholders may have asymmetric demand for information, with higher demand for timely information of events that increases the probability of financial distress (Watts, 2003a, 2003b). Since I am primarily concerned with unexpected events, I investigate elements in the firm's conditional disclosure choices and conditional reporting attributes. Specifically, in the first essay I investigate the firm's policy of event-driven disclosures by issuing profit warnings in the event of bad news; and in the second essay I investigate the timeliness properties of the firm's income.

The second proposition of this thesis focuses on the impact of information associated with monitoring the firm's private debt on yield spreads when the firm issues an initial public debt offering (IPDO). Firm insiders have more information about its performance and investment set compared to public debtholders. This information asymmetry makes it difficult for external bondholders to value the firm, and therefore, leads to adverse selection problems (Boyd & Prescott, 1986; Leland & Pyle, 1977). Available and reliable information at the time of contract inception may reduce bondholders' adverse selection hence the bonds' yield spreads. In this thesis I investigate the impact of previous monitoring provided by credit rating agencies and by banks on mitigating information asymmetries facing prospective bondholders. I propose that information associated with monitoring the firm's private debt, by credit rating agencies and banks, may convey valuable information to prospective bondholders. Higher initial bond ratings compared to prior private loan ratings assigned to previous private debt may signal the firm's commitment to maintain a good credit record. Also, strong banking relationship signals information regarding the firm's business and credit quality. Therefore I expect prior private loan ratings and strong banking relationships to be negatively associated with yield spreads of IPDOs.

This thesis has implications for research on the market for corporate debt. The first proposition of this thesis examines the effect of bondholders' demand for favourable reputation and information quality on the firms' disclosure choices and accounting income properties. The main implication of this research is that public debtholders exert a demand of timely disclosure of bad news and timely loss recognition in the financial accounts. Therefore, a firm with outstanding or initial public debt must promote the market's confidence in the quality of its accounting and financial communication policies in order to mitigate possible agency conflicts. In addition, damaging the firm's reputation for truthful and timely disclosures and reporting by following opportunistic disclosure and reporting policies is costly as it increases the interest rates charged by bondholders. Therefore, introducing public debt to the firm's financial structure may have a disciplinary role on the corporate disclosure and financial reporting policies.

The second proposition of this thesis attempts to estimate the impact of information produced by monitoring the firm's private debt on its initial bond's yield spread. Specifically, I focus on monitoring by credit rating agencies, approximated by the difference between credit ratings of the firm's initial bond and its prior private loan ratings. I also focus on monitoring by banks, approximated by several measures of the strength of banking relationships. This research shows that monitoring the firm's private debt has an impact over the yield spreads by signalling the firm's quality through favourable rating upgrades and strong banking relations. Therefore, this research has implications for the firm's choices of obtaining private loan ratings and building banking relationships.

1.2. Research Focus and Contributions

This thesis examines two main issues: the methods that firms can employ in order to manage potential costs of moral hazard; and the impact of information asymmetry on the yield spreads of corporate debt. The structure of the thesis, therefore, comprises three related essays that examines: (1) the impact of the firm's current access to the public debt market on its decision to disclose bad news by issuing profit warnings; (2) the impact of the firm's first access to the public debt market on its accounting reporting

attributes, in particular timely loss recognition; and (3) the impact of monitoring the firm's private debt record before its first entry to the public debt market on the yield spreads of corporate debt. The empirical essays draw on several bodies of research including the disclosure literature; the accounting conservatism literature; the cross-monitoring hypothesis and the value of banking relationships to external investors. Next, I outline in greater detail each of these research backgrounds, identify the gaps in extant literature, and highlight the additional contributions proposed by this thesis.

1.2.1. The Influence of Public Debt on the Willingness of UK Firms to Issue Profit Warnings

It is argued in the extant literature that the firm's reputation, i.e., the firm's commitment to trustworthy behaviour observable to external agents over a long time period, in the debt markets alleviates the moral hazard problem facing bondholders (Diamond, 1989, 1991). In a repeated game setting, the value of the firm's reputation depreciates if the firm acts opportunistically and consequently may lead to an increase in the price of credit. In the context of event-driven disclosures, I argue that the firm's disclosure decision is influenced by its choice of debt markets. Public disclosures of unexpected news facilitate inexpensive monitoring. Thus, when the firm chooses to borrow from public debt markets, where monitoring is weak, the firm faces a greater demand for timely information. [1] The firm has incentives to establish a reputation of faithful disclosure by committing to a credible disclosure policy. The firm's reputation serves as an implicit contract between the firm and its bondholders that complements the formal debt contract and aims at resolving agency conflicts (Armstrong et al., 2010). Reneging on this contract can result in a loss of the firm's reputational capital and consequently in an increase in the price of credit.

[1] As we will discuss in the Literature Review chapter, bondholders constitute by definition a large number of un-coordinated external investors. Therefore, they are unlikely to invest in utilizing expensive monitoring technologies such as lending at short maturities or writing complex debt contracts with many covenants. Monitoring by bondholders is inefficient because it leads to the duplication of monitoring costs and is subject to the free rider problem (Diamond, 1984, 1991).

The first essay builds on these theoretical premises by examining the effect of having a public debt outstanding in the firm's capital structure on the firm's motives to issue profit warnings. The empirical analysis utilizes the UK market for corporate debt. Prior US empirical evidence shows that the threat of litigation is the main driver for US firms to disclose bad news (Field, Lowry, & Shu, 2005; Kasznik & Lev, 1995; Skinner, 1994, 1997). However, other motives to disclose may emerge in the presence of a weaker litigation threat (Helbok & Walker, 2003). Thus, the UK setting provides an advantageous opportunity since it is characterized by weaker litigation threat (Black, Cheffins, & Klausner, 2005; Armour, Black, Cheffins, & Nolan, 2009); and a high frequency of disclosure of bad news (Collett, 2004). In the empirical analysis I focus on companies subject to negative earnings surprise because I expect lenders will have a higher demand for timely information of events that increase the probability of default because of their asymmetric payoff function.

The findings in the first empirical essay indicate that while firms closer to financial distress hide bad news to gain at the expense of third parties, firms with public debt do not, as I argue, due to reputational concerns. I also find that firms with public debt outstanding are more likely to issue a profit warning in case of permanent bad news compared to firms without public debt. These results support the general argument of the thesis that firm's information-related choices are affected by demands from external bondholders for more transparent information, particularly in the event of bad news.

These findings contribute to the literature on the role of disclosure in alleviating information asymmetry. This is the first documented evidence that shows that reputational concerns exert a significant effect on companies' motives to make event-driven (conditional) disclosures. This evidence is consistent with the theoretical prediction that the firm's reputation plays a critical role in alleviating moral hazard problems facing bondholders and reduces agency costs. This complements the recent US evidence that accounting disclosure alleviates information asymmetry facing lenders and consequently reduces the cost of debt (Healy & Palepu, 2001; Sengupta, 1998; Yu, 2005).

1.2.2. Initial Public Debt Offering and the Timeliness of Economic Loss Recognition

Producing information jointly useful for several agents can be economical because it prevents the duplication of monitoring costs (Fama, 1985). Therefore, firms contracting with uncoordinated bondholders may find it cost efficient to respond to the demands of lenders for certain attributes of accounting by adjusting their financial reports. One reporting attribute of importance to this thesis is timely loss recognition, defined as the extent to which current period earnings asymmetrically incorporates economic losses relative to economic gains (Basu, 1997). Asymmetric timeliness adds value to information available in the financial reports for bondholders because of two reasons. First, the firm's credible commitment to timely inform external bondholders of bad news alleviates moral hazard problems. Second, timeliness is useful for traders in the secondary bond market because it provides them with a reliable source of information to evaluate the firm leading to a decrease in their adverse selection problem.

Debt contracts determine, at least partially, accounting choices in the firm's financial reports (Leftwich, 1983; Watts, 2003a, 2003b; Watts & Zimmerman, 1986). Prior empirical evidence on asymmetric timeliness of loss recognition concentrates on time trends (Basu, 1997); equity demand for asymmetric timeliness (Ball & Shivakumar, 2005); and cross-country variations (Ball, Kothari, & Robin, 2000; Ball, Robin, & Sadka, 2008). However, as Monahan (2008, p. 206) notes "additional evidence on the relation between asymmetric timeliness and the benefits of leverage as well as debt-instrument attributes is needed." The purpose of the second empirical essay is to fill this gap in the literature by providing further evidence on the effect of public debt on the level of asymmetric timeliness.

In the second empirical essay, I examine the change in the degree of asymmetric timeliness in two states of the firm. The first state is before the firm issues its initial public debt offer (IPDO) and the second state is after that issuance. The findings indicate that US firms significantly increase their degree of asymmetric timeliness, using Basu's (1997) measure after their IPDO compared to the degree of asymmetric timeliness before their IPDO. These results support the first proposition of the thesis

because it shows that firms modify their accounting to address greater demand for higher accounting quality from public debtholders.

The findings of the second empirical essay contributes to the empirical literature on the influence of debt contracting agreements on accounting conservatism (Ball et al., 2000; Ball et al., 2008; Ball & Shivakumar, 2005). There is little single-country evidence documenting the influence of debt, or the type of debt, on the firm's reporting behaviour. I find that, within the same country, incentives for financial reporting are significantly influenced by the demands of different segments of the debt markets.

1.2.3. Monitoring the Firm's Private Loans and the Yield Spread of the Initial Public Debt Offering

Information asymmetry reflects the degree on which the lender must investigate and monitor the borrower (Sufi, 2007). Therefore, one could characterize a greater information asymmetry by a lower amount of publicly available information (Bharath, Dahiya, Saunders, & Srinivasan, 2009). Information produced by monitoring activities by credit rating agencies and financial intermediaries may have a greater impact than information produced by the firm because of its certification effect. One prominent hypothesis, the cross monitoring hypothesis proposed by Booth (1992), suggests that the overall monitoring costs fall when monitoring activities by one claimholder are observable to other claimholders. In the cross monitoring hypothesis, all monitors are concerned with contemporaneous information about the firm hence it is more consistent with reducing their moral hazard problem. I extend the cross monitoring hypothesis by suggesting that previous monitoring of the firm's private debt is relevant to prospective bondholders because it may mitigate their adverse selection.

In the third empirical essay I investigate the impact of two elements of the firm's record of private debt before its entry to the public debt markets on the yield spread of the initial public debt offer. These two elements are the difference between credit ratings of the firm's initial bond and its prior private loan ratings and the strength of the relationship between the firm and its relationship bank. There is little research on the

benefits of private debt ratings, except for Sufi (2009) who investigates syndicated loan ratings on the financing and investment policies of the firm. Although, there are several studies examining the effect of banking relationships on equity returns (James & Wier, 1990; Slovin, Sushka, & Hudson, 1990; Slovin & Young, 1990), there is little research on the value of banking relationships in the public debt markets. One exception is Datta, Iskandar-Datta, & Patel (1999) who investigate the effect of the presence of a bank loan at the time of issuing public debt on bonds' yield spreads.

The findings in the third empirical essay indicate that IPDOs assigned more favourable credit ratings compared to the loan credit rating before the firm's first access to the public debt markets have significantly lower yield spreads. This result suggests that changes in the credit ratings reveal new information about the firm. In addition, the findings show that strong banking relationships significantly reduce yield spreads for initial public debt offerings. This result suggests that banking relationships may reduce prospective bondholders' investigation costs because the maintenance of the relationship conveys a positive signal to bondholders regarding the bank's assessment of the quality of the firm.

The overall evidence presented in the third empirical essay contributes to the existing body of research on the role of information produced by third parties in reducing information asymmetry in the debt markets (Booth, 1992; Mansi, Maxwell, & Miller, 2010). It also corroborates existing evidence on the benefits of bank loans in producing valuable information about the borrower (Datta et al., 1999; Hadlock & James, 2002; James, 1987; Lummer & McConnell, 1989).

1.3. Organization of the Thesis

1.3.1. Structure of the Thesis

This thesis is organized as follows. Chapter 2 provides a review of the theoretical and empirical literature that focuses on information asymmetry in public debt markets. Chapters 3, 4, and 5 present three self contained empirical essays. The first essay of the thesis, which investigates the effect of having outstanding public debt issues on UK firms' choice to issue profit warnings, is presented in chapter 3. The second essay, presented in chapter 4, investigates the change in the firm's asymmetric timeliness of economic loss recognition after its initial public debt offering. Chapter 5 contains the third essay which examines the effect of monitoring the firm's private debt record on the yield spread of the initial public debt offering. Chapter 6 provides a conclusion and a summary of the main findings of the thesis.

Also, note that I use the term "we" rather than "I" and "our" instead of "my", reflecting that the empirical chapters are associated with working papers co-authored with my supervisors; Martin Walker and Susanne Espenlaub.

1.3.2. Note on the Sample Choice

This thesis employs two data sets: one from the UK market and one from the US market. I use the UK sample in the first empirical essay because of its unique institutional and market settings. The motivation of the sample choice is explained in detail in Chapter 3. In brief, the UK setting, I argue, provides a useful opportunity to analyze the impact of factors besides litigation risk that influence companies' decision to warn. This is because the UK's legal environment is substantially less litigious than the US and its market is dominated by high frequency of profit warnings (Black et al., 2005; Armour et al., 2009; Collett, 2004).

I use the US sample in the second and third empirical essays because it requires a reasonable sample size of initial public debt offerings (IPDOs). I choose a sample of initial public debt offerings in the second empirical essay because it allows us to identify two contrasting states of the firm: one without public debt and one with public debt. This in turn should result in sharper inferences regarding the causality direction of the relationship between changes in the accounting attributes and issuing public debt. I use initial public debt offerings in the third empirical essay since these securities are subject to greater information asymmetry compared to seasoned debt offers (Cantillo & Wright, 2000; Diamond, 1991). The investigation of securities subject to great information symmetry is more relevant for the purpose of analyzing adverse selection problems, which is the aim of the third essay.

References

Armour, J., Black, B., Cheffins B., & Nolan, R., (2009). Private Enforcement of Corporate Law: An Empirical Comparison of the United Kingdom and the United States. J*ournal of Empirical Legal Studies, 6*, 687–722.

Armstrong, C., Guay, W., & Weber, J. (2010). Role of information and financial reporting in corporate governance and debt. *Journal of Accounting and Economics, 50*, 179-234.

Ball, R., Kothari, S., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics, 29*, 1-51.

Ball, R., Robin, A., & Sadka, G. (2008). Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies, 13*, 168–205.

Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics, 39*, 83-128.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics, 24*, 3–37.

Bharath, S., Dahiya, S., Saunders, A., & Srinivasan, A. (2009). Lending relationships and loan contract terms. *The Review of Financial Studies*, doi:10.1093/rfs/hhp1064.

Black, B., Cheffins, B., & Klausner, M. (2005). Liability risk for outside directors: a cross-border analysis. *European Financial Management Journal, 11*, 153-171.

Booth, J. (1992). Contract costs, bank loans, and the cross-monitoring hypothesis. *Journal of Financial Economics, 31*, 25-41.

Boyd, J., & Prescott, E. (1986). Financial intermediary coalitions. *Journal of Economic Theory, 38*, 211-233.

Cantillo, M., & Wright, J. (2000). How do firms choose their lenders? An empirical investigation. *Review of Financial Studies, 13*, 155-189.

Collett, N. (2004). Reactions of the London Stock Exchange to company trading statements announcement. *Journal of Business, Finance and Accounting, 31*, 3-35.

Datta, S., Iskandar-Datta, M., & Patel, A. (1999). Bank monitoring and the pricing of corporate public debt. *Journal of Financial Economics, 51*, 435-449.

Diamond, D. (1984). Financial intermediation and delegated monitoring. *Review of Economic Studies, 51*, 393-414.

Diamond, D. (1989). Reputation acquisition in debt markets. *Journal of Political Economy, 97*, 828-862.

Diamond, D. (1991). Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy, 99*, 689-721.

Fama, E. (1985). What's different about banks? *Journal of Monetary Economics, 15*, 29-39.

Field, L., Lowry, M., & Shu, S. (2005). Does disclosure deter or trigger litigation? *Journal of Accounting and Economics, 39*, 487-507.

Hadlock, C., & James, C. (2002). Do banks provide financial slack? *The Journal of Finance, 57*, 1383-1419.

Healy, P., & Palepu, K. (2001). Information asymmetry, corporate disclosure, and capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics, 31*, 405–440.

Helbok, G., & Walker, M. (2003). On the willingness of UK companies to issue profit warnings: Regulatory, earnings surprise permanence, and agency cost effects. *Working Paper (SSRN)*.

James, C. (1987). Some evidence on the uniqueness of bank loans. *Journal of Financial Economics, 19*, 217-235.

James, C., & Wier, P. (1990). Borrowing relationships, intermediation, and the cost of issuing public securities. *Journal of Financial Economics, 28*, 149-171.

Kasznik, R., & Lev, B. (1995). To warn or not to warn: Management disclosures in the face of an earnings surprise. *The Accounting Review, 70*, 113–134.

Leftwich, R. (1983). Accounting information in private markets: Evidence from private lending agreements. *The Accounting Review, 58*, 23-42.

Leland, H., & Pyle, H. (1977). Informational asymmetries, financial structure, and financial intermediation. *Journal of Finance, 32*, 371-387.

Lummer, S., & McConnell, J. (1989). Further evidence on the bank lending process and the capital-market response to bank loan agreements. *Journal of Financial Economics, 25*, 99-122.

Mansi, S., Maxwell, W., & Miller, D. (2010). Analyst forecast characteristics and the cost of debt. *Review of Accounting Studies*, doi: 10.1007/s11142-11010-19127-11142.

Monahan, S. (2008). Discussion of "Is financial reporting shaped by equity markets or debt markets? An international study of timeliness and conservatism". *Review of Accounting Studies, 13*, 206–215.

Sengupta, P. (1998). Corporate disclosure quality and the cost of debt. *The Accounting Review, 73*, 459-474.

Skinner, D. (1994). Why firms voluntarily disclose bad news? *Journal of Accounting Research, 32*, 38–60.

Skinner, D. (1997). Earnings disclosure and stockholder lawsuits. *Journal of Accounting and Economics, 23*, 249–282.

Slovin, M., Sushka, M., & Hudson, C. (1990). External monitoring and its effect on seasoned common stock issues. *Journal of Accounting and Economics, 12*, 397-417.

Slovin, M., & Young, J. (1990). Bank lending and initial public offerings. *Journal of Banking and Finance, 14*, 729-740.

Smith, C., & Warner, J. (1979). On financial contracts and optimal capital structure: An analysis of bond covenants. *Journal of Financial Economics, 7*, 117-161.

Sufi, A. (2007). Information asymmetry and financing arrangements: Evidence from syndicated loans. *Journal of Finance, 62*, 629-668.

Sufi, A. (2009). The real effects of debt certification: Evidence from the introduction of bank loan ratings. *Review of Financial Studies, 22*, 1659–1691.

Watts, R. (2003a). Conservatism in accounting. Part I: explanations and implications. *Accounting Horizons, 17*, 207–221.

Watts, R. (2003b). Conservatism in accounting. Part II: evidence and research opportunities. *Accounting Horizons, 17*, 287–301.

Watts, R., & Zimmerman, J. (1986). *Positive Accounting Theory*: Prentice-Hall, Englewood Cliffs.

Yu, F. (2005). Accounting transparency and the term structure of credit spreads. *Journal of Financial Economics, 75*, 53-84.

Chapter 2

Literature Review

2.1. Introduction

The prevalence of information asymmetry in the debt markets and its adverse impact on the valuation of newly issued and/or existing securities motivated a large number of studies that investigate how these asymmetries are resolved. The purpose of this chapter is to review the key theoretical and empirical contributions of the literature that examines how information asymmetries resolve in the debt markets; how the present thesis is positioned within this literature; and how it contributes to this literature.

In this chapter I categorize the relevant studies into two groups based on the type of the information asymmetry problem addressed by those studies. Therefore, I organize the rest of this chapter into two sections that highlight the following issues:

i) The role of monitoring by banks, reputation and financial reporting in the debt markets in mitigating the moral hazard problem.

ii) The role of information produced through monitoring by banks and rating agencies in reducing adverse selection problems.

The rest of this chapter is organized as follows. Section 2 presents the literature on the mechanisms that resolve the moral hazard problem in the debt markets. In particular, it presents studies that focus on monitoring, reputation and financial reporting quality. Also, Section 2 presents the empirical evidence on the impact of monitoring costs and accounting quality on the choice of the lenders' type. Section 3 reviews studies that focus on the bank's comparative information advantage and how it overcomes problems of asymmetric information. It also surveys the extant empirical evidence that investigates the value of the bank's informational advantage to the firm and to other agents in the capital markets. Section 4 summarizes the relevant literature and concludes by proposing the present thesis contributions.

Finally, it is important to note that the surveyed bodies of research overlap and complement each other. While I recognise that the structure of the chapter is to some extent arbitrary, it serves the purpose of ease of presentation.

2.2. Monitoring, Reputation, Financial Reporting and Debt Contracting

2.2.1. Monitoring and Reputation

The firm has more information about its actions and intentions than creditors do, and therefore, it has incentives to act sub-optimally (from the view point of creditors) if its interests are not aligned with those of the creditors (Jensen & Meckling, 1976). This moral hazard can give rise to several agency conflicts such as the underinvestment problem (Myers, 1977) and asset substitution (Jensen & Meckling, 1976). The underinvestment problem arises when a levered firm rejects a positive net present value (NPV) project that adds value to the firm if the added value accrues to bondholders, in the form of decreasing the overall risk of the firm, not shareholders. Asset substitution occurs when the firm's debt is valued at prices that correspond to a certain risk level, and then the firm undertakes high risk projects that increase the volatility of the firm. This will induce an increase in the value of the stockholders' equity and a decrease in the value of the bondholders' claims. Creditors, in turn, can limit divergences from their interests by incurring monitoring costs designed to limit the self-interested activities of the firm (Jensen & Meckling, 1976).

Lenders can employ several mechanisms, such as writing complex debt contracts and utilizing short maturities, to monitor the use of the capital once committed. For example, Myers (1977) suggests that short term debt, i.e., debt that matures before the completion of the project, can be used in order to renegotiate the debt terms at each renewal interval. This allows the lender to monitor the firm's operations and investment decisions. In addition, Smith and Warner (1979) and Smith (1993) note that contract clauses known as debt covenants can reduce debt agency conflicts. Covenants are written based on (accounting) numbers that restrict the firm's investment and financing policies. In addition, some covenants require the firm to maintain a certain level of

assets and/or profits. Lenders can verify and evaluate compliance with these covenants when the firm announces its financial statements. The violation of covenants gives lenders the right to transfer control from shareholders. In most cases, however, covenant violations lead to renegotiation rather than forcing the firm into bankruptcy. This in turn allows lenders to gain access to more inside information and adjust some or all of the debt clauses.

However, bondholders are less likely to monitor compared to private lenders. Dichev & Skinner (2002) note that a common practice among banks is to set unconditional, tight covenants to trigger frequent technical defaults and subsequent renegotiation. On the other hand, Blume, Lim, & Mackinlay (1998) observe that the use of covenants in the public debt contracts is declining. The difference between private and public debtholders in utilizing monitoring technologies arises due to bondholders' diffused ownership. If all bondholders monitor they will inefficiently duplicate the monitoring costs (Diamond, 1991; Fama, 1985). If only one bondholder monitors she will bear the costs while the rest of bondholders will share the benefits. Therefore, bondholders use (demand) other mechanisms to solve the moral hazard problems they face.

Diamond (1991) shows that the firm's reputation mitigates the moral hazard problem when the firm issues public debt. According to Diamond, the firm borrows and repays monitored bank loans until it establishes a clean track record (reputation) as a result of its history of non-default. Bondholders observe the firm's lending relationships and assign low probability of default to firms with a clean track record (reputable firms) and lend to those firms at lower rates. Therefore, firms with access to public debt have incentives to choose safe projects if the potential payoffs from undertaking risky projects do not offset the likely costs to the firm from damaging its reputation (costs such as a higher price of debt for future borrowings).

The central proposition of Diamond's model is that the firm has an incentive to build a reputation because bondholders will reward reputable firms with lower interest rates. I generalize the concept of reputation in Diamond's model by incorporating the firm's reputations for faithful disclosure and informative reporting policies. This is similar to

Armstrong, Guay & Weber (2010) who suggest that the firm's reputations for high quality accounting practices can be viewed as informal contracts that complement the formal debt contracts. Bondholders value commitment to these implicit contracts and require lower interest rates ex ante. If the firm reneges on these implicit contracts it will incur a loss in its reputational capital.

In the first empirical essay I argue that firms with outstanding public debt are more concerned with their reputation for truthful and timely disclosure than firms without public debt. The firm's reputation can mitigate the agency costs of debt due to conflicts of interest between shareholders and debtholders. This is because it promotes confidence in the quality of the firm's financial communication policies. This in turn reduces the need for expensive control mechanisms such as restrictive covenants and monitoring by debtholders and thus reduces debtholders' monitoring costs. For repeat debt borrowers, taking an action that damages the firm's reputation may lead to a higher cost of debt and may even lead to a loss of the credit lines. Therefore, firms with public debt have incentives to adopt disclosure policies that enhance their reputations for truthful and timely disclosure.

2.2.2. Financial Reporting Quality

2.2.2.1. Inside versus Outside Debt

Fama (1985) suggests that the firm's debt can be considered as inside and outside debt similar to the inside and outside equity in Jensen and Meckling (1976). The distinction between the inside and outside debt according to Fama arises from the ability of private lenders to get access to information that is not publicly available. Inside debtholders have access to information directly from the firm, while outside debtholders rely on publicly available information produced directly or sponsored by the firm, such as credit ratings.

Lenders produce information in order to monitor their contracts, the lower the monitoring costs the lower the interest they charge. Therefore, it may be more economical for firms with large numbers of lenders to produce public information that

is jointly useful to multiple lenders to avoid the duplication of information production costs. However, producing large-scale information is costly, and therefore it may be more efficient for firms with small numbers of lenders to communicate with inside debtholders directly.

While Diamond (1991) implicitly assumes that the firm's information disclosure policies do not solve the inefficiency of the information duplication costs, Fama (1985) suggests that the firm can produce or purchase through a third party high quality public information that is jointly useful to multiple agents. I build on this notion in the second empirical essay to investigate the changes in one of the firm's accounting attributes, namely timely loss recognition, before and after issuing public debt for the first time. I propose that bondholders, in contrast to private lenders, depend on public information instead of privately communicating with the borrower. Therefore, they are likely to be more sensitive to the quality of public information, especially accounting attributes that affect how early economic losses are recognized in financial statements.

The theoretical motivation of the second essay is similar to Ball and Shivakumar (2005). In Ball and Shivakumar's study, the authors investigate the effect of the firm's equity status, private or public, on timeliness in the UK setting whereby firms are subject to similar reporting rules regardless of their equity status. The authors argue that communicating on an inside-basis becomes inefficient for firms with public equity because those firms contract with a large number of actual and potential investors and stakeholders. Therefore, private equity firms (inside equity) are more likely to communicate with their investors on an insider basis while public equity firms (outside equity) communicate through public information.

In the next section, I will explain the concept of conservatism, unconditional and conditional, and discuss its relation to timely loss recognition.

2.2.2.2. Conditional and Unconditional Conservatism and Timeliness

Accountants are reluctant to recognize unverifiable (unobservable to external parties) information about future, unrealized cash flows in audited financial statements, not least because it increases the litigation risk. However, values that relate to expected, unrealized cash flow are recognized in the financial statements as long as they are derived from verifiable predictors of future cash flows. Conservatism deals with the asymmetric verification requirements for unrealized gains and losses. The greater the difference in the degree of verification requirements for gains opposed to losses, the greater the conservatism in the firm's financial reports (Watts, 2003).

However, the definition of conservatism varies depending on its relation to the recognition of contemporaneous economic losses. The unconditional version of conservatism can be best described as in Watts & Zimmerman (1986, p. 205) who state that conservatism requires that accountants should:

> [R]eport the lowest value among the possible alternative values for assets and the highest alternative value for liabilities. Revenues should be recognized later rather than sooner and expenses sooner than later.

Consequently, unconditional conservatism will result in a systematic understatement of book values of stockholders equity (Ball & Shivakumar, 2005; Watts, 2003). Examples of unconditional conservatism include the immediate expensing of research and development projects, and the recording of depreciation expense that is more accelerated than economic depreciation (Beaver & Ryan, 2005).

Basu (1997, p. 7), on the other hand, associates the recognition of losses with the presence of adverse circumstances. He defines conditional conservatism as the:

> [A]ccountant's tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses. Under my interpretation of conservatism, earnings reflect bad news more quickly than good news.

The focus under Basu's interpretation of conservatism is on the timeliness of loss recognition. The incorporation of losses in reported earnings is conditional on firms experiencing contemporaneous economic losses (Ball & Shivakumar, 2005; Watts,

2003a). One implication of conditional conservatism is that it will induce an asymmetry in the timeliness of recognizing economic gains and economic losses, with economic losses being reflected more promptly than economic gains (Basu, 1997; Givoly & Hayn, 2000; Holthausen & Watts, 2001; Pope & Walker, 1999).

The distinction between conditional and unconditional conservatism is essential in understanding their influence in debt contracting. Lenders' demand for unconditional conservatism is, arguably, weak for two reasons. Unconditional conservatism results in a predictable understatement of book values of assets. Lenders form rational expectations of the magnitude of the understatement in order to arrive at the true book value of assets (Ball & Shivakumar, 2005). Assume that the firm immediately expenses the research and development costs, which result in an understatement of assets by a proportion γ. This in turn may lead to the violation of the leverage covenant. However, lenders form rational expectations of the magnitude of the assets' understatement and therefore account for this downward bias by adjusting the leverage covenant upward by a factor of $(1-\gamma)^{-1}$. Consequently, this adjustment will not affect the circumstances under which covenants will be violated.[2] In addition, unconditional conservatism might pre-empt conditional conservatism (Pope & Walker, 1999), which in turn reduces the opportunity to account for economic losses in a timely fashion. This is important since lenders are concerned with surprise negative news that adversely affects the value of their holdings. If the firm's financial statements do not reflect the bad news as it happens this will reduce the usefulness of those reports significantly.

Conditional conservatism, on the other hand, can improve the efficiency of debt contracting in several ways. I discuss this point in the next section.

2.2.2.3. Usefulness of Timely Loss Recognition

The literature on conservatism suggests that timely loss recognition is especially "useful" to lenders because timeliness improves the efficiency of the transfer of control

[2] This example is adapted from Ball & Shivakumar (2005, p. 90).

rights from shareholders to lenders by speeding up the recognition of economic losses in the financial statements (Guay, 2008; Watts, 2003). Lenders are concerned with unexpected events that increase the probability of default since managers are more likely to expropriate creditors' wealth in states of financial distress. An important event that signals a higher probability of default is the violation of debt covenants known as technical default (Beneish & Press, 1993). Technical default gives lenders the opportunity to reassess the probability of default and take appropriate actions to maximize the probability of loan recovery without necessarily going through bankruptcy procedures (Dichev & Skinner, 2002). Timeliness of loss recognition enhances the efficiency of debt contracting because it triggers debt covenant violations in a timely fashion, thus, transferring control rights from shareholders to lenders more quickly (Watts, 2003). This is because timely loss recognition is an asymmetric verification process, which immediately recognizes bad events while delaying the recognition of good events until they are verified (Basu, 1997).

However, covenants in public debt contracts are expected to create more demand for timeliness than covenants in private debt contracts.[3] Private debt contracts mostly use maintenance covenants that require companies to maintain certain financial ratios (Smith, 1993; Dichev & Skinner, 2002). In addition, private lenders set tighter debt covenants compared to bondholders which results in frequent (unconditional) violation of private debt covenants (Berlin & Mester, 1992; Rajan & Winton, 1995). Consequently, these covenants function as trip-wires that the company frequently violates which triggers subsequent renegotiations. The need for renegotiations substantially increases private lenders control over the company hence reducing the scope for managerial opportunism. On the other hand, public debt contracts employ negative covenants, which managers must meet before taking certain actions, including dividend payouts, acquisitions, and new issuance of debt, and they rarely require maintenance of accounting ratios due to the high renegotiation costs resulting from diffuse ownership. Therefore, timeliness enhances the efficiency of negative covenants by limiting actions that could lead to the expropriation of bondholders' wealth.

[3] The following argument is adapted from Nikolaev (2010).

In addition, I focus on additional roles for timeliness in the market for corporate debt. These roles are closely related to the ownership and tradability of public debt. Timeliness can increase the usefulness of information available through the firm's financial statements since the firm's commitment to providing timely information about its financial conditions enables bondholders to value their holdings accurately. This is especially relevant for bondholders because most investors in public debt are institutional investors, who rebalance their holdings frequently based on the changes in the value of the underlying assets. Timely loss recognition is also important for traded debt because it provides traders with reliable source of information to evaluate the firm leading to a decrease in their adverse selection problems (Wittenberg-Moerman, 2009).

It is important to note that timeliness may reduce the moral hazard problems facing bondholders if the firm commits to adopt a timely loss recognition policy. Similar to the discussion in the Section 2.2.1., in a repeated game setting, the firm has incentives to build a reputation for faithful and timely recognition of economic losses in its financial reports. Bondholders will reward reputable firms with lower interest rates ex ante. On the other hand, the firm's failure to commit to timeliness will result in a loss of the firm's reputational capital and consequently to a higher interest rates charged by bondholders for future borrowings.

2.2.3. Empirical Evidence on Monitoring Costs

This section surveys the empirical evidence on the impact of monitoring costs on the firm's choice of issuing public debt and the mix of public and private debt; and on the ownership percentage of the lead bank in syndicated loans. In addition, this section surveys the empirical evidence on the association between accounting choices and the firm's choice of issuing public debt and on the ownership percentage of the lead bank in syndicated loans. It also presents evidence on the association between accounting choices and interest rates charged by lenders. Finally it presents the empirical evidence on the effect of debt contracting on the degree of timeliness.

2.2.3.1. Monitoring Costs and Debt Ownership

Choice of the type of the Lender

The extant empirical evidence places a particular emphasis on how the choice of the lender's type resolves the information asymmetry problem in the debt markets. The general notion is that the firm can overcome moral hazard problems by choosing private lenders who invest in costly monitoring technologies. This in turn reduces agency conflicts between the firm and its lenders. The empirical implication of this notion is that firms with characteristics that are associated with lower costs of monitoring are likely to issue public debt.

The firm's size and its set of growth opportunities are the key firm characteristics that influence the costs of agency conflicts and costs of monitoring. Smith (1986) and Blackwell & Kidwell (1988) suggest that economies of scale exist in issuing public debt because a great portion of the flotation costs do not vary with the size of the issue. This fixed component is larger for debt issued publicly than it is for debt issued privately. Similarly, Fama (1985) notes that the costs of information production required for public debt financing is large and fixed to a significant extent. Therefore, economies of scale exist in public debt because of the fixed costs of information production. Larger firms may find it more economical to produce public information useful to outside investors than small firms. Several empirical studies find that the firm size is positively associated with having public debt (Cantillo & Wright, 2000; Hadlock & James, 2002), and with a greater portion of public debt in the capital structure mix (Johnson, 1997; Krishnaswami, Spindt, & Subramaniam, 1999).

In addition, there are some empirical implications regarding the effect of growth opportunities on the choice of public debt. The extent of the underinvestment due to the conflict between shareholders and bondholders and the debt overhang increases with the amount of growth opportunities available to the firm (Myers, 1977). These conflicts can be mitigated using various monitoring mechanisms. As discussed before, private lenders are more likely to use monitoring mechanisms and therefore firms with high growth opportunities are expected to rely more on private debt. Consistent with this view, Krishnaswami et al., (1999) and Johnson (1997) find that firms with greater growth

opportunities, measured by the market to book ratio of assets, rely more on private debt sources.

However, the evidence on the impact of growth opportunities on the choice of debt is not conclusive. Houston and James (1996) find that the relationship between bank borrowing and the size of growth opportunities depends on the firm's use of multiple banking relationships or the use of public debt. Firms with a single bank relationship have a negative and significant relation between the reliance on bank debt and the importance of growth options. In contrast, firms with multiple banking relations have a positive relation between the reliance on bank debt and the importance of growth opportunities. Similarly, for firms with public debt outstanding the reliance on bank debt is positively related to the importance of growth opportunities.

This evidence indicates that the importance of growth opportunities possibly interacts with the hold-up problem as described in Rajan (1992). The hold-up problem occurs if the bank has a substantial bargaining power over the firm. This power enables the bank to threaten to liquidate the project, although profitable, by cutting-off credit unless it gets a share of the projects' surplus. The bank gains this bargaining power because of its access to the firm's inside information that is not available to outside banks. If the firm decides to borrow from another bank, the outside bank will be at an information disadvantage because the inside bank has monitored and knows the firm's project type while the uninformed outside banks do not. Thus, the outside bank will offer high interest rates leading the firm to be held-up by its inside bank.

The evidence in Houston and James (1996) suggests that although bank relationships have potential benefits in terms of reducing information problems, the bank's information monopolies may impose offsetting costs. In this setting, multiple banking relationships, or having access to public debt, mitigates potential bank information monopolies.

Ownership of Syndicated Loans

There is a growing body of literature that investigates the institutional features of the syndicated loan market and the possible adverse selection and moral hazard problems arising from the structure of the syndicate. With respect to moral hazard problems, syndicate participants delegate most of the monitoring activities at the loan origination and post-closing loan stages to the lead bank (Dennis & Mullineaux, 2000; Standard & Poor's, 2006). The lead bank, therefore, is responsible for the administration of loan documentation, debt repayment, and collateral as well as the enforcement of covenants. In short, the lead bank is responsible for monitoring the borrower. However, monitoring is a costly activity and the benefits of monitoring are shared between all the syndicate members. The lead bank incentives to monitor ex post increases with the amount of the loan facility it retains (Dennis & Mullineaux, 2000; Sufi, 2007). On the extreme, if the lead bank syndicates the entire amount of the loan facility it will have few incentives to monitor once the loan is closed. Therefore, the lead bank ownership percentage of the syndicated loan potentially resolves the moral hazard problems facing the syndicate participants.

Dennis & Mullineaux (2000) suggest that the borrowers' information environment plays a role in exacerbating or alleviating the information asymmetry problem between the syndicate members. Syndicate loans that involve transparent information, such as loans with credit ratings or loans originated by a listed-equity borrower, reduce the information asymmetry facing syndicate participants. Dennis & Mullineaux (2000) find that the lead bank retains a smaller proportion of the loan as information about the borrower becomes more transparent. Similarly, Sufi (2007) finds that the lead bank retains a smaller proportion of loans originating from firms that require less monitoring costs, such as firms with SEC filings or firms with credit ratings.

2.2.3.2. Monitoring and Accounting Choices

Financial Reporting and Debt Ownership

Recently, accounting studies have focused on how accounting policies influence the accessibility to different segments of the debt markets. The underlying assumption of

this body of research is that easy to verify accounting information and disclosures facilitates inexpensive monitoring. This in turn alleviates information asymmetries between the firm and outside investors, and therefore, increases the probability of having public debt.

Bharath, Sunder & Sunder (2008) suggest that firms with lower accounting quality are more likely to borrow from banks whereas firms with higher accounting quality are more likely to borrow publicly. This is because private lenders have superior access to private information, and therefore are subject to lower information asymmetry problems. Consistent with their prediction, the authors find that accounting quality has a significant impact on the choice of debt type. Firms with higher accounting quality, evidenced by lower earnings and accruals management, borrow from public debt markets, while firms with lower accounting quality borrow from private lenders.

The evidence from the syndicated loans market suggests that the lead bank retains a smaller proportion of the syndicate when the borrowers' accounting policies facilitate better monitoring. For example, Sufi (2007) finds that the lead bank ownership of the syndicated loan is positively related to the ratio of accruals to total assets. Ball, Bushman, & Vasvari (2008) find that the lead bank retains a smaller proportion of the syndicate when the financial reports provide informative signals about the future credit quality. In addition, Wittenberg-Moerman (2008) finds that the lead bank holds a smaller proportion of the syndicate when the borrowers' financial reports are more conservative.

Financial Reporting and Disclosure Quality and Interest Rates

The other key aspect of the role of financial accounting in debt contracting is the association between the quality of financial reporting and the cost of debt. If the firm's financial reporting and communication policies facilitate better monitoring and reduce agency costs, lenders will reward high quality accounting with lower interest rates (Francis, LaFond, Olsson, & Schipper, 2005).

In an early work by Ahmed, Billings, Morton, & Stanford-Harris (2002), the authors find that the firm's debt rating, which they propose as a proxy for the cost of debt, is negatively related to market-based and accrual-based measures of conservatism. Zhang (2008) builds on Ahmed et al., (2002) by investigating the association of measures of conditional conservatism, in particular timeliness of loss recognition, and interest rate spreads. She finds that the firm's timeliness measures are negatively related to the spread of a sample of syndicate loans. In addition, Bharath et al. (2008) show that the price benefits of accounting attributes varies according to the type of debt. They find that the reduction in spreads for each unit of increase in the quality of accruals is greater for public debt issues compared to private debt issues.

The empirical evidence also indicates a negative association between the quality of the firm's disclosure policy and interest rates. Sengupta (1998) finds that the yield to maturity is negatively related to a score of disclosure quality developed by the Financial Analysts Federation (FAF). He argues that the firm's reputation for timely disclosure reduces the lender's perception of default risk hence yield to maturity. Yu (2005) examines the impact of the annual Association for Investment Management and Research (AIMR) corporate disclosure rankings, which represents financial analysts' assessments of the completeness, clarity, and timeliness of firms' disclosure policies, on the term structure of credit spreads. He finds that firms with more accurate information disclosure have lower short-term credit spreads.

Evidence on the Influence of Contracting Arrangements on Timeliness

The firm's financial reporting choices evolve over time, in part, to solve agency conflicts caused by contracting with different agents including managers, shareholders, and lenders (Leftwich, 1983; Watts, 2003; Watts & Zimmerman, 1986). Therefore, one expects to observe heterogeneity of accounting choices of firms operating within the same legal jurisdiction or between different legal jurisdictions depending on the variation in their contractual arrangements. This also implies that there is no optimal set of accounting choices since certain accounting attributes work more efficiently within certain business environments (Armstrong et al., 2010; Ball & Shivakumar, 2005).

Early empirical attempts to examine the effect of contracting arrangements on accounting choices employed the cross-country setting. This is because the single country evidence is unlikely to capture significant variation between individual public firms because within the same country firms operate under a single reporting, litigation and regulatory regime (Ball, Robin, & Sadka, 2008). In Ball, Kothari, & Robin (2000), the authors argue that accounting income in common-law countries is significantly timelier than in code-law countries. In code-law countries outside stakeholders, including capital suppliers, government and labour, are represented in the firm's corporate governance systems. Therefore, one expects that insider communication solves the information asymmetry between managers and stakeholders. In common-low countries, however, shareholders alone elect members of the governing board and therefore there is a higher demand for public disclosure. Ball et al., study the timeliness properties of accounting income for a sample of more than 40,000 firm-years reported during 1985-1995, under the accounting rules of seven countries classified into common-law and code-law. Australia, Canada, UK and USA are classified as common-law countries and France, Germany and Japan are classified as code-law countries. They find that the asymmetric timeliness of accounting income is substantially lower for code-law countries than for common-law countries using the Basu's (1997) earnings response coefficients measure.

To examine the particular influence of debt contracting on the firm's accounting choices, Ball, Robin, & Sadka (2008) examine the variation in accounting attributes that relate to timeliness and conservatism between 22 countries. The authors hypothesize that demands from capital markets and particularly debt markets will influence the country-level accounting attributes. Countries with smaller capital markets generate less demand for effective financial reporting and hence devote fewer resources to developing and operating costly financial reporting systems, while countries with larger capital markets can devote more resources to effective financial reporting. The authors estimate individual country measures for accounting attributes including timeliness and market to book and find that these measures are positively associated with the size of the country's debt markets, approximated by the ratio of total debt over GNP. On the other hand, they do not find evidence of a positive association between the measures of the country's accounting attributes and the size of its equity market. This evidence

suggests that the country-level financial reporting choices are influenced significantly by debt market demand.

In a single-country setting Ball & Shivakumar (2005, 2008) utilize the setting of the UK firms to investigate the variation in UK firms' accounting attributes depending on their equity status (private versus public). The authors argue, the demands for private and public financial reporting are significantly different because "public-company investors, lenders and other financial statement users are at greater "arm's length" than in a private company, and consequently demand higher quality reporting to resolve the information asymmetry" (Ball & Shivakumar, 2008, p. 325). In Ball and Shivakumar (2005), the authors investigate the effect of the firm's current equity status, private or public, on timeliness. The authors find evidence that private equity firms in the UK are less timely in recognizing economic losses even though they are subject to reporting rules similar to public equity firms. Ball and Shivakumar (2008) support their previous evidence by documenting that initial public offering (IPO) firms report more conservatively using an abnormal accruals measure. The authors compare two sets of financial data for UK IPO firms available for the same firms and fiscal years: financial data prepared when the firms were private and data subsequently restated to be included in the IPO prospectuses. They find that the restated financials of UK firms exhibit a significant lower earnings management compared to the original financials of the same firms when they were private.

In both articles Ball and Shivakumar note that debt contracting is potentially an important influence over the demand of certain accounting attributes in public equity firms. For example, Ball and Shivakumar (2005, p. 97) states that:

> Debt-contracting differences between private and public [equity] companies constitute a potentially important determinant of financial reporting quality . . . We have been unable to uncover reliable information on systematic differences (if any) between UK private and public company debt agreements. We suspect private companies communicate with lending banks on a more private, "insider" basis than public companies, thereby reducing the demand for financial reporting quality, but we cannot confirm this.

In the third empirical essay I address this aspect by investigating the influence of debt on the firm's reporting choices.

2.2.4. Summary

In summary, the literature focuses on the role of costly monitoring mechanisms such as debt maturity and debt covenants in alleviating potential moral hazard problems and agency costs in the debt markets. It also shows that public debtholders do not invest in monitoring technologies because of their diffused ownership that may lead to the free rider problem or the duplication of monitoring costs. Therefore, the extant research proposes that other mechanisms that resolve the moral hazard problems may exist in the market for corporate debt. Specifically, these mechanisms include the firm's reputation and the production of high quality information jointly useful to multiple investors.

The empirical research reviewed above focuses on how the choice of private lenders resolves moral hazard problems since bank monitoring mitigates agency conflicts. Also, it focuses on how financial reporting facilitates inexpensive monitoring and thus is associated with debt ownership choices and interest rates charged by lenders. However, to the best of my knowledge, the empirical evidence does not investigate the impact of the firm's reputations in the market for corporate debt. In addition, it does not examine the change in the firm's reporting quality in response to demands from debt markets, although there are important contributions on the change on the firm's reporting quality when the firm transits from private to public equity status.

This thesis builds on these theoretical premises and complements the extant empirical research by investigating the firm's response to lenders' demand for reputation and information quality. Public lenders do not rely on monitoring and bonding mechanisms to resolve information asymmetry problems. Rather they demand a favourable reputation and high quality public information. This thesis investigates the methods that firms employ in order to manage potential costs of moral hazard if they have access to the market of corporate debt. I argue that firms wishing to access the public debt market have to alter their information communication policies in order to facilitate inexpensive

monitoring. Specifically, I examine two aspects of the firm's communication channels: (1) the policy of disclosure of bad news by issuing profit warnings; (2) the timely loss recognition in the firm's financial accounts.

2.3. Costly Information Production and Debt Contracting

2.3.1. Private Lenders' Information Advantage

The firm's insiders possess more information about the expected value of the current and future prospects of the firm. In order to alleviate this information asymmetry, lenders may engage in costly information production to assess the value of the firm. In this respect, private lenders have an advantage over public lenders because they are specialized in information production, i.e., the business model of private lenders is organized around producing information and investing (extending credit) based on this information (Boyd & Prescott, 1986; Leland & Pyle, 1977).

The literature suggests that private lenders acquire their information advantage through several influences. Firms are more willing to give access to their private (proprietary) information to one or a limited number of investors, but are reluctant to share their private information with a large number of investors (Bhattacharya & Chisea, 1995). For instance, firms supply private lenders with inside information at the time of contract inception and during the life of the loan including budgets, internal financial forecasts, and detailed sales data (Wittenberg-Moerman, 2009). Also, private lenders, in particular banks, provide transaction and other services to their borrowers. Therefore, they obtain private information not available to other lenders (Chemmanur & Fulghieri, 1994). For example, Fama (1985) notes that the firm is likely to borrow from the same bank that provides current account services. Thus, banks have access to private information about the firm's transactions that public debtholders are not likely to have.

In addition, many studies suggest that banks obtain firm-specific information because it develops a relationship with the borrower (Boot, 2000; Boot & Thakor, 1994; Elyasiani & Goldberg, 2004; Rajan, 1992; Sharpe, 1990). In relationship banking, the lender

invests in obtaining borrower-specific information over multiple interactions and often through multiple services (Boot, 2000). Therefore, the bank acquires inside information that is available only to the borrower and to the relationship bank. This information is obtained at the loan origination when the bank provides screening and during the life of the loan when it provides monitoring (Boot, 2000). Through screening and monitoring the bank accumulates information that is soft in its nature. For example, the bank learns how to deal with the firm's management, how to evaluate the financial data, and where and who to ask for data (Schenone, 2010). This learning improves the bank's gathering, processing, and interpretation of the borrower's information which adds to the bank's comparative advantage (Schenone, 2010). Further, it reduces the bank's due diligence costs for repeat lending with the same borrower hence mitigating the bank's adverse selection problems.

Also, it is important to note that other agents in the market may perceive the uniqueness of banks in producing valuable information about the borrower, especially the bank's assessment of the long-term profitability of the firm. Boot, and Boot & Thakor (2000; 2000) note that relationship banking permits the funding of loans that are not profitable in the short run but may be profitable if the relationship with the borrower continues long enough. Fama (1985) argues that borrowing from banks can reduce information costs for all of a firm's claimants by providing a credible signal about the firm's creditworthiness. Therefore, the maintenance of banking relationships may convey signals about the long-term quality of the firm to investors in the equity and public markets.

In the next section, I present the empirical evidence on the bank' information advantage in pricing debt securities. I also survey the evidence on the value of bank relationships to claimants in capital markets.

2.3.2. Empirical Evidence on the Uniqueness of Banks in Valuing Firms

The empirical evidence focuses on whether the bank's informational advantage facilitates accurate pricing of securities subject to adverse selection problems. This section presents empirical studies that examine the choice of borrowing privately versus publicly for firms subject to greater adverse selection problems. In addition, it presents a number of studies that investigate the effect of bank loan announcements on stock market returns. Lastly, it present evidence suggesting that investors in capital markets value banking relationships.

A number of studies examine the choice of borrowing from private or public sources. The evidence suggests that firms facing significant adverse selection have a preference for borrowing privately. The main assumption underlying this notion is that banks have a comparative advantage in valuing securities. Hadlock and James (2002) investigate the influence of possible adverse selection costs on the choice of financing through a bank loans versus public securities (both debt and equity). They find that stock return volatility is positively and significantly related to the probability of having a bank loan. This finding suggests that firms subject to high information asymmetry, and possible mis-valuation, prefer to contract with an informed lender. In addition, the authors calculate the cumulative stock return over the last 12 months to approximate possible mis-valuation, the higher the cumulative return the lower the mis-pricing. They propose that firms with mis-priced stock are more likely to use bank financing. The authors find that the firm's cumulative return is negatively related to the probability of announcing a bank loan. This evidence suggests that firms with favourable private information and mis-priced equity prefer to borrow from banks since the latter will value the loan accurately. Krishnaswami et al., (1999) document similar evidence on the relation between undervalued firms and the choice of bank debt. They find that firms subject to high information asymmetry and with positive earnings surprises have a larger proportion of private debt in their debt structure.

In addition, market participants, including shareholders, expect that banks will accurately value loans given the bank's informational advantage. Therefore, the announcement of new bank loans can result in a non-negative stock price reaction

(compared to a negative stock price reaction if the market expects that banks will mis-value the loan). As James (1987) suggests, bank debt can be viewed as an inside source of capital similar to financial slack in the context of Myers and Majluf's (1984) pecking order of financing sources. Moreover, the announcement of new bank loans could result in a positive market reaction since it may convey a positive signal about the prospects of the firm. James (1987) investigates a sample of 80 announcements of bank loan agreements and documents a significant positive announcement effect. He also documents non-positive responses to the announcements of other types of securities including debt private placements (negative and significant) and public debt offerings (negative but insignificant).[4]

Lummer and McConnell (1989) suggest that the bank learns about the firm through continuing lending relationships. Therefore, the information the bank learns about the firm is revealed when a loan is renewed or restructured but not when the bank contracts with the firm for the first time. Lummer and McConnell classify bank loans into new bank loan agreements and revisions to agreements already in place. In addition, they classify announcements relating to bank agreements in place into announcements containing positive information and those containing negative information. Their findings indicate that the announcements of new agreements are not associated with a significant market reaction. The market reaction to the announcements relating to existing agreements, on the other hand, depends on the type of information contained in the announcement. The market reaction for existing agreements is positive for favourable renewals and negative for renewals with negative information.

Further, there is evidence suggesting that the information advantage of bank debt extends to other agents in capital markets because banks provide signals about the quality of the firm through its monitoring and certification activities. A number of studies examine the effect of banking relationships on equity returns. James & Wier (1990) examine how the presence of banking relationship affects the underpricing associated with initial public offerings (IPO) of equity. They investigate the

[4] The latter finding is supported in Hadlock & James (2002) who document that the announcement of seasoned public debt issues is associated with a significant but small negative market reaction; and Datta, Iskandar-Datta, & Patel (2002) who document a significant negative market reaction for firm issuing public debt for the first time.

underpricing the firm experience when it issues an IPO for companies with a borrowing relationship, as reported in the firm's prospectus, and those without it. The authors document that the average initial return for the 455 firms in their sample with previously established borrowing relationships is 9%, while the average for the remaining 94 firms without debt is 31%. Similarly, Slovin & Young (1990) find that, for a sample of 316 initial public offering, the presence of bank debt is negatively and significantly related to the ratio of the first reported closing bid to the offering. This finding supports the evidence in James & Wier (1990) in that IPO firms experience less underpricing when they have a banking relationship. Slovin, Sushka, & Hudson (1990) investigate the market reaction to announcements of seasoned stock offerings. They find that the stock price reaction is significantly more negative for firms without bank debt compared to firms with the largest debt ratios in their sample.

However, there is little research on the value of banking relationships in the public debt markets, with the exception of Datta, Iskandar-Datta, & Patel (1999) who investigate the effect of the presence of a bank loan at the time of issuing public debt on bonds' yield spreads. They estimate a model of the cost of debt for initial public debt offers. The authors select a sample of 98 initial public offers of straight debt issued over the period 1971-1994. Out of their initial sample, 64 firms had bank debt at the time of bond issue while the remaining 34 firms did not. They find that the presence of a bank loan at the time of issuing public debt bank relation reduces the spread by around 84 basis points.

2.3.3. Public Debt and Information Produced by Third Parties

Bondholders in comparison to private lenders do not have an information advantage since they do not specialize in producing costly information about the borrower (Hadlock & James, 2002). Therefore, bondholders are likely to face greater adverse selection problems which results in a higher cost of public debt in terms of a higher risk premium, or spread, charged by corporate bondholders over and above the risk free interest rate. Information asymmetry determines the degree to which the lender must investigate the borrower (Bharath, Dahiya, Saunders, & Srinivasan, 2009; Sufi, 2007). Therefore, publicly available information produced by third parties or inferred from

monitoring third parties activities can be relevant to bondholders if it reduces their adverse selection.

Fama (1985) suggests that it is more economical for firms with a large number of outside creditors to produce information or purchase information produced by third parties such as credit ratings agencies. This will be cost efficient since the produced information is jointly useful for creditors, and this in turn reduces the costs of duplicating monitoring costs among creditors. Booth (1992), however, notes that the diversity of financial claims puts a limit on the degree to which information production, centralized or delegated, can reduce monitoring costs. This is because claimants have various demands for information, making it difficult to produce jointly useful information. In this instance, cross-monitoring between financial claim holders can reduce the overall monitoring costs.

Booth (1992) proposes that information produced through monitoring by claimholders may reduce the monitoring costs of another claimant. Cross monitoring takes place if two agents monitoring the firm could benefit, in terms of reducing monitoring costs, from monitoring each other. For example, public debt monitoring is provided, for the most part, by credit rating agencies who assign bond ratings. Other claimants, such as banks, may find the information produced by credit rating agencies useful. Cross monitoring is beneficial if bond ratings in this example reduce the bank's monitoring costs. As Booth suggests, cross monitoring could also include inferred information such as the mere presence of other claimants or the observation of prices of other assets in the secondary market.

In the cross monitoring hypothesis, monitoring activities by one agent reduces the monitoring costs for other agents if all monitoring takes place simultaneously. In other words, all monitors are concerned with contemporaneous information about the firm. Booth's hypothesis, therefore, is more consistent with reducing the moral hazard problem facing lenders, i.e., catching the firm if it acts opportunistically. In the third empirical essay I extend the cross monitoring hypothesis by suggesting that the prior monitoring by third parties for the benefit of other financial claimholders, such as

ratings assigned to syndicated loans, certifies the true quality of the firm and consequently reduces the bondholders' adverse selection problem. In this context, monitoring activates by third parties do not have to be contemporaneous as long as they convey information about the true quality of the firm.

In the setting of initial public debt offers, monitoring provided to the firm's private loans may convey valuable information to prospective bondholders. The firm's private loans are monitored by the private lenders themselves. In addition, some private loans are monitored by rating agencies when the firm obtains a credit rating for its loan (Fenn, 2000; Sufi, 2009). As discussed in Sections 2.3.1 and 2.3.2., strong banking relationship indicate that the firm's business is viable and its credit trustworthy. Also, favourable initial bond ratings, compared to loan ratings obtained for private loans issued before the firm's first access to the public debt market, convey a positive signal on the firm's commitment to a high quality credit policy.

2.3.4. Summary

In summary, the theoretical literature shows that lenders specialize in costly information production which gives them an information advantage. The empirical evidence shows that firms subject to large information asymmetries are more likely to choose private debt. Also, the findings document a positive announcement effect when the firm announces the renewal of a bank loan. These findings suggest that banks may possess a comparative information advantage which facilitates accurate pricing of information problematic securities. It also shows that the presence of banking relationships affect equity returns and debt interest rates, that in turn suggests that banks reduce information costs for other claimants in capital markets. The literature also suggests that because bondholders are not specialized in information production they are likely to depend on publicly available information, including information produced by third parties. Public information, therefore, plays an important role in determining the degree on which the lender must investigate the borrower.

The present thesis builds on this literature by examining the effect of aspects of the firm's history of private debt financing on the interest rates charged by prospective bondholders, which is a largely ignored topic in the literature. I build on the cross monitoring hypothesis by noting that information-related production provided to the firm's private loans may convey valuable information to prospective bondholders. The firm's private loans are monitored by the private lenders themselves and some private loans are monitored by rating agencies. I expect that the information conveyed by monitoring activities related to the firm's private debt may affect the investigation costs and hence the yield spreads of the initial time bond offer.

2.4. Summary and Conclusion

This chapter provides a survey of the most influential contributions of the literature that examines how information asymmetries resolve in debt markets. I review these contributions in two sections depending on the type of the information asymmetry problem addressed by the study.

In Section 2.1., I review studies that focus on moral hazard problems in debt markets. The theoretical findings of these studies indicate that monitoring activities mitigate the moral hazard problem in debt markets. They also show that bondholders are not likely to invest in expensive monitoring technologies because of their diffused ownership. Therefore, other mechanisms that resolve the moral hazard problems exist in the market for corporate debt such as the firm's reputation. Also, the literature suggests that high quality financial reporting facilitates inexpensive monitoring and therefore mitigates moral hazard problems facing bondholders.

The empirical evidence focuses primarily on bank monitoring as a mechanism to resolve the information asymmetry problem. Specifically, the literature investigates how the choice of the lender type (public or private) resolves the information asymmetry problem. The empirical findings indicate that firms with characteristics that require less monitoring, such as large firms, are likely to issue public debt. Similarly, the empirical

findings on the syndicated loan ownership suggest that the lead bank percentage of ownership is higher for firms that requires more monitoring.

In addition, a number of studies examine the role of accounting in debt markets. The underlying assumption of this body of research is that high quality accounting and disclosure policies facilitate better monitoring which result in lower agency costs hence a reduction in the cost of debt. The findings of this body of research indicate that firms with higher accounting quality are more likely to borrow from public debt markets. The findings also indicate that the lead bank retains a smaller proportion of the syndicated loan when the borrowers' accounting systems facilitates better monitoring. In addition the empirical evidence documents a negative association between the quality of the firm's accounting and disclosure policy and interest rates. Also, a number of studies show that contracting arrangements, in particular debt contracts, induce a demand for high quality financial reports.

The first two essays of this thesis focus on the firm's reputation for high quality of financial reporting and communication policies as mechanisms to resolve moral hazard problems in the market for corporate debt. I propose that investors in the market for corporate debt demand reputations for faithful and timely disclosure and financial accounting characterized by timely recognition of economic losses. In order for a firm to be a public debt issuer, therefore, it has to promote investors' confidence in its accounting and financial communication policies in order to manage potential costs of moral hazard. In the first and second empirical essays, I focus on two methods of information communication, namely the issuance of profit warnings in the context of low litigation threat and the adoption of timely loss recognition policy in the context of accessing the public debt markets for the first time.

The first empirical essay contributes to the extant literature by investigating the effect of reputational concerns on companies' motives to make event-driven (conditional) disclosures. This investigation is consistent with the theoretical prediction that the firm's reputation for faithful and timely disclosure plays a critical role in alleviating

moral hazard problems facing bondholders and reduces agency costs. To the best of my knowledge, this is the first study to examine this effect.

The second empirical essay contributes to the empirical literature on the influence of debt market demand on accounting attributes, in particular timely loss recognition. To the best of my knowledge, this is the first study that examines the change in the firm's asymmetric earnings timeliness when a firm transits from private to public debt status.

In Section 2.3., I review studies that focus on adverse selection problems in debt markets, in particular studies that analyze the bank's comparative information advantage. These studies show that private lenders specialize in costly information production which allows them to obtain firm-specific information about the firm. The information advantage of private lenders overcomes the problem of asymmetric information since it facilitates accurate valuation of the firm. The empirical evidence finds that information problematic securities are more likely to borrow privately. In addition, the evidence shows that the announcement of renewals of bank loans is positive and significant which suggests that the renewal of bank loans convey positive signals about the firm quality. In addition, the evidence suggests that other agents in the capital markets, both equity and debt, value banking relationship because it conveys positive signals about the firm's quality.

In addition, the literature suggests that bondholders do not have an information advantage since they do not specialize in producing costly information about the borrower and therefore may face greater adverse selection problems. Since information asymmetry is characterized by the level of publicly available information and reflects the degree on which the lender must investigate the borrower, information produced by third parties could play an important role in determining the degree on which the lender must investigate the borrower.

In this thesis, I focus on information available to bondholders and produced by third parties, as opposed to information produced by the firm, specifically information

produced by credit rating agencies and financial intermediaries. I also investigate information that is not produced directly for the benefit of the firm's bondholders. I suggest that bondholders observe the information-related services provided by third parties for the holders of other financial claims, such as syndicated loans, to infer the true quality of the firm. This proposition resembles the cross monitoring hypothesis that suggests that monitoring by one type of investor can be valuable for other types of investors because it reduces the latter's costs of monitoring the firm.

In the third empirical essay I employ the setting of initial public debt offers to investigate the effect of monitoring activates by third parties on interest rates. The firm's private loans issued before its entry to the public debt market are monitored by the private lenders themselves. Monitoring by lenders as evident from the literature is valuable for investors in the equity and debt markets. Also some private loans are monitored by rating agencies if the firm obtains a credit rating for those loans. In the third empirical essay I examine the impact of two elements of the firm's record of private debt financing before its entry to the public debt markets on the yield spread of the initial public debt offering. These two elements are the difference between the credit ratings between the firm's initial bond and its prior private loan rating; and the strength of the relationship between the firm and its relationship bank. To the best of my knowledge, this is the first study to examine these effects. The overall evidence presented in the third empirical essay contributes to the existence body of research on cross monitoring. It also corroborates existing evidence on the benefits of bank loans in producing valuable information about the borrower.

References

Ahmed, A., Billings, B., Morton, R., & Stanford-Harris, M. (2002). The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs. *The Accounting Review, 77*, 867-890.

Armstrong, C., Guay, W., & Weber, J. (2010). Role of information and financial reporting in corporate governance and debt. *Journal of Accounting and Economics, 50*, 179-234.

Ball, R., Bushman, R., & Vasvari, F. (2008). The debt-contracting value of accounting information and loan syndicate structure. *Journal of Accounting Research, 46*, 247–287.

Ball, R., Kothari, S., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics, 29*, 1-51.

Ball, R., Robin, A., & Sadka, G. (2008). Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies, 13*, 168–205.

Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics, 39*, 83-128.

Ball, R., & Shivakumar, L. (2008). Earnings quality at initial public offerings. *Journal of Accounting and Economics, 45*, 324-349.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics, 24*, 3–37.

Beaver, W., & Ryan, S. (2005). Conditional and unconditional conservatism: concepts and modelling. *Review of Accounting Studies, 10*, 269-309.

Beneish, M., & Press, E. (1993). Costs of technical violation of accounting-based debt covenants. *The Accounting Review, 68*, 233–257.

Berlin, M., & Mester, L. (1992). Debt covenants and renegotiation. *Journal of Financial Intermediation, 2*, 95–133.

Bharath, S., Dahiya, S., Saunders, A., & Srinivasan, A. (2009). Lending relationships and loan contract terms. *The Review of Financial Studies*, doi:10.1093/rfs/hhp1064.

Bharath, S., Sunder, J., & Sunder, S. (2008). Accounting quality and debt contracting. *The Accounting Review, 83*, 1–28.

Bhattacharya, S., & Chisea, G. (1995). Proprietary information, financial intermediation, and research incentives. *Journal of Financial Intermediation, 4*, 328–357.

Blackwell, D., & Kidwell, D. (1988). An investigation of cost differences between public sales and private placements of debt. *Journal of Financial Economics, 22*, 253-278.

Blume, M., Lim, F., & Mackinlay, A. (1998). The declining credit quality of U.S. corporate debt: Myth or reality? *The Journal of Finance, 53*, 1389-1413.

Boot, A. (2000). Relationship banking: What do we know? *Journal of Financial Intermediation, 9*, 7–25.

Boot, A., & Thakor, A. (1994). Moral hazard and secured lending in an infinitely repeated credit market game. *International Economic Review, 35*, 899-920.

Boot, A., & Thakor, A. (2000). Can relationship banking survive competition? *The Journal of Finance, 55*, 679-713.

Booth, J. (1992). Contract costs, bank loans, and the cross-monitoring hypothesis. *Journal of Financial Economics, 31*, 25-41.

Boyd, J., & Prescott, E. (1986). Financial intermediary coalitions. *Journal of Economic Theory, 38*, 211-233.

Cantillo, M., & Wright, J. (2000). How do firms choose their lenders? An empirical investigation. *Review of Financial Studies, 13*, 155-189.

Chemmanur, T., & Fulghieri, P. (1994). Reputation, renegotiation, and the choice between bank loans and publicly traded debt. *Review of Financial Studies 7*, 475-506.

Datta, S., Iskandar-Datta, M., & Patel, A. (2002). Some evidence on the uniqueness of initial public debt offerings. *The Journal of Finance, 55*, 715 - 743.

Dennis, S., & Mullineaux, D. (2000). Syndicated loans. *Journal of Financial Intermediation, 9*, 404–426.

Diamond, D. (1991). Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy, 99*, 689-721.

Dichev, I., & Skinner, D. (2002). Large sample evidence on the debt covenant hypothesis. *Journal of Accounting Research, 40*, 1091-1123.

Elyasiani, E., & Goldberg, L. (2004). Relationship lending: A survey of the literature. *Journal of Economics and Business, 56*, 315–330.

Fama, E. (1985). What's different about banks? *Journal of Monetary Economics, 15*, 29-39.

Fenn, G. (2000). Speed of issuance and the adequacy of disclosure in the 144A high-yield debt market. *Journal of Financial Economics, 56*, 383–405.

Francis, J., LaFond, R., Olsson, P., & Schipper, K. (2005). The market pricing of accruals quality. *Journal of Accounting and Economics, 39*, 295-327.

Guay, W. (2008). Conservative financial reporting, debt covenants, and the agency costs of debt. *Journal of Accounting and Economics, 45*, 175-180.

Hadlock, C., & James, C. (2002). Do banks provide financial slack? *The Journal of Finance, 57*, 1383-1419.

Houston, J., & James, C. (1996). Bank information monopolies and the mix of private and public debt claims. *The Journal of Finance, 51*, 1863-1889.

James, C. (1987). Some evidence on the uniqueness of bank loans. *Journal of Financial Economics, 19*, 217-235.

James, C., & Wier, P. (1990). Borrowing relationships, intermediation, and the cost of issuing public securities. *Journal of Financial Economics, 28*, 149-171.

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics, 3*, 306-360.

Johnson, S. (1997). An empirical analysis of the determinants of corporate debt ownership structure. *The Journal of Financial and Quantitative Analysis, 32*, 47-69.

Krishnaswami, S., Spindt, P., & Subramaniam, V. (1999). Information asymmetry, monitoring, and the placement structure of corporate debt. *Journal of Financial Economics, 51*, 407-434.

Leftwich, R. (1983). Accounting information in private markets: Evidence from private lending agreements. *The Accounting Review, 58*, 23-42.

Leland, H., & Pyle, H. (1977). Informational asymmetries, financial structure, and financial intermediation. *Journal of Finance, 32*, 371-387.

Lummer, S., & McConnell, J. (1989). Further evidence on the bank lending process and the capital-market response to bank loan agreements. *Journal of Financial Economics, 25*, 99-122.

Myers, S. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5*, 147-175.

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

Pope, P., & Walker, M. (1999). International differences in the timeliness, conservatism, and classification of earnings. *Journal of Accounting Research, 37*, 53-87.

Rajan, R. (1992). Insiders and outsiders: The choice between informed and arm's-length debt. *The Journal of Finance, 47*, 1367-1400.

Rajan, R., & Winton, A. (1995). Covenants and collateral as incentives to monitor. T*he Journal of Finance, 4*, 1113–1146.

Schenone, C. (2010). Lending relationships and information rents: Do banks exploit their information advantages? *The Review of Financial Studies, 23*, 1149-1199.

Sengupta, P. (1998). Corporate disclosure quality and the cost of debt. *The Accounting Review, 73*, 459-474.

Sharpe, S. (1990). Asymmetric information, bank lending and implicit contracts: A stylized model of customer relationships. *The Journal of Finance, 45*, 1069–1087.

Slovin, M., Sushka, M., & Hudson, C. (1990). External monitoring and its effect on seasoned common stock issues. *Journal of Accounting and Economics, 12*, 397-417.

Slovin, M., & Young, J. (1990). Bank lending and initial public offerings. *Journal of Banking and Finance, 14*, 729-740.

Smith, C. (1986). Investment banking and the capital acquisition process. *Journal of Financial Economics, 15*, 3-29.

Smith, C. (1993). A perspective on accounting based debt covenant violations. *The Accounting Review, 68*, 289-303.

Smith, C., & Warner, J. (1979). On financial contracts and optimal capital structure: An analysis of bond covenants. *Journal of Financial Economics, 7*, 117-161.

Standard, & Poor's. (2006). A Guide to the U.S. Loan Market.

Sufi, A. (2007). Information asymmetry and financing arrangements: Evidence from syndicated loans. *Journal of Finance, 62*, 629-668.

Sufi, A. (2009). The real effects of debt certification: Evidence from the introduction of bank loan ratings. *Review of Financial Studies, 22*, 1659–1691.

Watts, R. (2003). Conservatism in accounting. Part I: explanations and implications. *Accounting Horizons, 17*, 207–221.

Watts, R., & Zimmerman, J. (1986). *Positive Accounting Theory*: Prentice-Hall, Englewood Cliffs.

Wittenberg-Moerman, R. (2008). The role of information asymmetry and financial reporting quality in debt trading: Evidence from the secondary loan market. *Journal of Accounting and Economics, 46*, 240-260.

Wittenberg-Moerman, R. (2009). The impact of information asymmetry on debt pricing and maturity. *Working Paper (SSRN)*.

Yu, F. (2005). Accounting transparency and the term structure of credit spreads. *Journal of Financial Economics, 75*, 53-84.

Zhang, J. (2008). The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics, 45*, 27–54.

Chapter 3

The Influence of Public Debt on the Willingness of UK Firms to Issue Profit Warnings[5]

Abstract

This study investigates empirically the influence of public corporate debt on the willingness of UK firms to issue profit warnings. UK firms operate within a legal environment that is less litigious compared to their US counterparts. In contrast to the US, this setting allows for motives other than fear of litigation to affect firms' decisions to warn. Our results indicate that UK firms with public debt are more forthcoming with the disclosure of permanent negative news. Also, our results show that UK firms without public debt are more likely to hide bad news when they are closer to financial distress. However, we fail to find similar evidence for UK firms *with* public debt. These findings suggest that firms with public debt are deterred from hiding negative news for fear of damaging their reputation for truthful and timely disclosure. Public debt appears to act as a disciplinary mechanism on corporate disclosure policy.

JEL classification: G18; G32; G38; K22, N24

Keywords: Profit Warnings; Earnings Surprise; Public Debt; Financial Distress; Threat of Litigation

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3.1. Introduction

This study investigates empirically the influence of public corporate debt on the willingness of UK firms to issue profit earnings. There are different incentives that motivate the firm's decision to voluntarily disclose, positive private information and negative private information (Dye, 2001; Healy & Palepu, 2001). One important but largely unexplored motive to disclose bad news is the firm's reputational concerns. Skinner (1994) suggests that firms who fail to disclose bad news promptly may incur reputational costs. In this study we investigate the firm's reputational concerns by identifying a sub-set of firms who are likely to have reputational capital, namely companies with outstanding public debt issues. We choose firms with public debt because their long-run reputation for faithful and timely disclosure alleviates moral hazard problems faced by bondholders (Diamond, 1989, 1991). We focus on the UK experience because it provides an interesting contrast to the US where profit warnings are driven largely by fear of litigation. In the UK the frequency of profit warnings is high even though the risk of legal action by shareholders or debtholders against companies is low.

Investigating the motives for disclosing bad news is interesting. A priori one may expect that managers have incentives to disclose only relatively good news (Skinner, 1994). However, if investors discount the share price whenever they infer that managers are withholding information, then managers have incentives to disclose all news (including bad news) to prevent share prices from falling beyond their true values. On the other hand, this argument may not hold for several reasons. Dye (1985), for example, proposes that investors may not be certain about the existence of private information and therefore cannot infer from managers' silence that they are withholding bad news. In addition, managers' information consists of proprietary and non-proprietary components. Failure to release news regarding the non-proprietary component may not necessarily cause a fall in the firm's share price since investors form estimates on both components of managers' information (Dye, 1984). Therefore, it is not obvious why firms would voluntarily disclose bad news.

US based research predicts that fear of litigation is the main reason for disclosing negative news (Skinner, 1994). Failing to disclose a large negative earnings surprise may expose the firm to potential lawsuits from shareholders and other affected parties. Empirical evidence suggests that US firms subject to a higher probability of shareholder litigation are more likely to disclose bad news (Kasznik & Lev, 1995). In the US, disclosure deters some types of litigation (Field, Lowry, & Shu, 2005) and leads to a lower settlement amount even if a lawsuit cannot be avoided (Skinner, 1997).

The present study focuses on the UK market that has experienced a high frequency of profit warnings (Collett, 2004; Helbok & Walker, 2003), although the legal environment is substantially less litigious than the US (Black, Cheffins, & Klausner, 2005; Armour, Black, Cheffins, & Nolan, 2009). We argue that this setting provides a useful opportunity to analyse the impact of factors besides litigation risk that influence companies' decision to warn.

The disclosure literature shows that accounting disclosure can reduce information asymmetries between the firm and its investors and potentially lower the firm's cost of capital (Diamond & Verrecchia, 1991; Healy & Palepu, 2001; Verrecchia, 2001). In addition, Lambert, Leuz and Verrecchia (2007) show that in a multi-security setting, disclosure can reduce the firm's cost of capital by affecting investors' assessments of the distribution of the firm's cashflows, thereby reducing the firm's non-diversifiable risk.[6] In this chapter we argue that the firm's long-run reputation of speedy and faithful disclosure of bad news reduces the moral hazard problems faced by public bondholders. The firm's reputation overcomes the free rider problem and the inefficient duplication of monitoring costs resulting from contracting with multiple uncoordinated investors (Diamond, 1989, 1991). Therefore, we expect public debt issuers to face incentives to establish and maintain reputations for truthful and timely disclosure of information in

[6] The negative association between disclosure and the cost of capital depends on several assumptions including that the changes in the disclosure policy are exogenous. However, Larcker and Rusticus (2010) note that endogenous disclosure choice might lead to an ambiguous relation between disclosure and cost of capital. In this respect, Clinch and Verrecchia (2011) show that endogenous voluntary disclosure and the cost of capital could be positively related. For instance, if the level of investors' risk aversion increases, investors will discount the price of the security more severely and at the same time the firm will disclose more to counter the higher discount.

order to reduce agency costs of debt. Hence, we predict companies with public debt to be more likely than companies without public debt to disclose bad news.

In addition to the lower litigation risk, UK regulations give managers leeway to delay disclosure of bad news in the event of financial distress. The UK regulator, the Financial Services Authority (FSA), allows companies to delay the disclosure of inside information in the interests of shareholders in cases where "the financial viability of the issuer is in grave and imminent danger" (Disclosure and Transparency Rules, Section 2.5.3). In this study we examine if managers of UK firms facing financial difficulties are less likely to warn the market of bad news in order to avoid or reduce financial distress costs.

In this respect, our study is similar to Helbok and Walker (2003) who find evidence that UK firms withhold disclosure when they are closer to financial distress. However, our sample period is characterized by the introduction of more rigorous market abuse rules compared to Helbok and Walker's sample period. In 2000, the Financial Services and Markets Acts (FSMA) came into effect in the UK market. The FSMA prohibits practices and statements for the purpose of misleading the market and introduces civil penalties for market abuse. It also allows civil penalties for market abuse by the FSA and civil liability actions by investors. Theoretically, the threat of litigation post 2000 is expected to be higher compared to the threat of litigation prior to 2000. However, in practice the UK legal system still makes it difficult for investors to sue the firm or its directors, and thus, fear of litigation is still less dominant in the UK market. Thus, it is interesting to examine if the evidence documented in Helbok and Walker continues after the introduction of the Market Abuse Rules.

Our results show that UK firms with public debt are more likely to warn the market if the bad news is permanent. Also, our findings indicate that UK firms closer to financial distress, approximated by the interest cover ratio, are more likely to delay the disclosure of bad news until the announcement of the firm's annual results. However, when we control for the issue of public debt, we find that it is only companies without public debt who delay warnings in the case of financial distress, while we find no financial-distress

effect on disclosure for companies with public debt. These results suggest that firms with public debt have incentives to adopt disclosure policies that protect their valuable reputations with bondholders for timely disclosure.

Our study contributes to the disclosure literature, in particular the literature on companies' motives to make event-driven (conditional) disclosures. This is the first study to show that reputational concerns exert a significant influence on the decision to warn in a context where litigation concerns are relatively insignificant. In addition, the present study tests the robustness of Helbok and Walker (2003) closeness to financial distress effect using out-of-sample data for a significantly larger sample size. The findings of this study also complement the recent US evidence that accounting disclosure alleviates information asymmetry facing lenders and consequently reduces the cost of debt (Sengupta, 1998; Yu, 2005).

The rest of this chapter is structured as follows. Section 2 reviews the UK institutional framework with particular emphasis on the UK regulations related to the timely dissemination of price sensitive information. Section 3 outlines our hypotheses, and data and methodology. Descriptive statistics are presented in Section 4, and the results of our analysis are reported in Section 5. We summarize the findings and conclude in Section 6.

3.2. Literature Review

3.2.1. Comparison of the Threat of Litigation in the UK and the US

It is important to recognize the limits of the threat of litigation within the UK regime of public disclosure, especially in comparison to the US regime. This is necessary in assessing the extent to which other motives may influence UK firms' disclosure decisions. Both the UK and the US are common-law jurisdictions with quite similar scores on measures of legal quality such as the efficiency of the judicial system and the rule of law (La Porta, López-de-Silanes, Shleifer & Vishny, 1998). Also the UK and the US companies score similarly on measures of minority shareholders protection (La

Porta, López-de-Silanes, Shleifer & Vishny, 1999). However, in practice, there is an evident divergence of the enforcement of the legal rules between the UK and the US.

Black et al. (2005), Coffee (2008), and Armour et al. (2009) argue that several features of the US legal system and its corporate law encourage private litigation in comparison with the UK and other legal systems. We summarize these features in Table 1.

Table 3.1: Comparison of the US and UK Legal Systems

	US	UK
Legal Expenses	Each party pays its own legal expenses (in successful derivative suits the corporation will pay the legal expenses of the shareholder litigant)	The loser pays
Class Actions	Plaintiffs routinely bring class actions against directors under corporate and securities law.	Not available
Contingency Fees	Widely used	Prohibited
Directors' Duties	Owed directly to shareholders	Owed to the company
Direct Suits	Possible if the injury is direct to shareholders' interest	Not available since directors owe their duties to the company
Derivative Suits	Fairly easy to obtain	Theoretically possible but in practice very difficult to sustain a derivative suit
Directors' Liability in Case of Misleading disclosure	Available under the SEC Rule 10(b) – 5	Liability for companies not directors

With respect to the US legal system, Black et al. (2005) and Coffee (2009) note that the US legal system encourages litigation for several reasons. First, in the US, each party in a law suit pays its own legal expenses regardless of the outcome of the claim. Thus, a claimant (plaintiff) could bring a minor case to court since she does not have to pay the defendant's expenses in the event the claim is dismissed. In the UK, however, the loser pays the winner's costs, making it difficult for smaller investors to take action. Second, class actions, in which a large group of plaintiffs collectively bring a claim to court and/or in which a class of defendants is being sued, are a US phenomenon. Class actions encourage private litigation because it lowers the cost of litigation on individual plaintiffs. The recovery amount of an individual plaintiff could not provide her with enough incentive to bring a case to the court taking into account the litigation costs.

Third, US law firms offer contingent fees plans based on a percentage of damages awarded to their clients. Contingent fees provide plaintiffs the incentives to sue since they do not bear the risk of having to pay the entire costs of unsuccessful lawsuits. This practice is prohibited in the UK.

In addition, Armour et al. (2009) note that under US corporate law, directors owe duties of loyalty and care directly to shareholders. In comparison, under the UK's Companies Act the directors owe duties to act in the best interests of the company. The implication of this is that "the company is the only "proper plaintiff" in a suit alleging breach of duty" (Armour et al., 2009, p. 695). In other words, the board of directors of a UK company controls litigation decisions arising from potential breach of directors' duties. This could lead to conflict of interest since directors will rarely sue each other. In addition, investors in the US can sustain and commence law suits against a company in the form of a direct suit or a derivative suit.[7] In practice, it is often possible for shareholders in the US to bring direct and derivative suits against a director. In the UK, however, direct suits are not available because there is little foundation for a "direct" breach of duty as directors owe their duties to the company not to shareholders. In addition, derivative suits are difficult to sustain and are rarely admitted by courts under UK case law.[8]

In relation to the company's liability for withholding disclosure, the US specifies the SEC Rule 10(b)-5 which prohibits making "any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made". Investors can enforce the requirements of rule 10b-5 through lawsuits by holding liable any person (including directors) responsible for making the misleading disclosure. In contrast, the statutory liability in the UK is for companies but not directors.

[7] In direct suits, the director's breach of duty has to injure shareholders directly. Comparatively, in derivative suits, the injury is principally to the company, and therefore, shareholders bring derivative suits against a director for violating his or her duties on behalf of the company.
[8] See the Companies Act 2006, Part 11, Chapter 1, Section 263 for details of the conditions under which UK courts permit derivative suits.

With respect to the extant empirical evidence on the comparative private enforcement of litigation in the UK and the US, Armour et al. (2009) find that in the UK the number of claims against directors of publicly traded (listed companies in the LSE or AIM) amounted to 6 cases during the period 2004-2006. In comparison, the number of cases in the US amounted to 399 during the period 2000-2007. Armour et al. (2009, p. 700) conclude that:

> [W]e cannot say with confidence that directors of publicly traded U.K. companies face no risk of being named as a defendant in a claim in English courts under U.K. company law, but can say with reasonable confidence that the risk is very low.

In summary, we argue that the nature of the UK legal system limits the threat of legal action against the company by investors disgruntled with the lack of corporate disclosure.

3.2.2. Regulatory Framework in the UK

This section outlines the regulatory framework in the UK and its evolution starting from the issuance of the Guidance on the Dissemination of Price Sensitive Information (PSI) in 1994. We aim to show that UK regulations favour shareholders at the expense of other interested parties in the event of financial distress.

The first UK market rules to deal with the fair dissemination of corporate private information that could affect the value of the firm's securities were issued by the London Stock Exchange (LSE) in 1994. The LSE Listing Rules (LR) of 1994, Chapter 9 "Continuing Obligations" states that:

> A company must notify the Company Announcement Office without delay of any major new developments in its sphere of activity which are not public knowledge which may, by virtue of the effect of those developments on its assets and liabilities or financial position or on the general course of its business, lead to substantial movement in the price of its listed securities . . . or significantly affect its ability to meet its commitments (Listing Rules 1994, paragraph 9.1)

Due to the considerable ambiguity with regard to what constitutes a substantial movement in a security's price, the LSE published the Guidance on the Dissemination of Price Sensitive Information (PSI). The purpose of publishing the Guidance was to assist the company's judgment by giving examples of situations that may fall under the definition of PSI (paragraphs 4 and 5). One situation is the case of profit warnings, the Guidance states:

> It is in the nature of analysts' forecasts that they should differ - sometimes significantly. In most circumstances a company is not obliged to make an announcement correcting public forecasts by analysts. However, a company should correct serious and significant errors which come to its attention which in its view have led to a widespread and serious misapprehension in the market (The Guidance 1996, paragraph 21).

Up to 2000, however, the Listing Rules and the accompanying Guidance did not specify any penalties for firms in breach of the rules. In May 2000 the Financial Services Authority (FSA) took over the supervision of the UK Listing Authority (UKLA) from the London Stock Exchange. The FSA is given its legal power by the Financial Services and Market Act of 2000 (FSMA). The FSMA prohibited practices and statements for the purpose of misleading the market:

> Any person who does not act or engages in any course of conduct which creates a false or misleading impression as to the market in or the price or value of any relevant investments is guilty of an offence if he does so for the purpose of creating that impression and of thereby inducing another person to acquire, dispose of, subscribe for or otherwise those investments or to refrain from doing so or to exercise, or refrain from exercising, any rights conferred by those investments (FSMA 2000, Section 397).

Firms or directors in breach of the FSMA are liable to be prosecuted by the FSA and may be subject to civil liability actions by investors. In addition, the FSMA required the FSA to publish a code that gives guidance to whether or not behaviour amounts to market abuse. On the 1st of December 2001 the Code of Market Conduct came into effect. After 2000, subsequent editions of the Guidance acknowledge that acts that

breach the Listing Rules may also breach the market abuse regime outlined in the FSMA and the Code.

In 2005, changes to the Listing Rules and to the FSMA took place to reflect the implementation of the EU Market Abuse Directive (MAD) in the UK. The implementation of the Market Abuse Directive involved changes to the rules governing the dissemination of price sensitive information (PSI). As a result, new disclosure rules, known as the Disclosure and Transparency Rules (DTR), replaced the previous regime for public disclosure of information outlined in Chapter 9 of the UKLA's Listing Rules and the Guidance. In a special issue of *List!*, the FSA clarifies the relation between the Guide and the new Disclosure Rules:

> [M]uch of the PSI Guide is either general in its application and not relevant to a specific rule (such as the general guidance relating to 'A framework for handling price sensitive information') or simply a repetition or restatement of the rules (such as the guidance relating to 'Exemptions from the duty to disclose'). While other elements of the PSI Guide represent 'good practice' (such as web-casts of presentations and regular trading updates) . . . We therefore consider that the bulk of the PSI Guide is not suitable to be retained as formal guidance (FSA, 2005, p. 2).

It is vital to note that both the DTR and the Guide deal with the dissemination of PSI and inside information, although using different terms. In the above mentioned issue of *List!*, the FSA states that:

> As was the case under the previous rules governing the dissemination of Price Sensitive Information (PSI), it remains vital that a company is able to ensure that its systems, controls and internal procedures enable it to identify inside information and once identified, publish that information to the market as soon as possible (FSA, 2005, p. 1).

In another section, it states that:

> In implementing relevant requirements of MAD through the Disclosure Rules, we have attempted to make the Disclosure Rules follow the language of MAD as closely as possible. We have largely achieved this aim. The result is that the

> language and format of the Disclosure Rules are different from those of the Listing Rules. In the light of this, simply carrying forward the existing PSI Guide in its entirety was not an option (FSA, 2005, p. 2).

In this study, we argue that the UK regulations give managers leeway to withhold disclosure of unexpected and significant bad news. According to the Disclosure and Transparency Rules (DTR), issuers must notify a Regulatory Information Service (RIS) with information that:

> Would be likely to be used by a reasonable investor as part of the basis of his investment decisions and would therefore be likely to have a significant effect on the price of the issuer's financial instruments (DTR, Section 2.2.4).

However, Section 2.5.3 of the Disclosure and Transparency Rules (DTR) states that delaying disclosure is legitimate in case of:

> [N]egotiations in course, or related elements where the outcome or normal pattern of those negotiations would be likely to be affected by public disclosure (DTR, Section 2.5.3).

This section continues to explain that the exemption is intended to aid the long-term recovery of the company and to protect the interests of existing and potential shareholders, arguably at the expense of other parties including lenders and suppliers:

> In particular, in the event that the financial viability of the issuer is in grave and imminent danger, although not within the scope of the applicable insolvency law, public disclosure of information may be delayed for a limited period where such a public disclosure would seriously jeopardise the interest of existing and potential shareholders by undermining the conclusion of specific negotiations designed to ensure the long term financial recovery of the issuer (DTR, Section 2.5.3).

In terms of the implementation of the rules, the willingness of the FSA to penalize firms in breach of disclosure rules has been called into question. For instance, Dedman (2004) argues that the FSA is lenient when it comes to enforcing sanctions on firms who

commit market abuse. In addition, Coffee (2009) reports that during the period 2001-2006, the SEC brought over 300 insider trading enforcement actions. In addition the US Department of Justice criminally convicted 88 prosecutions over the same period. While in the UK the number of insider trading enforcement actions brought by the FSA amounted to 8 only cases over the period 2001-2008.

In conclusion, we argue that if a conflict of interest over disclosure arises between shareholders and a third party, including lenders, the rules and their implementation support the interest of shareholders.

3.2.3. Prior Research

3.2.3.1. Threat of Litigation

Skinner (1994) suggests that managers' decisions to warn are heavily influenced by the litigation threat especially when the firm is subject to a large negative earnings surprise. This is because stockholders can establish that managers failed to disclose adverse earnings news promptly. Therefore, managers have incentives to pre-empt negative earnings news by disclosing the information voluntarily prior to the mandated announcement date. Following this strategy minimizes the expected legal costs in two ways. First, disclosing early weakens the plaintiff's argument that managers withheld bad news since it is difficult to establish when the manager became informed by the bad news. Second, early disclosure limits the number of potential trades of shares during the period of nondisclosure (only buyers and sellers during the class period can sue, therefore, the shorter the period the smaller the number of investors who qualify as members of a class action suit).

How difficult is it to bring a law suit against the firm or its directors to the US courts? Skinner (1994, p. 41) points out that: "While each of these requirements [of Rule 10b-5] involve subtle and complex issues of law, there is evidence to suggest that the law operates more simply". According to Skinner, there are at least two reasons why it is easy to bring a lawsuit under Rule 10b-5: i) most 10b-5 cases are brought as a result of a large share price decline (which then can be tied to a previous misleading or omitted

disclosure); and ii) most cases are settled outside the court due to managers fear of reputational costs, and thus, the legal technicalities become less significant than the triggering event. If investors can easily bring a lawsuit against the firm and/or its directors as a result of a large price movement, potentially caused by substantial new information in the earnings announcement, then managers have strong incentives to disseminate adverse information more quickly to deter the threat of litigation.

The empirical evidence that examines the litigation motives for voluntarily disclosing bad news provides conflicting evidence on the causal relation between warnings and the incidence of lawsuits.[9] Francis, Philbrick, & Schipper (1994) find that warnings in their sample tend to be followed by lawsuits, which appears to suggest that disclosure results in more, rather than less, litigation. To account for the endogeneity between warnings and the incidence of lawsuits Field et al. (2005) use a simultaneous equations system and find a negative but insignificant relationship between lawsuits and disclosure. However, when the authors exclude dismissed lawsuits, which arguably add noise to the regression, they find that lawsuits are negatively related to disclosure at the 5% significance level. Skinner (1997) finds that the settlement amounts, controlling for estimated stockholder damages, are smaller for lawsuits with more timely disclosures (measured as the number of days between the disclosure and the end of the fiscal quarter). Although the overall evidence is not conclusive, it seems to suggest that even if warning may not deter litigation it could lead to lower settlement amounts.

In the next section we present the main empirical studies, relevant to this work, on the determinants of issuing a profit warning. Specifically, we describe in detail Kasznik and Lev's (1995) investigation of the warning choice for US companies. Then, we highlight Helbok and Walker's (2003) extension of Kasznik and Lev's model.

[9] As Skinner (1997) notes this could be, in part, due to methodological issues. The probability of warning and the probability of getting sued are not observable, and more importantly, are endogenous. Firms subject to large adverse earnings surprises have strong incentives to disclose the bad news, but at the same time, these particular firms face the highest probability of litigation. Therefore, the association between warning and being sued may appear to be positive instead of negative, meaning that warning did not deter litigation.

3.2.3.2. Motives for Issuing Profit Warnings

Kasznik and Lev (1995) investigate the disclosure policies of firms facing a large earnings surprise. Their sample consists of US firms with an earnings surprise in the fourth fiscal quarter of the years 1988-1990. They identify the sample firm-years by measuring the deviation of actual earnings from the analyst consensus forecast at the start of the fourth quarter. They select all firms with deviations greater than or equal to -1% (in absolute value) relative to the market price.

The authors' final sample consists of 565 firm-years, out of which 394 had negative earnings surprise and 171 had positive earnings surprise. The authors document considerable variation in US firms' disclosure policies, with 293 firms disclosing prior to the announcement date and 272 firms withholding from disclosure. Out of the 293 disclosure firms, 219 disclosed bad news and only 74 disclosed good news. The frequency of disclosing to non-disclosing firms for firms facing a negative earnings surprise is 56%, while the frequency of disclosure for firms facing good news is 43%.

To investigate the determinants of disclosure of bad news, the authors estimate the following model:

$$\text{warning} = \alpha + \beta_1 \text{size} + \beta_2 \text{earnings} \quad \text{surprise} + \beta_3 \text{high} - \text{tech} + \beta_4 \text{regulated} \qquad (1)$$

They find that larger firms are more likely to disclose bad news. They also find that firms facing larger earnings surprise are more likely to disclose. Finally, they find that firms in high-tech industries are more likely to disclose bad news, while firms in regulated industries are less likely to disclose bad news. These results are consistent with Skinner's (1994) argument that litigation threat is the dominant motive for disclosing bad news. Larger firms operating in high-tech technologies and facing larger surprises are expected to be subject to higher litigation threat, and thus, have higher incentives to disclose to minimize the risk of litigation.

Helbok and Walker (2003) extends Kasznik and Lev's (1995) warning model (equation 1) by examining the potential impact of debt agency conflicts on the issuance of profit

warnings. They note that the LSE rules allow for a delay in the disclosure of bad news when the firm's financial health is in question, which gives management more control over the timing of the disclosure. The authors suggest that the management, acting in the best interest of shareholders, could take advantage of the delay in the announcement of bad news by transferring wealth from lenders to shareholders. To test if UK firms exhibit opportunistic behaviour with regard to the timing of the disclosure decision, the authors model the decision to warn by including an interest cover ratio in their disclosure choice model. The interest cover captures the closeness to financial distress, whereby firms with lower interest cover ratio are more likely to be closer financial distress. They find that interest cover is negatively related to the decision of warning implying that firms closer to financial difficulties are less willing to warn.

3.2.3.3. Stock Returns for Warning and Non-Warning Firms and Permanence of Bad News

Kasznik and Lev (1995) also compare the stock returns of firms that experience negative earnings surprises and warned the market with the returns of firms that did not warn. They find that the stock returns of firms that issued profit warnings are significantly lower than the returns of the firms that did not issue warnings. This finding suggests that the market is rewarding the non-warning firms and is penalizing the warning firms. As Tucker (2007) notes, if investors penalize disclosure then the frequency of issuing profit warnings should decline. However, the frequency of warning has been increasing steadily. Several studies propose different explanations for this result.

Kasznik and Lev (1995) propose that the significant lower stock returns for warning firms compared to non-warning firms is a result of investors' anticipation of the persistence of the earnings surprise over several periods. To support their explanation, Kasznik and Lev show that analysts revise their one-year ahead earnings forecasts more negatively for warning firms than for no-warning firms. In spirit of Kasznik and Lev explanation, Xu (2006) finds that the stock returns are not significantly different between warning and non-warnings after controlling for the revisions of analysts' one-year ahead forecasts.

In addition, Tucker (2007) argues that managers self-select warning the market of negative earnings surprises based on their private information of 'other bad news'. Tucker does not find a significant difference between stock returns for the warning and non-warning firms once she controls for the self selection in the managers' decision to warn.

In this study, we follow on this literature by investigating the impact of the permanence of bad news on the UK companies' decision to warn the market of bad news.

3.3. Research Design

3.3.1. Hypotheses Development

The importance of the threat of litigation on the firm's decision to disclose bad news depends on the nature of the legal system. As discussed in the previous section, the legal environment in the UK is considerably less litigious than in the US. Therefore, we expect motives other than litigation risk to influence the warning choices of UK firms. Our first hypothesis focuses on the effect of the presence of public debt on the firm's decision to warn. Companies that are caught hiding bad news may face a loss to their reputational capital, and therefore we expect them to be less likely to opportunistically withhold bad news. We argue that companies with outstanding public debt are more concerned with their reputation for truthful and timely disclosure than firms with no debt or with only private debt.[10] Reputation helps companies limit the agency costs of debt due to conflicts of interest between shareholders and debtholders. It reduces the need for expensive control mechanisms such as restrictive covenants and monitoring by debtholders (Diamond, 1989), and reduces debtholders' monitoring costs (Diamond, 1991). If a company takes an action that damages its reputation, its cost of debt rises, and it may even lose its credit lines. Thus, firms with public debt have incentives to

[10] Diamond (1989, p. 829) views reputation as "arising from learning over time from observed behaviour about some exogenous characteristics of agents. Reputation effects on decisions arise when an agent adjusts his or her behaviour to influence data others use in learning about him". According to this definition, reputation has the following attributes: it is acquired over potentially a long time horizon and it becomes valuable asset that could depreciate in value in case of unfavourable event. In this study, the firm's reputation arises from its commitment to timely disclosure. In the event the firm fails to disclose in a timely fashion bondholders are expected to undervalue the firm's reputation (commitment to timely disclosure).

adopt disclosure policies that enhance their reputations. Our first hypothesis predicts that:

H1: Firms with public debt are more likely to issue profit warnings than firms without public debt.

Another factor that emerges in the context of low threat of litigation is the firm's willingness to issue profit warnings when it faces financial difficulties. Kothari, Shu & Wysocki (2009) argue that managers incur direct and indirect costs resulting from the disclosure of bad news.[11] These costs are likely to amplify in times of financial difficulties. Therefore, managers of companies facing financial difficulties face incentives to hide bad news to gain at the expense of stakeholders. However, we argue that in companies with significant debtholders, managers face even greater incentives to hide bad news. This is because companies facing financial difficulties may be unable to fulfil their contractual obligations with third parties. Examples of third parties include current and potential lenders, suppliers, and customers. Disclosure of bad news when the firm is facing financial difficulties may lead third parties to renegotiate their current contracts to reflect the new state of the firm. Third parties may also refuse to enter into new contracts or charge higher rates/fees than they would normally charge. Thus, firms have incentives to hide bad news from third parties when they are facing financial difficulties. Also, the Institutional Background section shows that UK regulation exempts firms from disclosure due to ongoing negotiations. Hence, we predict that:

H2: Firms facing financial difficulties are less likely to issue a profit warning.

3.3.2. Data and Methodology

The sample includes all UK listed, non-financial firms available from the FactSet database during the period 2001-2008. FactSet has comprehensive coverage of profit warnings starting from 2001. The data items collected from FactSet include the firms' fiscal dates, annual and interim announcement dates, profit warnings dates, and actual

[11] Disclosing bad news could result in indirect costs since it can affect managers' promotion opportunities, and raise the possibility of terminating their contracts and revising their short and long term compensation plans. Direct costs of disclosing bad news include the reduction in managers' bonuses and the loss of their wealth as a result of the stock price decline.

EPS. FactSet also provides information related to consensus forecasts including the mean and median consensus, number of analysts, and forecasts for one period ahead. We match the International Securities Identification Numbers (ISIN) of UK companies identified in FactSet with companies' ISINs identified in Datastream. Then, we select all firm-years with negative earnings surprises as outlined below. We exclude observations if the annual announcement date is recorded before the fiscal year-end date. We also exclude observations if the time period between the annual announcement date and the fiscal date is more than 7 months. The final sample consists of 829 firm-year observations with negative earnings surprises and with all necessary data.[12] The sample selection process is described in Table 3.2.

Table 3.2: Sample Selection

Table 3.2 reports the sample selection process. The sample consists of UK firms subject to a negative earnings surprise over the period 2001-2008.

Number of firm-years subject to a negative earnings surprise with all necessary information	1204
Number of firm-years with a negative earnings surprise greater than 1%	836
Number of firm-years with annual announcement date before the fiscal year end	(3)
Number of firm-years with time period between annual announcement date and fiscal date more than 7 months	(4)
Final Sample Firm-years subject to a negative earnings surprise of greater than 1%	**829**

We examine the factors that motivate companies facing unexpected bad news (in terms of negative earnings surprises) to make profit warnings. This requires identifying bad-news companies using a proxy for the earnings surprise. Following Kasznik and Lev (1995), we assume that managers have accurate private information about the firm's earnings for some time before the earnings announcement, and that the earnings surprise represents the difference between the managers' private information and the market's expectations about the upcoming earnings. Therefore, we use the actual EPS to proxy

[12] Helbok and Walker (2003) sample consists of 208 observations over the period 1995-1998. The distribution of warning and non-warning firms is remarkably different between the two studies. While Helbok and Walker report 106 warning and 102 non-warning observations, we report 180 warning and 649 non-warning observations. The increase of warning observations is more likely to be due to the longer sample period. However, the increase of the non-warning observations is potentially due to the use of a different database (we use FactSet, while Helbok and Walker use IBES). We believe that FactSet database provides a better source of information on the UK market as it has an extensive coverage of small UK firms. Small firms are more likely to exit the market earlier compared to larger firms, in part due to financial difficulties. One of our main hypotheses examines the effect of the firm's financial position on its disclosure behaviour. Therefore, it is important to include firms with low probability of survival as their incentives to disclose bad news could be different compared to firms with high probability of survival.

for managers' expectations of the upcoming earnings. To proxy for the market's expectation, we use analysts' consensus EPS forecast after the announcement of interim results (or in case of quarterly reports, after the publication of the third-quarter results).

Most UK firms report semi-annually, but some choose to report on a quarterly basis. For firms that report semi-annually we focus on the earnings surprise for the second half of the year and calculate the earnings surprise using the consensus earnings forecast for the year *t* at the start of the second half (after the announcement of interim results). For firms that report on a quarterly basis, we focus on the earnings surprise for the fourth quarter of the year and calculate the earnings surprise using the consensus earnings forecast for the year *t* at the start of the fourth quarter (after the announcement of third quarter results).

Following Kasznik and Lev (1995) we calculate the earnings surprise (ES) as follows:

$$ES_{it} = \frac{\left(A_{it} - F^{t}_{i,(int\ erim)}\right)}{P_{i,(int\ erim)}} \times (-1) \qquad (2)$$

where A_{it} is the actual announced EPS; $F^{t}_{i,t(interim)}$ is the analysts' mean (median) consensus forecast of EPS after the announcement of semi annual results (or third quarter results in case of quarterly reports); and $P_{i,t(interim)}$ is the share price at the end of the second quarter (or third quarter results in case of quarterly reports).

We include in our sample all firm-years during 2001-2008 with economically significant, or material, bad news. We define material bad news as firm-years with an earnings surprise of 1% or more, or in other words, firm-years when the reported earnings per share (EPS) falls short of the consensus EPS forecast by 1% or more of the share price.

We collect information on profit warnings from the FactSet database. Profit warnings (PW) are defined as statements of negative information content released by the firm to a Regulatory Information Service (RIS). FactSet provides the company name and the date the profit warning was released. We collect data on the public debt status and the

frequency of public debt issuance of UK firms from two sources: The Thomson One Banker (TOB) database and the firms' financial statements. The TOB database has limited coverage of debt issued by UK firms. To overcome this problem we check the firms' financial statements and the accompanying notes for information on public debt issues. We find that out of a total number of 829 firm-year observations, there are 138 firm-year observations with public debt status. Finally, we collect insider ownership data from the BoardEx database and block-holding ownership data from the Thomson One Banker database.

3.3.3. Determinants of Profit Warnings

We estimate a probit model of the decision to make a profit warning. Our dependent variable is a warning dummy that is coded one if the firm released a warning after the announcement of its semi-annual results (or after the publication of third quarter results in case of quarterly reports) and before the announcement of the annual results and zero otherwise.

According to the FactSet database, which is our primary source for profit warnings, a profit warning is a statement issued by a company in the press or announced at press conferences and consists of the company's forecasts adjusted for its changing circumstances. The content of the profit warning could be quantitative but mostly has qualitative nature that gives guidelines of what the expected EPS should be. FactSet records all press releases irrespective of whether they triggered an adjustment in the analysts' forecasts.

The main explanatory variables of interest are proxies for whether or not the company has public debt outstanding and the company's closeness to financial distress. In the rest of this section we define and motivate the inclusion of the independent variables in our model.

Public Debt Status

To test our first hypothesis regarding the influence of the presence of public debt on the firm's incentives to make a profit warning, we include a public debt indicator variable (PD) that is coded one if the firm has public debt and zero otherwise. The purpose of including an indicator variable for public debt is to focus on information demand from the different types of debt markets. However, in using an indicator variable we assume that bondholders' demand for timely disclosures, and consequently the firm's response to this demand, is equal regardless of the relative importance of public debt in the firm's financial structure. Therefore, we include a second variable that accounts for the number of public debt issues outstanding (ISSUES). We also include PD/LTD which accounts for the importance of public debt financing relative to long-term financing.

Financial Difficulties

One likely outcome of facing financial difficulties is the violation of debt covenants. In case of UK companies, Christensen, Lee & Walker (2009) report empirical evidence on UK debt contracts using DealScan data. They find that interest cover is the most common covenant in UK debt contracts, and that an interest cover covenant is included in almost all the contracts recorded in DealScan. Therefore, we focus on the likelihood of violating the interest cover on the willingness of the UK firms to warn the market of bad news.

COVLOG is calculated as the natural logarithm of one plus the interest cover ratio multiplied by -1. The cover ratio is defined as earnings before interest, taxes, depreciation and amortization (EBITDA) divided by interest payments. We calculate this transformation because the cover ratio becomes extremely large when the interest payments are very low. COVLOG is re-coded zero for observations with negative EBITDA. A value of zero indicates that all EBITDA (if any) are committed to paying interest. We multiply the natural logarithm by -1 for ease of presentation, so the higher COVLOG the closer the firm is to financial distress. Therefore, we expect COVLOG to be negatively related to the probability of issuing a profit warning.

Firm Size

Large firms potentially have a larger number of shareholders, and thus, face higher investor demand for timely information (Kasznik & Lev, 1995). Further, large firms are more exposed to litigation due to the large number of traded shares (Skinner, 1994), and because of the *deep pockets* effect, the settlement size for larger firms is larger than smaller firms (Field et al., 2005). Therefore, we expect larger firms to be more likely to issue profit warnings. We measure firm size as the natural logarithm of the market capitalization lagged one year (MVL).

Size of the Earnings Surprise

Kasznik and Lev (1995) predict that the larger the earnings surprise the higher the probability that investors will be disappointed and will sue the firm. Therefore, the larger the earnings surprise the more likely it is that the company will issue a profit warning. We measure the size of the earnings surprise (ES) using the expression in Equation (3); which indicates that the larger the earnings surprise the greater the bad news.

Permanence of the Bad News

Kasznik and Lev (1995, p. 132) suggest that managers will issue a warning when they perceive the earnings surprise to be permanent, while transitory surprises may go largely unwarned. We include a variable that measures the permanence of bad news (PERM). PERM is calculated as the revision in analysts' forecasts of fiscal year t+1 earnings made between the announcement of the fiscal year t semi-annual results and the announcement of the fiscal year t annual results. In the case of quarterly reporting, the revision in fiscal year t+1 earnings forecast is calculated between the time of the announcement of the fiscal year t third quarter results and the announcement of the fiscal year t annual results. For ease of presentation and consistency with the earnings-surprise measure we multiply PERM by -1. Thus, a positive value of PERM indicates a pessimistic revision of the forecast of next year's earnings, and hence suggests that the bad news is more permanent.

We interpret PERM as an imperfect proxy for management's perception of the permanence of the bad news. We realise that there is likely to be bias in our estimates as a result of the measurement error in this variable. Instrumental variable estimation ought to be used but we were unable to identify suitable instruments for PERM. Measurement error typically biases the coefficient estimate downwards.[13] Thus one might expect the biased (inconsistent) coefficient estimate to be more likely to be statistically insignificant. Also the bias is likely to be limited to PERM given the relatively low correlations between PERM and the main variables of interest (see Table 7).

Number of Analysts

We expect firms followed by a larger number of analysts to face a higher demand for timely disclosure of negative information. For example, Kasznik and Lev (1995) argue that one of the firm's disclosure objectives is to avoid "embarrassing" analysts by surprising them. To proxy for analysts following (NUMBER), we use the number of analysts publishing EPS forecasts around the time of the announcement of the semi-annual results (or the third quarter results in case of quarterly reporters).

Book to Market Ratio

We include the book to market ratio (BTM) defined as book value of assets divided by market value of equity plus book value of debt. This ratio is the inverse of the market to book ratio, therefore, a smaller BTM indicates greater growth opportunities. We expect that firms with larger growth opportunities, hence smaller BTM ratios, are more likely to warn the market of bad news. Firms with larger growth opportunities tend to have more volatile earnings, thus, they may attempt to reduce uncertainty regarding their earnings by promptly warning investors of bad news (Field et al., 2005; Kothari, Shu, & Wysocki, 2009).

[13] The magnitude of the estimate is usually lower than expected at least in linear models. In non-linear models such as the probit model estimated here, the likely direction of the bias is difficult to predict.

Quarterly Results and Cross Listing

We also include a variable specific to the UK market, PUB_Q, which is a dummy variable that takes the value of one if the firm reports quarterly results and zero otherwise. Firms reporting only semi-annually may face greater investor demand for additional disclosure due to the longer intervals between scheduled earnings releases. Therefore, we expect the coefficient sign of the quarterly results dummy to be negatively related to the probability of issuing profit warnings. In addition, some firms reporting quarterly are cross-listed in the US. Therefore, they may be more likely to make profit warnings since they may be subject to greater litigation threat due to their cross-listing in the US. Therefore, we include a dummy variable that accounts for cross listing, CROSS, which takes the value of one if the firm is cross listed in the US and zero otherwise. We expect CROSS to be positively related to the probability of issuing profit warnings.

Prior Stock Return

We also include a six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). The purpose of including this variable is to control for the market expectations with regard to the firm's financial position.

We summarize the variable definition in Table 3.3.

Finally, our profit-warning model is specified in Equation (3) and estimated using probit:

$$\begin{aligned} PW = {} & \alpha + \beta_1 COVLOG + \beta_2 PD + \beta_3 ES + \beta_4 PERM + \beta_5 NUMBER + \beta_6 MVL \\ & + \beta_7 BTM + \beta_8 PUB\_Q + \varepsilon \end{aligned} \quad (3)$$

Table 3.3: Variable Definitions

Variable	Definition
Profit Warnings (PW)	Dummy variable coded 1 if the firm released a profit warning statement after the announcement of semi-annual results (or third quarter results in case of quarterly results) and before the announcement of the annual results and 0 otherwise.
Public Debt (PD)	Dummy variable coded 1 if the firm has a public debt issue in its financial structure at fiscal year *t*-1 and 0 otherwise.
Number of Issues (ISSUES)	The number of public debt issues outstanding at fiscal year *t*-1.
Ratio of Public Debt over Long Term Debt (PD/LTD)	The ratio of the amount of public debt at fiscal year *t*-1 divided by the amount of long-term debt at fiscal year *t*-1.
Interest Cover (COVLOG)	The log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITDA indicating that all current periods' EBITDA are committed to pay interest expense. COVLOG is measured at *t*-1.
Earning Surprise (ES)	The difference between actual announced EPS (A_{it}) and analysts' mean consensus forecast of EPS after the announcement of semi-annual results (or third quarter results in case of quarterly results) $F^{t}_{i,t(interim)}$. The difference is deflated by the share price at the beginning of the period $P_{i,t(interim)}$ and multiplied by -1. This can be expressed as: $ES_{it} = - (A_{it} - F^{t}_{i,t(interim)})/P_{i,t(interim)}$.
Permanence of News (PERM)	The difference between analysts' mean consensus forecast of EPS one period ahead after the announcement of annual results $F^{t+1}_{i,t}$ and analysts' mean consensus forecast of EPS after the announcement of semi-annual results (or third quarter results in case of quarterly reports) $F^{t+1}_{i,t(interim)}$. The difference is deflated by the share price at the beginning of the period $P_{i,t(interim)}$ and multiplied by -1. This can be expressed as: $PERM_{it} = - (F^{t+1}_{i,t} - F^{t+1}_{i,t(interim)})/P_{i,t(interim)}$
Number of Analysts (NUMBER)	Number of analysts publishing EPS forecasts for a given sample firm at the announcement of semi-annual results (or third quarter results in case of quarterly reports).
MV	The natural log of the firm's market value measured at the start of the second fiscal quarter in case of semi-annual results or the start of the third fiscal quarter in case of quarterly results.
ASSETS	The natural log of the firm's total assets measured at *t*-1.
PUB_Q	An indicator variable taking the value of 1 if the firm reports quarterly results.
CROSS	An indicator variable taking the value of 1 if the firm is cross-listed in the US.
Growth opportunities (BTM)	Book to Market ratio (BTM) defined as book value of assets divided by market value of equity plus book value of debt. BTM is measured at *t*-1.
Prior Stock Return (PRIOR RETURN)	Six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms).

Data Sources: Profit warnings, earnings surprise, permanence of bad news, and number of analysts are based on data collected from the FactSet database. Data for Public debt and number of public debt issues outstanding are collected from the Thomson One Banker database (TOB) and the firm's financial statements. The firm's characteristics proxies and the stock returns are measured using data collected from Datastream. Insider ownership is collected from BoardEx and block-holding ownership is collected from TOB. Unless specified, all variables are measured at time *t*-1.

3.4. Descriptive Statistics

3.4.1. Industry Composition of the Sample and Time Trends

Table 3.4 reports the distribution of warning firms relative to non-warning firms across industries and time.[14] The sector with the lowest frequency of warnings is the utilities sector. This finding is consistent with the Kasznik and Lev (1995) finding that regulated firms are less likely to warn. The sector with the highest frequency of warnings is the consumer discretionary sector, which is consistent with the US evidence reported in Field et al. (2005). One potential reason is that these firms release regular sales information, and therefore, the marginal costs of disclosing earnings-related statements is lower compared to other industries (Field et al., 2005). Perhaps surprisingly, high technology industries such as information technology and telecommunication do not have the high frequency of warning predicted by Kasznik and Lev (1995). This may be due to the fact that fear of litigation, which is the major motive for issuing profit warnings by US firms in these sectors, does not apply to UK firms.

The second panel in Table 3.4 shows that the number of firms subject to negative earnings surprises differs between normal periods and periods of crisis. Perhaps surprisingly, the number of firms with negative earnings surprises decreases in periods of crisis, such as the Credit Crunch of 2008. One potential reason for this drop is that analysts are more likely to be pessimistic about the firm's performance in times of a crisis. This lowers their forecasts, which in turn, leads to a smaller number of firms with negative earnings surprises. Another reason is that the year 2008 was affected by the increasing use of the interim management statement which resulted in a decrease in the issuance of profit warnings.

[14] For ease of presentation, we use the term firm instead firm-year.

Table 3.4: Distribution of Profit Warnings

This table reports the distribution of warning and non-warning firm-years for each industry (GICS classification) and across time. It also reports the frequency of warning (warning/non-warning) in the third column. The sample consists of UK firms subject to a negative earnings surprise over the period 2001-2008.

	Warning Firms	Non-Warning Firms	Warning/Non-Warning	Total
Industries				
Energy	4	58	7%	61
Materials	11	57	19%	68
Industrials	49	134	37%	178
Consumer Discretionary	73	147	50%	206
Consumer Staples	9	29	31%	38
Health	10	72	14%	80
Information Technology	22	131	17%	151
Telecommunications	2	11	18%	13
Utilities	0	10	0%	10
Total	180	649	28%	829
Years				
2001	36	80	45%	116
2002	22	75	29%	97
2003	13	72	18%	85
2004	17	90	19%	107
2005	17	87	20%	104
2006	33	83	40%	116
2007	31	92	34%	123
2008	11	70	16%	81
Total	180	649	28%	829

3.4.2. Surprise Attributes and Firm Characteristics

Throughout the analysis we compare the sample statistics with Kasznik and Lev (1995) and Helbok and Walker (2003). Table 3.5 reports summary statistics for the surprise attributes and the firm characteristics. In terms of surprise attributes, we document that the average size of the earnings surprise for non-warning firms is larger than the average of warning firms (6% and 9% respectively). However, the difference in the mean earnings surprise between warning and non-warning firms is insignificant. Helbok and Walker report a similar average earnings surprise for warning firms of -6%, however, they report a smaller average earnings surprise for non-warning firms of -4%. Kasznik and Lev report a sample mean for the earning surprise of -7% which is similar to our sample mean.

As predicted, we find that warning firms have a higher mean permanence of bad news, PERM, compared to non-warning firms. The difference in means is statistically significant at the 1% level. Helbok and Walker report a mean PERM of -5% for warning firms and -2% for non-warning firms, while Kasznik and Lev report a mean PERM of -7% and -3% for warning and non-warning firms respectively. Similar to our findings, Helbok and Walker and Kasznik and Lev report significantly higher permanence for warning firms compared to non-warning firms.[15]

Consistent with the notion that warning firms are more visible, Table 3.5 indicates that warning firms have higher analyst following (NUMBER); larger assets size (ASSETSL) and market value (MVL). The differences in means for NUMBER, ASSETSL, and MVL are significant at the 1% level. These results are similar to those in Helbok and Walker and Kasznik and Lev.

Further, we test whether firms with more growth opportunities, hence smaller book to market ratio (BTM), are more likely to warn. Consistent with our prediction we find that warning firms have smaller BTM compared to non-warning firms. However, similar to Helbok and Walker, we find that the difference in the mean BTM between warning and non-warning firms is insignificant. In addition, we find that non-warning firms are more likely to report quarterly compared to warning firms. This finding suggests that firms reporting only on a semi-annual basis are more likely to issue profit warnings in response to investors' demand for additional disclosure due to the length of the reporting interval. Finally, contrary to our prediction we find that non-warning firms are more likely to be cross listed in the US but the test statistics results are insignificant.

[15] The distribution of PERM (not reported) shows that the optimistic revisions of next years' earnings account for 10% of the observations for warning firms and 25% of the observations for non-warning firms. This explains why the mean value of PERM for non-warning firms is zero. Optimistic revisions of next years' earnings (negative PERM) indicate that the bad news is transitory and it does not have an effect for future periods. Therefore, it is reasonable to have observation with negative (transitory) earning surprise and yet an optimistic revision of the one-year ahead earnings.

Table 3.5: Summary Statistics

Table 3.5 reports descriptive statistics for a sample of UK firms with negative earnings surprise over the period 2001-2008. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. ISSUES is the number of public debt issues outstanding. PD/LTD is the amount of public debt divided by the long term debt. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS after the announcement of semi-annual results (or third quarter results) deflated by the share price at the beginning of the period. PERM is the difference between analysts' mean consensus forecast of EPS one period ahead after the announcement of annual results and analysts' mean consensus forecast of EPS after the announcement of semi-annual results (or third quarter results) deflated by the share price at the beginning of the period. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. BTM is the book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. ASSETS is the natural log of the firm's total assets. MV(£) is the firm's market value measured at the second (third) fiscal quarter end measured in Millions of Pounds. ASSETS(£) is the firm's total assets measured in Millions of Pounds. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). All ratios are expressed in decimal points. *, **, *** denote significance at the 10%, 5%, and 1%, respectively.

Table 3.5 continued

Panel 1: Firm-Years 829 Observations																
	Warning Firm-Years (Obs. 180)							Non-Warning Firm-Years (Obs. 649)							ttest	Wilcoxon
	Mean	Med	SD	Min	Max	Skew	Kurt	Mean	Med	SD	Min	Max	Skew	Kurt		
PD	0.16	0	-	-	-	-	-	0.11	0	-	-	-	-	-	-1.92*	-1.91*
ISSUES	0.77	0	2.47	0	17	4.46	25.29	0.72	0	3.31	0	54	9.40	122.88	-0.18	-1.05
PD/LTD	0.06	0	0.19	0	1	3.41	14.05	0.05	0	0.18	0	1	4.17	19.74	-0.96	-1.50
ES	0.06	0.04	0.07	0.01	0.66	4.92	36.41	0.09	0.03	0.30	0.01	5.01	12.32	176.63	1.33	0.37
PERM	0.03	0.02	0.05	-0.07	0.28	2.18	10.64	0.00	0.00	0.08	-0.69	0.80	-1.67	32.89	-4.34***	-6.74***
NUMBER	6.44	3	6.15	1	32	1.37	4.49	4.80	2	5.90	1	46	2.68	13.19	-3.27***	-4.55***
BTM	0.40	0.34	0.56	-3.51	2.27	-1.57	16.92	0.46	0.43	0.85	-3.64	6.67	0.57	12.97	0.96	1.98**
PUB_Q	0.01	0	-	-	-	-	-	0.05	0	-	-	-	-	-	2.35**	2.34**
CROSS	0.01	0	-	-	-	-	-	0.02	0	-	-	-	-	-	1.10	1.10
MV	5.23	5.00	1.64	1.83	9.37	0.54	2.91	4.67	4.46	1.81	0.74	11.61	0.71	3.58	-3.77***	-4.22***
ASSETS	5.23	5.06	1.85	0.78	10.08	0.30	2.92	4.76	4.58	2.00	0.18	12.12	0.53	3.30	-2.79***	-3.13***
MV(£)	839	148	1994	6	11717	3.66	16.52	1143	86	7668	2	110365	12.02	152	-	-
ASSETS(£)	1087	158	2950	2	23826	4.83	30.10	1587	97	10706	1	183543	12.88	186	-	-
PRIOR RETURN	-0.03	-0.05	0.28	-0.76	1.59	2.43	16.07	-0.01	-0.04	0.37	-0.92	3.97	3.86	35.71	0.68	0.26

Table 3.5 continued

Panel 2: Firm-Years 795 Observations																
	Warning Firm-Years (Obs. 174)							Non-Warning Firm-Years (Obs. 621)							ttest	Wilcoxon
	Mean	Med	SD	Min	Max	Skew	Kurt	Mean	Med	SD	Min	Max	Skew	Kurt		
PD	0.17	0	-	-	-	-	-	0.12	0	-	-	-	-	-	-2.05**	-2.05**
ISSUES	0.80	0	2.51	0	17	4.38	24.43	0.76	0	3.38	0	54	9.20	117.74	-0.16	-1.05
PD/LTD	0.06	0	0.20	0	1	3.34	13.53	0.05	0	0.18	0	1	4.07	18.81	-0.92	-1.46
COVLOG	-2.67	-2.42	1.78	-8.81	0	-0.82	4.07	-1.89	-1.86	1.70	-9.85	0	-1.14	5.02	5.25***	5.55***
ES	0.06	0.04	0.07	0.01	0.66	4.87	35.54	0.09	0.03	0.30	0.01	5.01	12.06	169.28	-1.37	0.09
PERM	0.03	0.02	0.05	-0.07	0.28	2.23	10.81	0.00	0.00	0.09	-0.8	0.80	-1.64	32.55	4.25***	6.72***
NUMBER	6.57	4	6.21	1	32	1.32	4.35	4.90	2	5.96	1	46	2.65	13.01	-3.23***	-4.37***
BTM	0.41	0.34	0.56	-3.51	2.27	-1.58	16.66	0.47	0.43	0.86	-3.64	6.67	0.57	12.62	0.87	1.74*
PUB_Q	0.01	0	-	-	-	-	-	0.05	0	-	-	-	-	-	2.31**	2.31**
CROSS	0.01	0	-	-	-	-	-	0.02	0	-	-	-	-	-	0.92	0.92
MV	5.26	5.04	1.66	1.83	9.37	0.50	2.83	4.71	4.52	1.81	0.74	11.61	0.68	3.58	-3.61***	-3.97***
ASSETS	5.28	5.11	1.86	0.78	10.08	0.25	2.90	4.83	4.69	2.00	0.18	12.12	0.50	3.30	-2.64***	-2.97***
MV(£)	864	154	2024	6.22	11717	3.59	15.94	1178	92	7832	2.1	110365	11.77	146	-	-
ASSETS(£)	1123	166	2995	2.19	23826	4.74	29.11	1654	109	10942	1.2	183543	12.60	178	-	-
PRIOR RETURN	-0.02	-0.05	0.28	-0.76	1.59	2.52	16.31	-0.01	-0.04	0.38	-0.92	3.97	3.88	35.49	0.60	0.26

3.4.3. Financial Distress and Debt Ownership Structure

Table 3.5 also reports descriptive statistics for different measures of capital structure and public debt status for warning and non-warning firms. Table 3.5 shows that the mean value of PD is higher for warning firms compared to non-warning firms. However, the difference in means is significant only at the 10% level. However, the mean values for ISSUES and PD/LTD are not significantly different between warning and non-warning firms.

In Panel 2 we report statistics for COVLOG. The mean of COVLOG corresponds to an interest cover of 13.44% and 5.62% for warning and non-warning firms, respectively. The difference in means is statistically significant at the 1% level indicating that non-warning firms have significantly lower interest cover. Helbok and Walker report mean interest cover ratios of 78% and 63% for warning and non-warning firms respectively. There is a notable difference between the cover ratios in both studies. However, both studies arrive at the same conclusion that non-warning firms have significantly lower interest cover.

Table 3.6 presents separate descriptive statistics for firms with public debt and those without. Within each group, Table 3.6 presents the characteristics of warning and non-warning firms. We are most interested in the behaviour of the two groups when they are closer to financial distress. Among the firms with public debt, warning and non-warning firms have similar COVLOG. Among firms without public debt, non-warning firms have significantly higher COVLOG compared to warning firms. This finding is consistent with our prediction that firms with public debt are less likely to withhold information from their bondholders when they face financial difficulties.

Table 3.6: Summary Statistics – Firm-Years with and without Public Debt

Table 3.6 shows summary statistics for a sample of UK firms with negative earnings surprise over the period 2001-2008. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS after the announcement of semi-annual results (or third quarter results) deflated by the share price at the beginning of the period. PERM is the difference between analysts' mean consensus forecast of EPS one period ahead after the announcement of annual results and analysts' mean consensus forecast of EPS after the announcement of semi-annual results (or third quarter results) deflated by the share price at the beginning of the period. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. BTM is the book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. ASSETS is the natural log of the firm's total assets. MV(£) is the firm's market value measured at the second (third) fiscal quarter end measured in Millions of Pounds. ASSETS(£) is the firm's total assets measured in Millions of Pounds. PRIOR RETURN the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). All ratios are expressed in decimal points. *, **, *** denote significance at the 10%, 5%, and 1%, respectively.

	Firm-Years with Public Debt (Obs. 138)							Firm-Years without Public Debt (Obs. 691)						
	Warning Firm-Years Obs. 35			Non-Warning Firm-Years Obs. 103				Warning Firm-Years Obs. 145			Non-Warning Firm-Years Obs. 546			
	Mean	Med	SD	Mean	Med	SD	ttest	Mean	Med	SD	Mean	Med	SD	Ttest
COVLOG*	-1.99	-2.00	0.90	-1.84	-1.95	0.84	0.86	-2.84	-2.74	1.90	-1.91	-1.83	1.82	5.32***
ES	0.06	0.03	0.11	0.05	0.03	0.08	0.26	0.05	0.04	0.06	0.09	0.03	0.32	1.34
PERM	0.03	0.02	0.06	0.01	0.00	0.03	-3.28***	0.03	0.02	0.04	0.00	0.01	0.11	-3.72***
NUMBER	13.37	14	7.07	12.12	11	8.43	-0.79	4.77	3.00	4.55	3.42	2.00	4.00	-3.50***
BTM	0.41	0.37	0.60	0.23	0.34	0.83	-1.15	0.40	0.32	0.55	0.53	0.45	1.06	1.48
PUB_Q	0.03	0	-	0.10	0	-	1.29	0.01	0.00	-	0.04	0.00	-	2.06**
CROSS	0.03	0	-	0.09	0	-	1.16	0.01	0	-	0.01	0	-	0.59
MV	7.22	7.30	1.49	6.98	6.91	1.62	-0.77	4.76	4.80	1.27	4.23	4.15	1.49	-3.86***
ASSETS	7.67	7.57	1.33	7.39	7.14	1.58	-0.93	4.65	4.67	1.44	4.27	4.14	1.65	-2.57**
MVQ (£)	3102	1478	3524	4888	1000	15350	-	293	122	682	437	63	4759	-
ASSETS(£)	4445	1941	5515	6724	1260	18994	-	295	107	662	611	63	7902	-
PRIOR RETURN	-0.05	-0.07	0.21	-0.002	-0.03	0.25	0.93	-0.02	-0.04	0.29	-0.01	-0.04	0.39	0.43

* For the variable COVLOG, The number of firm-years with public debt is 137 (warning 35 and non-warning 102) and without public debt is 658 (warning 139 and non-warning 519).

Table 3.7: Correlation Matrix

Table 3.7 presents the correlation between the variables used in the study. PW is a dummy variable equals 1 if the firm released a profit warning statement after the announcement of semi-annual results (or third quarter results in case of quarterly reports) and before the announcement of the annual results. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS after the announcement of semi-annual results (or third quarter results) deflated by the share price at the beginning of the period. PERM is the difference between analysts' mean consensus forecast of EPS one period ahead after the announcement of annual results and analysts' mean consensus forecast of EPS after the announcement of semi-annual results (or third quarter results) deflated by the share price at the beginning of the period. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. BTM is the book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. ASSETS is the natural log of the firm's total assets. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). [a] denotes significance at the 5% level or better.

	PW	PD	COVLOG	ES	PERM	NUMBER	BTM	PUB_Q	CROSS	MVL	ASSETSL	PRIOR RETURN
PW	1											
PD	0.054	1										
COVLOG	-0.177[a]	0.007	1									
ES	-0.045	-0.050	-0.044	1								
PERM	0.150[a]	0.045	0.166[a]	0.132[a]	1							
NUMBER	0.138[a]	0.552[a]	-0.152[a]	-0.061[a]	0.084[a]	1						
BTM	-0.040	-0.116[a]	0.026	0.039	-0.014	-0.208[a]	1					
PUB_Q	-0.080[a]	0.052	0.065[a]	-0.023	-0.005	0.231[a]	-0.062[a]	1				
CROSS	-0.038	0.156[a]	0.023	0.014	-0.009	0.423[a]	-0.043	0.423[a]	1			
MV	0.164[a]	0.549[a]	-0.152[a]	-0.128[a]	0.077[a]	0.776[a]	-0.258[a]	0.172[a]	0.248[a]	1		
ASSETS	0.138[a]	0.562[a]	-0.178[a]	-0.091[a]	0.119[a]	0.751[a]	-0.092[a]	0.162[a]	0.233[a]	0.887[a]	1	
PRIOR RETURN	-0.024	-0.002	-0.003	-0.027	-0.107[a]	0.051	-0.064	-0.026	0.079	0.061	0.080[a]	1

3.5. Results and Analysis

3.5.1. Economic Importance of Profit Warnings

We first examine the market reaction around the release of profit warnings to assess the economic importance of the warnings in our sample. Table 3.8 shows that warning firms experience a large and statistically significant negative return on the day of the warning. The mean market adjusted return is about -17% on the day of the warning. This evidence is similar to the UK evidence reported in Helbok and Walker (2003) and Collett (2004). Helbok and Walker report a statistically significant abnormal return of -18.51% on the day of the announcement of the profit warning, while Collett reports a statistically significant abnormal return of -15.10% on the day of the announcement of a trading statement of negative content. The market reaction to the warning is confined to the day of the warning. None of the other days in the window around the warning exhibit a significant negative return. This result is similar to the findings of Collett (2004) and Helbok and Walker (2003).[16]

In addition, we examine the market reaction around the release of profit warnings for firms with and without public debt. Table 3.8 shows that both group of firms experience a large and statistically significant negative return on the day of the warning. The size of the negative return is comparable for firms with and without public debt and the mean difference is not statistically significant.

[16] The US evidence of the market reaction around the announcement of profit warnings shows that the US market reaction is considerably lower. For example, Jackson & Madura (2003) report a significant abnormal returns of -10.75% on the day of profit warning announcement during the period 1998-2000. Similarly, Bulkley & Herrerias (2005) report a significant negative return of -8.5% for the same period. However, Jackson & Madura (2007) report an abnormal return of only -2.82% after the introduction of the Regulation Fair Disclosure (RFD) in 2000.

Table 3.8: Market Reaction for Warning in the Event of Material Bad News

Table 3.8 reports the market reaction for a sample of UK firms with negative earnings surprise who issued a profit warning over the period 2001-2008. Abnormal Returns is the cumulated market adjusted (FTSE all shares) returns. The event date *t* is the date of issuing a profit warning. Returns are expressed in decimal points. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

Window	Obs.	Mean	Median	SD	Min	Max	Skewness	Kurtosis
All Warnings								
t-4	180	-0.004	-0.003	0.029	-0.155	0.128	-0.703	9.762
t-3	180	-0.008	-0.004	0.034	-0.161	0.127	-0.808	7.658
t-2	180	-0.009	-0.002	0.037	-0.193	0.061	-1.890	9.109
t-1	180	-0.013	-0.004	0.041	-0.268	0.075	-2.597	13.868
t	**180**	**-0.177*** **	**-0.147**	**0.154**	**-0.748**	**0.106**	**-1.102**	**4.230**
t+1	180	-0.004	-0.001	0.086	-0.385	0.630	1.253	21.489
t+2	180	0.011	0.001	0.072	-0.131	0.696	5.568	49.740
t+3	180	0.000	-0.001	0.051	-0.132	0.379	2.737	20.939
t+4	180	-0.003	-0.001	0.034	-0.159	0.126	-0.690	7.362
Warnings with Public Debt								
t-4	35	-0.008	-0.008	0.032	-0.082	0.073	-0.110	3.483
t-3	35	-0.006	-0.003	0.030	-0.104	0.041	-1.446	5.867
t-2	35	-0.010	-0.002	0.032	-0.139	0.024	-2.617	10.519
t-1	35	-0.011	-0.007	0.032	-0.107	0.044	-1.006	4.610
t	**35**	**-0.146*** **	**-0.122**	**0.134**	**-0.553**	**0.028**	**-1.330**	**4.435**
t+1	35	-0.022	-0.007	0.071	-0.313	0.072	-2.589	10.342
t+2	35	0.003	-0.005	0.039	-0.082	0.122	0.996	4.846
t+3	35	-0.004	-0.005	0.033	-0.108	0.066	-0.457	4.836
t+4	35	-0.002	-0.003	0.038	-0.088	0.126	0.438	6.241
Warnings without Public Debt								
t-4	145	-0.003	-0.002	0.028	-0.155	0.128	-0.886	12.300
t-3	145	-0.009	-0.004	0.036	-0.161	0.127	-0.698	7.753
t-2	145	-0.009	-0.002	0.038	-0.193	0.061	-1.777	8.788
t-1	145	-0.014	-0.004	0.043	-0.268	0.075	-2.683	13.779
t	**145**	**-0.184*** **	**-0.158**	**0.158**	**-0.748**	**0.106**	**-1.038**	**4.121**
t+1	145	0.000	-0.001	0.089	-0.385	0.630	1.654	21.751
t+2	145	0.013	0.001	0.078	-0.131	0.696	5.384	44.554
t+3	145	0.001	0.000	0.055	-0.132	0.379	2.764	19.487
t+4	145	-0.003	0.000	0.034	-0.159	0.093	-1.064	7.685

3.5.2. Determinants of the Decision to Issue a Profit Warning

3.5.2.1. Analysis of the Full Sample

Presence of Public Debt

Table 3.9 reports the results of three models of the determinants of the decision to issue a warning based on equation (3). The dependent variable PW is coded one for firm-years with profit warnings and zero otherwise. The main variables of interest are proxies of the firm's access to the public debt market.

To test H1 we estimate three models using three alternative proxies for the availability of public debt outstanding. In the first model, we include PD which captures the presence of public debt in the companies' debt structure. In the second model, we include ISSUES which accounts for the frequency of accessing the public debt market. In the third model, we include PD/LTD which accounts for the importance of public debt financing relative to the assets size. We expect PD, ISSUES, and PD/LTD to be positively related to the probability of issuing profit warnings. We report the results in Table 3.9. The first column in Table 3.9 shows that PD does not significantly affect the probability of warning. The second and third columns in Table 3.9 report similar result. The likelihood of warning is not significantly affected by the number of public debt issues outstanding or the size of public debt relative to the assets size.

The correlation matrix reported in Table 3.7 indicates that some of the explanatory variables, especially the firm's size and analysts following, are significantly correlated with most other variables. This raises the possibility that mutlicollinearity is present. In order to quantify the impact of correlations among the independent variables we compute the Variance Inflation Factor (VIF) for each variable and report the findings in Table 3.9. We find that all the VIF values are less than five which is the cut-off point suggested in the literature.[17]

[17] As an additional check, we identify the variables with the highest VIF figures. As reported in Table 3.9, we find that the variables NUMBER and MVL have VIF figures above three. We run separate regressions first without including MVL, then without including NUMBER, then without including both MVL and NUMBER. We find qualitatively similar results to the ones reported in Table 3.9. Similar checks are performed to all regressions reported in the rest of this chapter.

Table 3.9: Profit Warnings and Access to the Public Debt Market

Table 3.9 reports probit estimation results for the determinants of profit warnings including three proxies for having access to the debt market: PD, ISSUES, and PD/LTD. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. ISSUES is the number of public debt issues outstanding. PD/LTD is the amount of public debt divided by the long term debt. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). All specifications include industry and time dummies. Probits are estimated with robust standard errors. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Model 1		Model 2		Model 3	
PD	-0.046	(-1.14)	-	-	-	-
ISSUES	-	-	-0.007	(-1.14)	-	-
PD/LTD	-	-	-	-	-0.069	(-0.79)
ES	-0.210	(-1.16)	-0.210	(-1.16)	-0.231	(-1.26)
PERM	1.253***	(4.20)	1.252***	(4.20)	1.257***	(4.20)
NUMBER	0.023	(1.00)	0.021	(0.92)	0.022	(0.94)
MV	0.032**	(2.12)	0.031**	(2.08)	0.029*	(1.95)
BTM	-0.063**	(-2.43)	-0.065**	(-2.48)	-0.065**	(-2.52)
PUB_Q	-0.172***	(-3.11)	-0.172***	(-3.08)	-0.171***	(-3.07)
CROSS	-0.039	(-0.39)	-0.028	(-0.26)	-0.037	(-0.36)
PRIOR RETURN	-0.018	(-0.51)	-0.017	(-0.48)	-0.016	(-0.43)
Cons	-1.801***	(-3.70)	-1.667***	(-3.52)	-1.745***	(-3.72)
Obs.	829		829		829	
Pseudo R2	0.158		0.158		0.157	
Correctly Classified						
Warning	16.67%		16.67%		16.11%	
Non-warning	97.07%		96.76%		97.07%	
Total	79.61%		79.37%		79.49%	
Variance Inflation Factors (VIF)						
PD	1.49		-		-	
ISSUES	-		1.35		-	
PD_LEVEL	-		-		1.37	
ES	1.04		1.04		1.04	
PERM	1.05		1.05		1.05	
NUMBER	3.2		3.17		3.17	
MVL	3.66		3.59		3.57	
LBTM	1.08		1.08		1.08	
PUB_Q	1.25		1.25		1.24	
CROSS	1.3		1.35		1.31	
PRIOR RETURN	1.03		1.03		1.03	

Financial Difficulties

To test our second hypothesis, H2, that firms facing financial difficulties are less willing to disclose negative earnings surprises, we estimate the profit warning model including the likelihood of violating the interest cover covenant (COVLOG). Hypothesis H2 predicts a negative relation between PW and COVLOG. We report the results in Table 3.10. We find the coefficient of COVLOG is negative and statistically significant at of the 1% level. This result indicates that firms with high probability of breaching their interest cover covenant are less likely to warn the market of negative news. This finding is consistent with our hypothesis that firms facing financial difficulties are less likely to warn the market of bad news.

Other Determinants of Issuing Profit Warnings

As for the other determinants of the probability of issuing profit warnings, Kasznick and Lev (1995) find that US firms are more likely to warn the larger the firm and the larger the earnings surprise. We only find evidence of a significant effect of the firm size (MVL) on the decision to warn. We document a positive relation between MVL and the probability of warning at the 5% level. However, our results indicate that the size of the earnings surprise and analysts following do not significantly influence the UK firms' decision to warn.

Our findings indicate that the permanence of bad news measured using PERM has a significant effect on the probability of warning at the 1% level. This result is consistent with our prediction and with previous results reported in Helbok and Walker (2003). We also find a negative relation between BTM and the probability of issuing profit warnings. This finding indicates that firms with low growth opportunities, or high BTM, are less likely to warn. This result is consistent with our prediction and with results reported by Kothari et al. (2009). Also, we find that firms reporting quarterly (PUB_Q) are less likely to issue a profit warning. This finding suggests that UK firms reporting semi-annually face greater demand from investors for additional disclosure due to the longer reporting interval. However, we find that UK firms cross listed in the US are less likely to warn but the impact of CROSS is statistically insignificant.

Table 3.10: Profit Warnings and COVLOG

Table 3.10 reports probit estimation results for the determinants of profit warnings including COVLOG. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the natural logarithm of the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). All specifications include industry and time dummies. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Model 4	
PD	-0.026	(-0.61)
COVLOG	-0.025***	(-3.21)
ES	-0.187	(-1.07)
PERM	1.232***	(3.94)
NUMBER	0.018	(0.75)
MV	0.030*	(1.95)
BTM	-0.056**	(-2.08)
PUB_Q	-0.173***	(-2.95)
CROSS	-0.010	(-0.03)
PRIOR RETURN	-0.012	(-0.31)
Cons	-1.932***	(-3.77)
Obs.	795	
Pseudo R2	0.161	
Correctly Classified		
Warning	18.97%	
Non-Warning	97.10%	
Total	80.00%	
Variance Inflation Factors (VIF)		
PD	1.51	
COVLOG	1.07	
ES	1.04	
PERM	1.07	
NUMBER	3.27	
MVL	3.68	
LBTM	1.08	
PUB_Q	1.24	
CROSS	1.28	
PRIOR RETURN	1.03	

Ownership Effects

In the previous analysis we assume that managers' interests are aligned with shareholders' interests. We also assume that large and institutional shareholders' interests are aligned with minority shareholders' interests. In this section, we examine the impact of potential conflicts between managers and shareholders and between large and small shareholders on managers' decisions to warn.

Kothari et al. (2009) argue that managers incur several costs resulting from the disclosure of bad news. Some of these costs are indirect in the form of career concerns. For example the disclosure of bad news may affect the managers' promotion opportunities, raise the possibility of terminating their contracts, and revising their short and long term compensation plans. Other costs are direct such as the reduction in their bonuses and the loss of their wealth as a result of the stock price decline. We focus on the latter costs and examine the effect of the managers' ownership on the likelihood of issuing a profit warning. We expect that managers face incentives to delay the disclosure of bad news especially if they expect that subsequent events will allow them to bury the bad news (Kothari et al., 2009). Therefore, we predict that managers' ownership is negatively related to the likelihood of issuing profit warnings. To test our prediction we include INSIDER, which is equal to the percentage of shares owned by the company's directors and divided by its total shares outstanding.

In addition, we examine the impact of large shareholding on the company's decision to issue a profit warning. Large shareholders may increase the probability of issuing profit warnings by providing the firm's management with incentives to act in the best interest of all shareholders (Helbok and Walker, 2003). Under this monitoring role of large shareholders the interests of large shareholders are aligned with small shareholders. However, large shareholders may benefit from the delay of bad news if, for example, their performance measures are tied to the short-term performance of the company. To empirically assess the impact of large shareholders' ownership on the decision to warn we include the total ownership by large institutional shareholders, INSTITUTIONAL. This variable is calculated as the percentage of shares owned by large institutional shareholders (owning 3% and above) divided by the firm's total shares outstanding. We

also include the total ownership by large non-institutional shareholders, NON_INSTITUTIONAL, which is measured as percentage of shares owned by large non-institutional shareholders (owning 3% and above) divided by the firm's total shares outstanding.

We report the estimation results in Table 3.11. The results show that the impact of INSDIER is negative which is consistent with our prediction. However, the coefficient of INSIDER is statistically insignificant. With regard to other ownership variables, we find that INSTITUTIONAL and NON_INSTITUTIONAL are negatively related to the probability of issuing profit warnings but statistically insignificant.[18]

[18] We exclude MV from the estimation reported in Table 3.11 because the VIF score for MV is above the threshold of 5. However, the estimation results with and without MV are qualitatively similar.

Table 3.11: Profit Warnings and Ownership Structure

Table 3.11 reports probit estimation results for the determinants of profit warnings including ownership structure variables. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). INSIDER is the percentage of shares owned by directors divided by the firm's total shares outstanding. INSTITUTIONAL is the percentage of shares owned by large institutional shareholders divided by the firm's total shares outstanding. NON_ INSTITUTIONAL the percentage of shares owned by large non-institutional shareholders divided by the firm's total shares outstanding. All specifications include industry and time dummies. Probits are estimated with robust standard errors. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Model 5	
PD	-0.024	(-0.54)
COVLOG	-0.018**	(-1.98)
ES	-0.198	(-0.94)
PERM	1.231***	(3.47)
NUMBER	0.062***	(2.96)
BTM	-0.076**	(-2.48)
PUB_Q	-0.184***	(-2.64)
CROSS	-0.016	(-0.14)
PRIOR RETURN	-0.014	(-0.31)
INSIDER	-0.0026	(-0.72)
INSTITUTIONAL	-0.0003	(-0.39)
NON_INSTITUTIONA	-0.0007	(-0.86)
Cons	-1.316***	(-2.81)
Obs.	680	
Pseudo R2	0.146	
Correctly Classified		
Warning	18.83%	
Non-Warning	96.96%	
Total	79.26%	
Variance Inflation Factors (VIF)		
PD	1.38	
COVLOG	1.1	
ES	1.04	
PERM	1.06	
NUMBER	1.93	
LBTM	1.07	
PUB_Q	1.28	
CROSS	1.29	
PRIOR RETURN	1.02	
INSIDER	1.29	
INSTITUTIONAL	1.11	
NON_INSTITUTIONA	1.32	

Comparison with Helbok and Walker (2003)

In this section we compare our results with the ones presented in Helbok and Walker (2003). Helbok and Walker examine the determinants of issuing profit warnings of UK companies during the period 1995-1998, that is after the introduction of the London Stock Exchange guidance notes on the dissemination of price sensitive information in 1994. In comparison, we examine the determinants of issuing profit warnings during the period 2001-2008. The choice of our sample period is influenced by data availability. In this study we use profit warnings data from the Factset database that provides comprehensive coverage of profit warnings issued by UK firms starting from the year 2001. In Helbok and Walker (2003), the authors identify profit warnings manually. Identifying profit warnings manually is difficult and subject to errors. Possible disadvantages of manual identification of profit warnings include the elimination of one or more media sources that publish warnings due to the high labour costs; and the failure to identify all profit warnings in the chosen media sources since identifying profit warnings is based on searching key words.

It is important to note that our sample period is characterized with more rigorous rules. The Financial Services and Markets Acts (FSMA) and the Code of Market Conduct came into effect in 2000 and 2001 respectively. Arguably, the threat of litigation post 2000 is expected to be higher compared to the threat of litigation prior to 2000. Thus, it is useful to examine if the evidence documented in Helbok and Walker continues after the introduction of the Market Abuse Rules.

Table 3.12 presents the results of Helbok and Walker (2003). Similar to our results, the permanence of the negative news and the likelihood of breaching the interest cover ratio are statistically significant. In addition, both studies document that the permanence of bad news has the greatest impact on influencing managers' decisions to issue profit warnings. In contrast, Helbok and Walker document a negative and significant directors' ownership effect. We fail to find a similar result for our sample period.

Table 3.12: Summary of Helbok and Walker (2003) Results

Table 3.12 reports the estimation results reported in Helbok and Walker (2003). These results are estimated using a logit model of the determinants of profit warnings of UK companies subject to a negative earnings surprise during the 1995-1998. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. COVLOG is the EXTEL period *t*-1 percentage of earnings before interest and tax (EBIT), which is used for interest payments. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between mean IBES analysts' forecast in the 6th month prior to IBES period *t* full year earnings announcement and IBES period *t* full year earnings announcement deflated by the Datastream share price in the beginning of the 6th months prior to IBES period *t* full year earnings announcement. PERM is the difference between the first available IBES analysts forecast of for the period *t*+1 earnings following the period *t* EXTEL interim earnings announcement and the last available analysts' forecast for period *t*+1 earnings preceding period *t* EXTEL full-year earnings announcement deflated by the share price in the beginning of the 6th months prior to IBES period *t* full year earnings announcement. NUMBER is the EXTEL number of analysts which publish forecasts over the 12 month prior to period *t* full year earnings announcement. natural logarithm of the number of analysts publishing EPS forecasts for a given sample firm. MTB is the Datastream market to book value at the beginning of the 6th month before period *t* IBES full year earnings announcement. INSIDER is the EXTEL directors' beneficial holding of shares as percentage of total shares in issue. TOTAL LARGEST OWNERSHIP is the EXTEL percentage holding of ordinary shares of the three major outside shareholders. The table report the marginal effects. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Marginal Effects
COVLOG	-2.03***
ES	-2.31
PERM	-14.66***
NUMBER	0.78
MTB	0.31
INSIDER	-2.70**
TOTAL LARGEST OWNERSHIP	0.77
Cons	-
Obs.	208
Pseudo R2	-
	Correctly Classified
Warning	78.30%
Non-Warning	58.82%
Total	68.75%

3.5.2.2. Analysis of Issuers and Non-Issuers of Public Debt

Next, we revisit the first hypothesis (H1) that predicts firms with public debt are more likely to issue profit warnings due to their debt reputational concerns. In the first part of this section we did not find evidence that firms with public debt are more likely to issue profit warnings in the event of bad news compared to firms without public debt. In this section, we examine and compare the determinants of profit warnings for firm-years with and without public debt. Specifically, we test if firms with public debt are more likely to issue profit warnings than those without when they face financial difficulties. We expect that while firms closer to violating their debt covenants face incentives to hide bad news, firms with public debt are unlikely to do so given the risk of damage to their reputation. In addition, we examine if firms with public debt are more likely to issue profit warnings in the event of permanent bad news compared to firms without public debt. We expect that firms with public debt are more forthcoming with the disclosure of bad news.

To test our predictions we estimate the probit model separately for public debt issuers and for other companies. We report the results in Table 3.13.

In the separate models of public debt issuers and non-issuers, we find that COVLOG is negative and significant for firms without public debt (as in the probit model estimated on the full sample). However, for the public debt issuers the effect of COVLOG is statistically insignificant. These results suggest that the decision to issue a profit warning when the company is closer to financial distress is influenced by whether or not the company has public debt. Firms without public debt are likely to hide bad news from third parties while firms with public debt are less likely to engage in this behaviour.

We also test whether public debt reinforces the effect of the permanence of bad news (PERM) on the companies' decisions to make profit warnings. The coefficient of PERM is statistically significant for both issuers and non-issuers of public debt. However, the size of the PERM coefficient for public debt issuers is larger. This result indicates that

firms with public debt are more likely to issue profit warnings in the event of permanent bad news.

Ideally, we want to examine the significance of the difference between the coefficients in the separate models by including interaction terms between PD and the variables of interest. However, PD is highly correlated with its interaction terms. In addition, when we estimate the regression with the interaction terms between PD and the variables of interest, we find that the Variance Inflation Factor (VIF) values are close to or above 5 which is the threshold value used in the literature. This raises the possibility that multicollinearity is present and influences the results of our estimations. Therefore, we only report the results of the test that the coefficients of COVLOG and PERM do not vary significantly between firm-years with and without public debt.[19] The results show that the coefficient of COVLOG is not statistically different between firms with and without public debt. However, we find that the coefficient PERM is statistically different between firms with and without public debt.

[19] We use the suest command in Stata to test the null hypothesis that the coefficients of COVLOG and PERM do not vary significantly between firm-years with and without public debt.

Table 3.13: Profit Warnings and Firm-Years with and without Public Debt

Table 3.13 reports probit estimation results for the determinants of profit warnings for firm-years with and without public debt. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). Probits are estimated with robust standard errors. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	With PD		Without PD		chi2
COVLOG	-0.009	(-0.20)	-0.031***	(-4.06)	0.32
ES	-0.324	(-0.72)	-0.349**	(-2.18)	
PERM	3.886***	(3.14)	1.054***	(4.18)	4.37**
NUMBER	0.053	(0.64)	0.036	(1.41)	
MV	0.054	(1.16)	0.020	(1.30)	
BTM	0.148***	(2.70)	-0.008	(-0.44)	
PUB_Q	-0.093	(-0.44)	-0.179**	(-2.39)	
CROSS	-0.187	(-1.03)	-0.031	(-0.22)	
PRIOR RETURN	-0.111	(-0.70)	-0.014	(-0.35)	
Cons	-2.717***	(-3.41)	-1.536***	(-5.93)	
Obs.	137		658		
Pseudo R2	0.150		0.103		
	Correctly Classified				
Warning	20.00%		7.19%		
Non-Warning	97.06%		98.65%		
Total	77.37%		79.33%		
	Variance Inflation Factors (VIF)				
COVLOG	1.3		1.06		
ES	1.17		1.04		
PERM	1.17		1.08		
NUMBER	3.02		2.38		
MV	3.68		2.4		
LBTM	1.22		1.06		
PUB_Q	1.64		1.14		
CROSS LISTING	1.9		1.12		
PRIOR RETURN	1.11		1.03		

3.5.3. Robustness Checks

3.5.3.1. Interim Management Statements

Starting from 20 January 2007, the Disclosure and Transparency Rules (DTR) require companies admitted to trading on the London Stock Exchange to issue an interim management statement (IMS) every six months (DTR, section 4.3). According to DTR 4.3, companies must issue an interim management statement after 10 weeks from the start of the fiscal period but before 6 weeks from its end. The purpose of issuing the interim management statement is to disclose information that explains material events and its impact on the firm's financial position and performance.

The Financial Authority Services (FSA) recognizes the potential overlap between interim management statement and profit warnings. In its review of DTR 4.3 it states that "It is not an acceptable practice to delay the announcement of price sensitive information (DTR2.2) in order for this to be announced within a forthcoming IMS", (FSA, 2010, p.4). To investigate the confounding effects of interim management statements on the probability of issuing profit warnings, we re-estimate the results reported in Table 3.10 using firm-year observations with fiscal periods before January 2007. Table 3.14 reports the results. Our results reported in Table 3.14 are similar to the ones reported in Table 3.10.

Table 3.14: Profit Warnings and Interim Management Statements

Table 3.14 reports probit estimation results for the determinants of profit warnings before 2007. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). The estimation includes industry and time dummies. Probits are estimated with robust standard errors. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Marginal Effects	
PD	-0.034	(-0.69)
COVLOG	-0.028***	(-3.00)
ES	-0.225	(-0.93)
PERM	0.958***	(-3.21)
NUMBER	0.027	(-0.90)
MV	0.038*	(-1.96)
BTM	-0.058	(-1.59)
PUB_Q	-0.180***	(-2.64)
CROSS	-0.090	(-0.82)
PRIOR RETURN	-0.030	(-0.64)
Cons	-1.824***	(-3.11)
Obs.	600	
Pseudo R2	0.176	
	Correctly Classified	
Warning	28.36%	
Non-Warning	96.35%	
Total	81.17%	

3.5.3.2. Financial Distress

In this section we examine H2 using another measure for financial difficulties. Namely, we estimate the profit-warning model including a measure of the closeness to financial distress based on Altman's Z-score (Z_SCORE). In addition, we examine the differential impact of Z_SCORE on the probability of issuing profit warnings for firms with and without public debt.

We use Altman's Z-score as our measure of default risk (Altman, 1968; 1993). Altman's Z-score is specified as follows:

$$Z = 1.2X_1 + 1.4\,X_2 + 3.3\,X_3 + .6\,X_4 + 0.999\,X_5$$

Where, X_1 = working capital/total assets;

X_2 = retained earnings/total assets;

X_3 = earnings before interest and taxes/total assets;

X_4 = market value equity/book value of total liabilities;

X_5 = sales/total assets

where we use data in year t-1 to calculate the Z score for year t. The higher the Z_SCORE value the less close the firm to distress.

Our second hypothesis, H2, predicts that firms facing financial difficulties are less willing to disclose negative earnings surprises. Therefore, we expect a positive relation between PW and Z_SCORE. We report the results in Table 3.15.

In the first column of Table 3.15, we report estimation results including our proxy of financial distress, Z_SCORE. We find that the coefficient of Z_SCORE is negative and statistically significant at the 10% level.[20] This, perhaps counter-intuitive, result indicates that firms closer to financial distress are more likely to warn the market of bad news. To further examine this result we focus on firm-year observations that have the highest probability of financial distress. We include an indicator variable, Z_DISTRESS, which takes a value of one if firm-year observations have Z_SCORE

[20] This result is robust to winsorizing data outliers and using an alternative function of Z-score specific to the UK market, proposed by Taffler (1984).

values in the bottom quartile. We predict that Z_DISTRESS is negatively related to PW, which indicates that firm-year observations with high probability of financial distress are less likely to warn. We report the results in the second column in Table 3.15. We find that Z_DISTRESS is negatively related to PW and statistically significant at the 10% level.

In the separate models of public debt issuers and non-issuers, we find that the coefficients of Z_SCORE and Z_DISTRESS are positive but insignificant for firms with public debt. In contrast, we find that Z_SCORE is negative and significant at the 1% level for firms without public debt. This result indicates that firms without public debt are more likely to disclose bad news when they are closer to financial distress. However, the Z_DISRESS is negative and significant at the 10% level. This indicates that firms without public debt who are in the "bankruptcy zone" are less likely to warn the market of negative news. In addition, we find that the coefficients of Z_DISTRESS vary significantly at the 5% level between firm-years with and without public debt.

Table 3.15: Profit Warnings and Z_SCORE

Table 3.15 reports probit estimation results for the determinants of profit warnings for firm-years with and without public debt. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. Z_SCORE is Altman's Z-score. Z_DISTRESS is an indicator variable that takes the value 1 if Z_SCORE values are in the bottom quartile and 0 otherwise. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). Probits are estimated with robust standard errors. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Full Sample				With PD		Without PD		chi2
PD	-0.054	(-1.35)	-0.043	(-1.05)	-	-	-	-	
Z_SCORE	-0.002*	(-1.86)	-0.002**	(-2.08)	0.015	(1.09)	-0.002**	(-2.15)	1.67
Z_DISTRESS	-	-	-0.056*	(-1.83)	0.071	(0.78)	-0.124***	(-3.46)	5.85**
ES	-0.256	(-1.46)	-0.232	(-1.33)	-0.357	(-0.78)	-0.377**	(-2.26)	
PERM	1.316***	(4.19)	1.291***	(4.08)	3.857***	(3.10)	1.070***	(4.37)	4.17**
NUMBER	0.026	(1.08)	0.027	(1.16)	0.052	(0.64)	0.046*	(1.83)	
MV	0.028*	(1.85)	0.025*	(1.67)	0.058	(1.28)	0.016	(1.09)	
BTM	-0.069***	(-2.61)	-0.062**	(-2.34)	0.143***	(2.74)	-0.009	(-0.51)	
PUB_Q	-0.170***	(-2.92)	-0.169***	(-2.84)	-0.075	(-0.35)	-0.176**	(-2.41)	
CROSS LISTING	-0.061	(-0.60)	-0.068	(-0.68)	-0.205	(-1.21)	-0.053	(-0.41)	
PRIOR RETURN	-0.020	(-0.54)	-0.011	(-0.29)	-0.128	(-0.82)	-0.001	(-0.04)	
Cons	-0.687**	(-2.44)	-0.624**	(-2.17)	-2.970***	(-3.45)	-1.052***	(-4.36)	
Obs.	829		829		138		691		
Pseudo R2	0.153		0.157		0.159		0.102		
				Correctly Classified					
Warning	16.11%		17.78%		25.71%		2.76%		
Non-Warning	97.38%		97.53%		97.09%		98.90%		
Total	79.73%		80.22%		78.99%		78.73%		

3.5.3.3. Analysts Following

In our analysis we use the number of analysts following a company without restrictions on the minimum number of analysts. This is because a substantial number of UK firms are followed by one analyst only. However, the literature on analysts' forecasts requires minimum number of analysts (for example Barron, Kim, Lim, & Stevens, 1998; Clement, Frankel, Miller, 2003). We replicate our estimations using a minimum number of analysts' following of three. We report the results in Table 3.16. We find that our results are robust to this restriction.

Table 3.16: Profit Warnings and Minimum Number of Analysts

Table 3.16 reports probit estimation results for the determinants of profit warnings for firm-years with and without public debt. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). Probits are estimated with robust standard errors. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Full Sample		With PD		Without PD		chi2
PD	-0.017	(-0.30)	-	-	-	-	
COVLOG	-0.048***	(-3.15)	-0.029	(-0.56)	-0.051***	(-3.09)	0.12
ES	-0.491	(-1.51)	-0.227	(-0.46)	-0.695*	(-1.85)	
PERM	1.435***	(2.77)	4.526***	(3.06)	1.263***	(2.61)	4.61**
NUMBER	0.022	(0.38)	-0.015	(-0.14)	0.029	(0.43)	
MV	0.016	(0.62)	0.066	(1.30)	0.001	(0.02)	
BTM	0.083**	(1.96)	0.182***	(2.82)	0.065	(1.26)	
PUB_Q	-0.250**	(-2.13)	-0.096	(-0.41)	-0.266*	(-1.86)	
CROSS LISTING	0.012	(0.07)	-0.188	(-0.94)	0.266	(0.88)	
PRIOR RETURN	0.002	(0.03)	-0.153	(-0.85)	0.032	(0.47)	
Cons	-1.395***	(-3.49)	-2.605***	(-3.07)	-1.124**	(-2.37)	
Obs.	410		125		285		
Pseudo R2	.080		0.166		0.086		
			Correctly Classified				
Warning	10.34%		23.53%		10.98%		
Non-Warning	97.62%		95.60%		97.04%		
Total	72.93%		76.00%		72.28%		

3.5.3.4. Variations in Size of Earnings Surprise

We identify companies facing bad news using a proxy of the earnings surprise. Initially, we include all firm-years when the reported earnings per share (EPS) falls short of the consensus EPS forecast by 1% or more of the share price. We re-estimate our previous results by varying the size of the earnings surprise into 0.05% and 2% and report the estimation results in Table 3.17. Our previous findings are robust to these variations.

3.5.3.5. Scheduled Profit Warnings

Collett (2004) documents that some UK firms release trading announcements on scheduled dates. Therefore, a firm could release a warning even though the market anticipates the surprise. To eliminate this possibility, we identify observations with scheduled profit warnings. Following Collett (2004), we define scheduled profit warnings as profit warnings made at the same time as the previous year (within 5 calendar days). We report the estimation results in Table 3.18. Our findings are insensitive to recoding scheduled warnings as non-warnings; or if we drop observations corresponding to scheduled warning from the sample.

Table 3.17: Profit Warnings and Variations in Size of Earnings Surprise

Table 3.17 reports probit estimation results for the determinants of profit warnings when varying the identification criteria for material bad news. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure and zero otherwise. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date (the profit warning date for warning firms and the earnings announcement date for non-warning firms). Probits are estimated with robust standard errors. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Firm-Years with Earnings Surprise greater than 2%					Firm-Years with Earnings Surprise greater than .5%				
	With PD		Without PD		chi2	With PD		Without PD		chi2
COVLOG	0.002	(0.04)	-0.034***	(-3.80)	0.45	-0.010	(-0.24)	-0.029***	(-4.00)	0.30
ES	-0.147	(-0.32)	-0.441**	(-2.28)		-0.447	(-0.98)	-0.326**	(-2.11)	
PERM	3.928***	(3.16)	0.831***	(2.85)	5.55**	4.089***	(3.07)	1.050***	(4.14)	4.35**
NUMBER	0.013	(0.12)	0.005	(0.15)		0.090	(1.20)	0.049**	(2.00)	
MV	0.091	(1.63)	0.008	(0.45)		0.024	(0.56)	0.022	(1.50)	
PUB_Q	-	-	-	-		0.128***	(2.70)	-0.007	(-0.42)	
CROSS	-	-	-	-		-0.170	(-0.88)	-0.174***	(-2.86)	
BTM	0.200***	(2.75)	-0.004	(-0.17)		-0.095	(-0.48)	-0.057	(-0.45)	
PRIOR RETURN	-0.061	(-0.34)	-0.011	(-0.28)		-0.137	(-0.94)	-0.006	(-0.14)	
Cons	-3.627***	(-3.61)	-1.174***	(-4.31)		-2.193***	(-3.09)	-1.625***	(-6.64)	
Obs.	89		488			169		769		
Pseudo R2	0.187		0.078			0.138		0.102		
	Correctly Classified									
Warning	34.78%		3.92%			27.27%		3.73%		
Non-Warning	93.94%		98.19%			96.80%		98.19%		
Total	78.65%		78.48%			78.70%		78.41%		

Table 3.18: Profit Warnings and Scheduled Profit Warnings

Table 3.18 reports probit estimation results for the determinants of profit warnings when varying the definition of scheduled profit warnings. The sample consists of UK firms subject to a negative earnings surprise during the period 2001-2008. The dependent variable PW is a dummy variable equals 1 if the firm released a profit warning. PD is a dummy variable equals 1 if the firm has a public debt issue in its financial structure. COVLOG is the log of 1 plus the interest cover ratio multiplied by -1. COVLOG is re-coded to zero for observations with negative EBITD. ES is the difference between actual announced EPS and analysts' mean consensus forecast of EPS deflated by share price. PERM is the permanence of bad news approximated by revisions of analysts' forecasts for one period ahead. NUMBER is the number of analysts publishing EPS forecasts for a given sample firm. MV is the natural log of the firm's market value measured at the second (third) fiscal quarter end. BTM is the as book value of assets divided by market value of equity plus book value of debt. PUB_Q is an indicator variable taking the value of 1 if the firm reports quarterly results. CROSS is an indicator variable taking the value 1 if the firm is cross-listed in the US. PRIOR RETURN is the six-month stock return before the event date. Probits are estimated with robust standard errors. We report the marginal effects, except for the constant term where we report the coefficient size. z-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	Scheduled Profit Warnings Eliminated					Scheduled Profit Warnings Recoded as Non-Warnings				
	With PD		Without PD		chi2	With PD		Without PD		chi2
COVLOG	-0.009	(-0.20)	-0.029***	(-3.84)	0.29	-0.009	(-0.20)	-0.029***	(-3.78)	0.28
ES	-0.324	(-0.72)	-0.347**	(-2.16)		-0.324	(-0.72)	-0.349**	(-2.17)	
PERM	3.886***	(3.14)	1.001***	(4.06)	4.45**	3.886***	(3.14)	0.991***	(4.07)	4.47**
NUMBER	0.053	(0.64)	0.041	(1.64)		0.053	(0.64)	0.042*	(1.67)	
MV	0.054	(1.16)	0.017	(1.10)		0.054	(1.16)	0.016	(1.06)	
BTM	0.148***	(2.70)	-0.009	(-0.47)		0.148***	(2.70)	-0.008	(-0.45)	
PUB_Q	-0.093	(-0.44)	-0.171**	(-2.37)		-0.093	(-0.44)	-0.169**	(-2.36)	
CROSS	-0.187	(-1.03)	-0.026	(-0.19)		-0.187	(-1.03)	-0.023	(-0.17)	
PRIOR RETURN	-0.111	(-0.70)	-0.010	(-0.25)		-0.111	(-0.70)	-0.009	(-0.23)	
Cons	-2.717***	(-3.41)	-1.520***	(-5.82)		-2.717***	(-3.41)	-1.517***	(-5.82)	
Obs.	137		650			137		658		
Pseudo R2	0.150		0.102			0.150		0.100		
	Correctly Classified									
Warning	20.00%		4.55%			20.00%		4.55%		
Non-Warning	97.06%		98.65%			97.06%		98.86%		
Total	77.37%		79.54%			77.37%		79.94%		

3.6. Conclusion

This study investigates the factors that motivate companies to disclose unexpected bad news through profit warnings in the context of the UK market, where in contrast to the US litigation is unlikely to be a major driver of the decision. We estimate a probit model to explain the variation in the probability of issuing a profit warning for a sample of UK firms subject to a negative earnings surprise over the period 2001-2008. We focus primarily on the effect of the firm's financial structure on the warning choice. Specifically, we examine the impact of the firm's closeness to financial distress approximated by the firm's interest cover ratio and the presence of outstanding public debt in the firm's capital structure. We aim to highlight the role of possible agency conflicts between the firm and third parties and the reduction in agency costs on the firm's decision to warn.

We find that UK firms closer to financial distress are more likely to hide bad news from third parties. We also show that this effect is attenuated when the firm has public debt in issue. Moreover, we find that UK firms with public debt are more forthcoming with the disclosure of permanent bad news. Taken together, these results indicate that UK firms without public debt are likely to take advantage of the low threat of litigation to benefit shareholders at the expense of third parties. However, UK firms with public debt are less likely to engage in this opportunistic behaviour. The latter finding suggests that firms with public debt are deterred from hiding negative news as they incur agency costs resulting from the damage to their valuable reputations for truthful and timely disclosure. To the best of our knowledge, this is the first study to document reputational concerns effects on the decision to voluntarily warn the market of bad news.

References

Altman, E. (1978). Financial ratios, discriminant analysis and the prediction of corporate bankruptcy. *Journal of Finance, 23*, 589-609.

Altman, E. (1993). Corporate financial distress and bankruptcy, 2nd ed., John Wiley & Sons, New York.

Armour, J., Black, B., Cheffins B., & Nolan, R. (2009). Private enforcement of corporate law: an empirical comparison of the United Kingdom and the United States. J*ournal of Empirical Legal Studies, 6*, 687–722.

Atiase, R., Supattarakul, S., and Tse, S. (2006). Market reaction to earnings surprise warnings: the incremental effect of shareholder litigation risk on the warning effect. *Journal of Accounting, Auditing and Finance, 21,* 191–222.

Barron, O., Kim, O., Lim, S., & Stevens, D. (1998). Using analysts' forecasts to measure properties of analysts' information environment. *The Accounting Review, 73,* 421−433.

Black, B., Cheffins, B., & Klausner, M. (2005). Liability risk for outside directors: a cross-border analysis. *European Financial Management Journal, 11*, 153-171.

Bulkley, G., & Herrerias, R. (2005). Does the precision of news affect market underreaction? Evidence from returns following two classes of profit warnings. *European Financial Management, 11*, 603-624.

Christensen, H., Lee, E., and Walker, M. (2009). Do IFRS reconciliations convey information? The effect of debt contracting. *Journal of Accounting Research, 47,* 1167-1199.

Clinch, G., & Verrecchia, R. (2011). Endogenous disclosure choice. *Working paper*.

Clement, M., Frankel, R., & Miller, J. (2003). Confirming management earnings forecasts, earnings uncertainty, and stock returns. *Journal of Accounting Research, 41,* 653-679.

Collett, N. (2004). Reactions of the London Stock Exchange to company trading statements announcement. *Journal of Business, Finance and Accounting, 31*, 3-35.

Dedman, E. (2004). Discussion of reactions of the London Stock Exchange to company trading statement announcements. *Journal of Business, Finance and Accounting, 31*, 37-47.

Diamond, D. (1989). Reputation acquisition in debt markets. *Journal of Political Economy, 97*, 828-862.

Diamond, D. (1991). Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy, 99*, 689-721.

Diamond, D., & Verrecchia, R. (1991). Disclosure, liquidity, and the cost of capital. *The Journal of Finance, 46*, 1325-1359.

Dye, R. (1984). Proprietary and nonproprietary disclosures. *The Journal of Business, 59,* 331-366.

Dye, R. (1985). Disclosure of nonproprietary information. *Journal of Accounting Research, 23,* 123-145.

Dye, R. (2001). An evaluation of "Essays on Disclosure" and the disclosure literature in accounting. *Journal of Accounting and Economics, 32*, 181–235.

Field, L., Lowry, M., & Shu, S. (2005). Does disclosure deter or trigger litigation? *Journal of Accounting and Economics, 39*, 487-507.

Francis, J., Philbrick, D., & Schipper, K. (1994). Shareholder litigation and corporate disclosures. *Journal of Accounting Research, 32*, 137–164.

FSA. (2000). *Financial Services and Market Act*. Retrieved. from http://www.opsi.gov.uk/acts/acts2000/ukpga_20000008_en_1.
FSA. (2009a). *Disclosure and Control of Insider Information by Issuers*. Retrieved. from http://fsahandbook.info/FSA/html/handbook/DTR/2.
FSA. (2009b). *Disclosure Rules and Transparency Rules*. Retrieved. from http://fsahandbook.info/FSA/html/handbook/DTR.
FSA. (2010). *Technical Note: Interim Management Statements*. *List!* 21. Retrieved from http://www.fsa.gov.uk/pubs/ukla/ims_review.pdf.
FSA. (2005). *Dealing with inside information: Advice on good practice*. *List!* 9. Retreived from http://www.liderpress.hr/Default.aspx?sid=12767
Healy, P., & Palepu, K. (2001). Information asymmetry, corporate disclosure, and capital markets: A review of the empirical disclosure literature. *Journal of Accounting and Economics, 31*, 405–440.
Helbok, G., & Walker, M. (2003). On the willingness of UK companies to issue profit warnings: regulatory, earnings surprise permanence, and agency cost effects. *Working Paper (SSRN)*.
Jackson, D., & Madura, J. (2003). Profit warnings and timing. *The Financial Review, 38*, 497–514.
Jackson, D., & Madura, J. (2007). Impact of Regulation Fair Disclosure on the information flow associated with profit warnings. *Journal of Economics and Finance, 31*, 59-74.
Kasznik, R., & Lev, B. (1995). To warn or not to warn: Management disclosures in the face of an earnings surprise. *The Accounting Review, 70*, 113–134.
Kothari, S. P., Shu, S., & Wysocki, P. (2009). Do managers withhold bad news? *Journal of Accounting Research, 47*, 241-276.
La Porta, R., López-de-Silanes, F., Shleifer, A., & Vishny, R. 1998. Law and Finance, *Journal of Political Economy, 106*, 1113-1155.
La Porta, R., López-de-Silanes, F., Shleifer, A., & Vishny, R. 1999. Corporate Ownership Around the World. *Journal of Finance, 54*, 471-517.
Lambert, R., Leuz, C., & Verrecchia, R. (2007). Accounting information, disclosure, and the cost of capital. *Journal of Accounting Research, 45,* 385-420.
Larcker, D., & Rusticus, T. (2010). On the use of instrumental variables in accounting research. *Journal of Accounting and Economics, 49,* 186-205.
LSE. (1994). Listing Rules. Retrieved. from http://www.fsa.gov.uk/pubs/ukla/GU-0796.pdf.
LSE. (1996). *Guidance on the Dissemination of Price Sensitive Information*. Retrieved. from http://www.fsa.gov.uk/pubs/ukla/GU-0796.pdf.
Sengupta, P. (1998). Corporate disclosure quality and the cost of debt. *The Accounting Review, 73*, 459-474.
Skinner, D. (1994). Why firms voluntarily disclose bad news? *Journal of Accounting Research, 32*, 38–60.
Skinner, D. (1997). Earnings disclosure and stockholder lawsuits. *Journal of Accounting and Economics, 23*, 249–282.
Taffler, R. (1984). Empirical models for the monitoring of UK corporations. *Journal of Banking and Finance, 8,* 199-227.
Tucker, J. (2007). Is openness penalized? Stock returns around earnings warnings. T*he Accounting Review, 82,* 1055-1087.
Verrecchia, R. (2001). Essays on disclosure. *Journal of Accounting and Economics, 32*, 91-180.

Xu, W. (2008). Market reactions to warnings of negative earnings surprises: further evidence. *Journal of Business Finance & Accounting, 35,* 818–836.
Yu, F. (2005). Accounting transparency and the term structure of credit spreads. *Journal of Financial Economics, 75*, 53-84.

Chapter 4

Initial Public Debt Offering and the Timeliness of Economic Loss Recognition[21]

Abstract

This study investigates the impact of the initial public debt offering (IPDO) on the timeliness properties of the firm's accounting income. Issuing public debt for the first time presents a shift in the firm's debt ownership structure from privately to publicly owned debt. Firms are more likely to communicate with private lenders on a private, insider-basis, while they are more likely to communicate with bondholders using public information. Therefore, bondholders, compared to private lenders, are expected to be more sensitive to the quality of public information. Timely loss recognition increases the efficiency of debt covenants thereby limiting opportunistic managerial actions. In addition, it increases the usefulness of financial reports because it provides traders in the secondary bond market with a reliable source of information when assessing the firm. In this study, we predict that firms will adopt a timelier policy of economic loss recognition after their initial public debt offering to address the higher demand for public information from larger number of external and dispersed bondholders. We find evidence consistent with our prediction using Basu's (1997) time series measure of timely loss recognition.

JEL classification: M4; G32

Keywords: Conservatism; Timely Loss Recognition; Accruals; Debt Contracts; Covenants; Public Debt; Private Debt

[21] We thank Hans Christensen for providing useful comments.

4.1. Introduction

Positive accounting theory suggests that the evolution of financial reporting attributes is influenced by contract agreements such as debt and managerial compensation contracts (Leftwich, 1983; Watts, 2003a, 2003b; Watts & Zimmerman, 1986). In this study, we examine the development of one attribute of financial reporting, namely asymmetric earnings timeliness, when the firm contracts for the first time with bondholders in the public debt market. We expect firms to be timelier in recognizing their economic losses after accessing the public debt market for the first time to address the higher demand for asymmetric timeliness from bondholders compared to private lenders. We also expect, ceteris paribus, that the change in the degree of timeliness is permanent since firms are expected to repeat borrowing from the public debt markets.

Lenders are subject to the downside risk of the firm but they do not share the upside gains. Therefore, they are more sensitive to the firm's losses than they are to its profits. Since timely loss recognition is concerned with how early economic losses are recognized in the financial statements, the information demands of the debt market determine, at least partially, the timeliness properties of the borrower's financial statements (Watts, 2003a, 2003b). Lenders are concerned with unexpected events that increase the probability of default because of at least two reasons. First, managers are more likely to expropriate creditors' wealth in states of financial distress (Jensen & Meckling, 1976; Myers, 1977). Therefore, it is important that lenders are informed about events that potentially lead to financial distress in a timely fashion to help lenders take appropriate actions in order to protect their rights (Guay, 2008; Watts, 2003a). Second, informing current and potential lenders of economic losses in a timely fashion enables them to accurately value the debt securities, thereby reducing the adverse selection problem.

Although private and public lenders are expected to demand timeliness in the firm's financial accounts, we argue that public lenders are likely to demand a greater degree of timeliness compared to private lenders. It is more efficient for firms with a large number of lenders to produce public information that is jointly useful to multiple lenders to

avoid the duplication of information production costs (Fama, 1985). In addition, firms are less willing to share their proprietary information with a large group of dispersed bondholders than with one or a limited number of lenders (Bhattacharya & Chisea, 1995). While private lenders often have access to private information such as quarterly and monthly financial disclosure and covenant compliance information bondholders do not (Wittenberg-Moerman, 2008). Therefore, bondholders compared to private lenders are likely to be more sensitive to the quality of public information, especially to accounting attributes that affect how early economic losses are recognized in the firm's financial statements. Consequently, we expect timely loss recognition to increase substantially after the firm issues its initial public debt offering.

The extant literature focuses primarily on how timeliness increases the efficiency of debt contracts for monitoring reasons. Agency conflicts between creditors and shareholders are magnified in times of financial distress. To restrict managers' opportunism and to ensure the payment of capital and interest, creditors write and monitor debt contracts. An important event that signals a higher probability of default is the violation of debt covenants known as technical default (Beneish & Press, 1993; Dichev & Skinner, 2002; Smith, 1993). The transfer of control rights from shareholders to creditors in the event of financial distress protects the creditors' interests in the firm (Smith, 1993; Smith & Warner, 1979). However, the efficiency of control rights' transfer depends on how early economic losses are recognized in the financial statements (Ball & Shivakumar, 2005; Guay, 2008; Watts, 2003a). Timely loss recognition is an asymmetric verification process, which immediately recognizes bad events while delaying the recognition of good events until they are verified (Basu, 1997). Therefore, it ensures that debt covenant violations are triggered in a timely fashion by the speedy recognition of economic losses hence allowing the transfer of control rights from shareholders to lenders more quickly (Watts, 2003a).

Although timeliness increases the efficiency of private and public debt contracts, covenants in public debt contracts are likely to create more demand for timeliness than covenants in private debt contracts (Nikolaev, 2010).[22] Private debt contracts mostly use maintenance covenants that require companies to maintain certain financial ratios

[22] The following argument is adapted from Nikolaev (2010).

(Smith, 1993; Dichev & Skinner, 2002). In addition, private lenders set tighter debt covenants compared to bondholders in order to increase the frequency of the firm's (unconditional) violation of private debt covenants (Berlin & Mester, 1992; Rajan & Winton, 1995). Consequently, these covenants function as trip-wires that trigger subsequent renegotiations of the debt contracts. The need for renegotiation substantially increases private lenders' control over the company hence reducing the scope for managerial opportunism. On the other hand, public debt contracts employ negative covenants, which managers must meet before they take certain actions. Examples of these covenants include restrictions on dividend payouts, acquisitions, and new issuance of debt. These covenants rarely require maintenance of accounting ratios and thus do not require frequent renegotiation. In case of public debt frequent renegotiation is not efficient because of the nature of public debtholders diffused ownership. Therefore, timeliness enhances the efficiency of negative covenants by limiting actions that could lead to the expropriation of bondholders' wealth.

In addition, timeliness has other roles valuable benefits to bondholders relating to the tradability of public debt in the secondary debt market. Timeliness increases the usefulness of the firm's financial reports, and therefore decreases the information asymmetries facing external investors (Lafond & Watts, 2008). With respect to the secondary debt market, timely loss recognition provides traders with information to evaluate the firm which decreases the adverse selection problem (Qi, Subramanyam, & Zhang, 2010; Wittenberg-Moerman, 2009). In addition, reporting economic losses in a timely fashion allows investors in public debt securities to value their holdings accurately and rebalance their investment decisions accordingly.

In this study we focus on the presence of public debtholders rather than the level of public debt in relation to other types of financing. Issuing public debt is subject to a large fixed costs component and therefore the absolute size of public debt is large (Blackwell & Kidwell, 1988; Smith, 1986). Therefore, the level of public debt is expected to be significant enough to induce a change in the firm's timeliness policy.[23]

[23] In this study we report a significant increase in the leverage ratio after the IPDO event (figures reported in Table 4.2). This supports the argument that the level of issued public debt is substantial enough to induce a change in the firm's timeliness.

Although investigating the impact of the level of public debt relative to other financing sources on the degree of timeliness might have useful implications for our research, we focus on examining the impact of the IPDO event for several reasons. First, the firm contracts for the first time with a new type of investors. The information asymmetry associated with issuing initial public debt is expected to be greater than when issuing seasoned public debt (Cantillo & Wright, 2000). Therefore, IPDOs present an interesting context to examine how timeliness properties alleviate information asymmetries facing bondholders contracting for the first time with the firm. Second, Ball and Shivakumar (2008) note that exploiting an initial public offering (IPO) research design mitigates the omitted variable bias since we study the same firm that undergoes a transition in status. Third, investigating the degree of timeliness before and after issuing IPDO helps to clarify the causality between debt contracting and timeliness. An increase in the timeliness level after the IPDO indicates that bondhodlers' demand induces this increase. Fourth, we employ an event-type methodology to overcome the criticism raised against Basu's (1997) timeliness measure. Dietrich, Muller, & Riedl (2007) and Patatoukas and Thomas (2010) argue that data regularities in the distributions of earnings deflated by price and returns may lead to spurious relationship between losses and negative returns. However, in our tests we aim to show a significant change in the size of the bad news coefficient after the event of IPDO for the same set of sample firms. Data regularities cannot explain the significant increase in the strength of the association between losses and returns compared to gains and returns after the IPDO event date.

Following Basu (1997), we measure timely loss recognition as the extent to which current period earnings asymmetrically incorporate economic losses relative to economic gains. Our findings indicate that firms follow timelier economic loss recognition after their initial public debt offering. These results are statistically and economically significant. Our sample firms increase the degree of economic loss recognition by nearly 70% after their initial public debt offering compared to the degree of economic loss recognition before their initial public debt offering. We also document that the increase in asymmetric timeliness persists up to three years after the first public debt issue.

This study contributes to the literature on the influence of contracting choices on accounting conservatism. The empirical evidence suggested by these studies indicates that the demands of the debt market increases the degree of asymmetric timeliness across countries (Ball, Kothari, & Robin, 2000; Ball, Robin, & Sadka, 2008). Further, it suggests that firms without traded equity compared to the one with traded equity are less timely in recognizing economic losses in part due to their debt contracting differences (Ball & Shivakumar, 2005, 2008). There is little single-country evidence documenting the influence of debt, or the type of debt, on the firm's reporting behaviour. We find that, within a single country, namely the US, financial reporting attributes are significantly influenced by the information demands of different types of debt markets.

The rest of this chapter is organized as follows. In Section 2 we review the literature and discuss the hypotheses. Section 3 presents the sample selection process, the measurement of timely loss recognition, and the research methodology. We present the data and discuss the results in Sections 4 and 5 respectively. In Section 6 we present alternative measures for conditional conservatism and discuss the results. We summarize the findings and conclude in Section 7.

4.2. Research Background

4.2.1. Prior Literature and Contribution[24]

This study is related to Ball and Shivakumar (2005) who investigate the effect of the firm's equity status, private (not traded) or public (traded), on timeliness. In Ball and Shivakumar (2005), the authors find evidence that private equity firms in the UK are less timely in recognizing economic losses even though they are subject to formal accounting rules that are very similar to public equity firms. Their evidence is consistent with the view that financial reporting is significantly different between private and public equity firms due to differential market demands. However, our study is different from Ball and Shivakumar (2005) in two important ways. First, in this study we investigate the impact of accessing the public debt market on the firm's asymmetric

[24] In this section we focus on the most related studies to our research questions. For a detailed discussion of the literature, please see Chapter 2.

timeliness. Ball and Shivakumar (2005) note that debt contracting differences between private and public equity companies constitute a potentially important determinant of financial reporting quality. However, they do not formally examine the influence of debt on the firm's reporting choices. This study investigates the role of debt in inducing a demand for timeliness. The second difference relates to the research methodology. Ball and Shivakumar (2005) examine the effect of a firm's current equity status on the degree of timeliness, while we examine the effect of two states of the firm: before and after it issues its initial public debt offering. We believe our methodology provides sharper inferences with regard to how the firm respond to greater demand for certain accounting attributes because of its contracting choices.

In Ball and Shivakumar (2008), the authors investigate changes in the properties of accounting income for a sample of UK firms who issued an equity initial public offering (IPO). They find that the restated accounting income of their sample firms exhibits a significant lower earnings management, approximated using abnormal accruals measures, compared to the reported accounting income of the same firms for the same years. Ball and Shivakumar (2008) investigate the earnings management around the equity IPO, specifically in the two years before the equity IPO. Ball and Shivakumar (2008) focus on detecting managers' opportunistic behaviour at the IPO event by inflating earnings at the time of the IPO. Therefore, it is difficult to generalize Ball and Shivakumar's (2008) results by inferring that the firm adopts a higher quality accounting after its equity IPO due to debt contracting differences. In this study we are concerned with the change, and the persistence of the change, in the firm's asymmetric timeliness after its initial public debt event.

Another related study is Bharath, Sunder, and Sunder (2008), who investigate the effect of earnings and accruals management on the probability of issuing public debt. The authors argue that higher accounting quality firms are more likely to issue public debt, while lower accounting firms are more likely to issue private debt. This is because private lenders have superior access to private information, and therefore are subject to lower information asymmetry problems. Bharath et al. (2008) find that firms with higher accounting quality, approximated by lower earnings and accruals management,

borrow from public debt market, while firms with lower accounting quality borrow from private lenders.

The evidence of Bharath et al. (2008) is consistent with the view that high quality accounting facilitates inexpensive monitoring and therefore allows the firm to borrow publicly (Armstrong, Guay, & Weber, 2010). In contrast, firms with low quality accounting overcome the information asymmetry problems by choosing private lenders who invest in costly monitoring technologies. This in turn reduces agency conflicts between the firm and its lenders. Bharath et al. implicitly assume that the accounting quality of the firm is given, and therefore, the choice of the lender type resolves the information asymmetry problems. In this study we expect that the firm actively modifies its accounting when it contracts with public debt investors for the first time to solve potential information asymmetries resulting from contracting with external and dispersed investors.

In summary, we contribute to the literature by providing evidence on the effect of issuing public debt for the first time on the level of asymmetric timeliness across firms operating within the same reporting environment. This evidence enhances our understanding of the impact of debt market demands for timeliness properties of the firm's financial reports.

4.2.2. Hypotheses Development

The first hypothesis investigates the change in the firm's degree of timeliness before and after issuing public debt for the first time. Formally, Hypothesis 1 (H1) states that:

H1: Firms follow a timelier policy of economic loss recognition after their initial public debt offering (IPDO) than before the IPDO

The motivation for H1 follows from the assumption that firms with private debt are more likely to communicate with banks on an insider basis, while firms with public debt are more likely to rely on public information (Fama, 1985). Communicating privately becomes inefficient when the firm contracts with a large number of uncoordinated investors. Firms with inside debt incur lower costs by communicating with inside

debtholders directly, while those with outside debt will incur lower information costs by producing public information that is jointly useful for different outside debtholders. Communicating with debtholders through public information reduces the duplication of information costs incurred by bondholders to monitor their contracts, and therefore, leads to lower interest rates.

Similar to Fama (1985), Ball and Shivakumar (2005) suggest that the quality of public information is higher for firms with public equity (outside equity) compared to firms with private equity (inside equity). The authors argue that communicating on an inside-basis with a large number of actual and potential investors is inefficient for firms with traded equity. Therefore, private equity firms are more likely to communicate with their agents on an insider basis while public equity firms communicate through public information. Consequently, public traded equity demand higher quality financial reporting to resolve the information asymmetries they face.

We build on these foundations by suggesting that firms are more likely to communicate with private lenders on a private, insider-basis, while they are more likely to communicate with bondholders using public information. Therefore, we expect bondholders to be more sensitive to the quality of public information, especially with regard to recognizing events that could affect the borrower's credit quality. We expect that public debtholders are more likely to demand a higher degree of timeliness compared to private lenders, and therefore, firms respond to this demand by increasing their level of timeliness.

The second hypothesis investigates the persistence in the change in the firm's degree of timeliness after issuing public debt for the first time. Formally, Hypothesis 2 (H2) states that:

H2: the change in the degree of timely economic loss recognition after the firm's debt initial public offering is permanent.

Asymmetric timeliness reduces the information asymmetry problems facing bondholders only if the firm commits to adopt a timely loss recognition policy. In other words, it is essential for public debt issuer to promote investors' confidence in its accounting and financial communication policies to manage potential costs of information asymmetries. The firm's failure to commit to timeliness will result in a loss of the firm's reputational capital and consequently to higher interest rates charged by bondholders for future borrowings. Therefore, we expect, ceteris paribus, that the change in the degree of asymmetric timeliness is permanent since firms are expected to repeat borrowing in the public debt market.

4.3. Research Design

4.3.1. Sample Choice

We select all US nonfinancial firms that issued public debt for the first time during the period 1972-2008. We follow Hale and Santos (2008) by considering the initial public debt offering issued on and after 1972 since the Securities Data Corporation (SDC) debt list prior to 1972 is incomplete. To identify the date of the initial public debt offer, we use the Securities Data Corporation (SDC) new bond issuance database. We construct a list of all debt issues by US firms. Then we sort all issues for each firm and select the initial public debt offer. Finally, we match the names of the issuers of initial public debt offers with the firms' names in Compustat. The sample selection process is described in Table 4.1.

Table 4.1: Sample Selection

Table 4.1 reports the sample selection process. The number of firms for reported estimations varies depending on the available data needed to construct the conservatism measures.

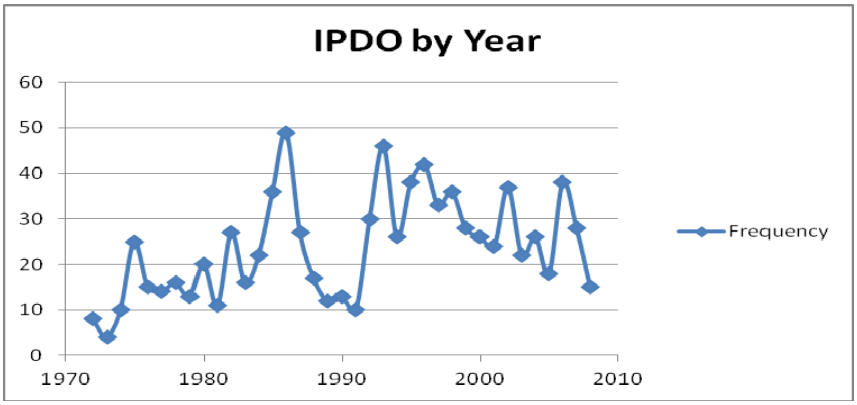
Nonfinancial US firms with IPDO and identified in Compustat database until 2008	**1,023**
Nonfinancial US firms with IPDO before 1972	**(145)**
Debt issues with all required data	878
Final Sample	**878**

We identify a non US firm in the SDC database under the data items "Nation" and "Primary Exchange Where Issuer's Stock Trades". All firms with a value other than "United States" under the data item "Nation" are classified as a non US firms. All firms with a non US stock exchange under the data item "Primary Exchange Where Issuer's Stock Trades" are classified as a non US firms.

Data Sources: The Securities Data Company (SDC) Database.

Figure 4.1 shows the distribution of initial public debt offers by year. The decrease in debt issuance around 1990 could be attributed to uncertainty caused by the large default rate of corporate issuers during that period (Fons & Kimball, 1991).

Figure 4.1: Distribution of IPDOs by Year



4.3.2. Methodology

4.3.2.1. Measurement of Timely Loss Recognition

The purpose of this study is to examine the change in the firm's policies in recognizing economic losses in its financial reports after its issuance of its initial public debt. Basu (1997) proposes that the recognition of economic losses must be associated with the actual presence of adverse economic circumstances. In his article, Basu (1997, p. 7) interprets conservatism as the (emphasis added):

> [A]ccountant's tendency to require a higher degree of verification to recognize good news as gains than to recognize bad news as losses. Under my interpretation of conservatism, earnings reflect bad news *more quickly* than good news.

This interpretation of conservatism, known as conditional conservatism, emphasizes that the incorporation of losses in reported earnings is conditional on firms experiencing contemporaneous economic losses (Ball & Shivakumar, 2005; Watts, 2003a). One implication of conditional conservatism is that it will induce an asymmetry in the timeliness of recognizing economic gains and economic losses, with economic losses

being reflected more promptly than economic gains (Basu, 1997; Givoly & Hayn, 2000; Holthausen & Watts, 2001; Pope & Walker, 1999).

We follow Basu (1997) to assess the firm's asymmetric timeliness before and after the initial public debt offering. Specifically, Basu suggests the following model:

$$E_{it}/P_{it-1} = \alpha_1 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \varepsilon_{it} \qquad (1)$$

where $\boldsymbol{E}_{it}$ is the earnings per share before extraordinary items; $\boldsymbol{P}_{it-1}$ is the price per share at the beginning of fiscal year $\boldsymbol{t}$; $\boldsymbol{R}_{it}$ is the 12-month discrete stock return ending 3 months after the end of fiscal year $\boldsymbol{t}$; and $\boldsymbol{DR}_{it}$ is a dummy variable equal to one if $\boldsymbol{R}_{it}$ is negative and zero otherwise. $\boldsymbol{DR}_{it}*\boldsymbol{R}_{it}$ is an interaction term between $\boldsymbol{R}_{it}$ and $\boldsymbol{DR}_{it}$. We use the earnings before extraordinary items since we are most interested in investigating the timeliness properties of income from continuing operations. We calculate returns ending 3 months after the end of the fiscal year to account for the delay in the announcement of financial reports. This ensures that the returns do not reflect the previous year's earnings announcement.

In Basu (1997), stock returns approximate news arrival during the period, positive returns reflect a period of economic gains and negative returns reflect a period of economic losses. Basu suggests that earnings reflect bad news (negative returns) more than it reflects good news (positive returns) if there is asymmetric verification requirements of losses and gains. With respect to equation (1), the association between earnings and returns is expected to be greater in periods of bad news compared to years of good news (Basu, 1997; Givoly, Hayn, & Natarajan, 2007; 2001; Pope & Walker, 1999). The term β_1 in equation (1) measures the sensitivity of earnings to good news, and β_3 measures the sensitivity of earnings to bad news. Asymmetric timeliness implies that there is an incremental response to bad news relative to good news, in other words $\beta_1 + \beta_3 > \beta_1$ hence β_3 is expected to be greater than zero.

4.3.2.2. Asymmetric Timeliness and Initial Public Debt Offering

Based on Hypothesis 1, we expect the coefficient associated with negative returns to increase around the year of the IPDO. To test H1 and H2 we estimate two specifications of equation (1). In the first specification we include 11 period dummies: 5 period dummies that represent each of the five years before the initial public debt offer, one period dummy that represent the year of the initial public debt offer, and 5 period dummies that represent five years after the IPDO. We also interact each period dummy with the original terms in equation (1). The model is specified as follows:

$$E_{it}/P_{it-1} = \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \sum_{t=-5,+5} \gamma_{0,t} DP_t + \sum_{t=-5,+5} \gamma_{1,t} DP_t * R_{it} + \sum_{t=-5,+5} \gamma_{2,t} DP_t * DR_{it} + \sum_{t=-5,+5} \gamma_{3,t} DP_t * R_{it} * DR_{it} + \varepsilon_{it} \quad (2)$$

where $\boldsymbol{DP}_t$ are the period dummies for years -5 to +5 relative to year 0, the year of the IPDO. We expect the coefficients $\gamma_{3,t}$ for the years after the debt IPO to be statistically significant and positive.

In the second specification we include a dummy variable that takes the value 1 for the years after the initial public debt offer and 0 for the years before the initial public debt offer. The years before the initial public debt offer include the years -5 up to -1. The years after the initial public debt offer firstly include the years 0 to 5. We test the timeliness over the two windows using the following specification:

$$E_{it}/P_{it-1} = \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \lambda_0 DW + \lambda_1 DW * R_{it} + \lambda_2 DW * DR_{it} + \lambda_3 DW * R_{it} * DR_{it} + \varepsilon_{it} \quad (3)$$

where $\boldsymbol{DW}$ is a dummy variable taking the value 1 for the years after the initial public debt offer and 0 for the years before the initial public debt offer. According to H1 and H2, we expect λ_3 to be significantly positive.

4.3.2.3. Controlling for Leverage, Size and Book to Market

The firm's debt ratio potentially increases significantly after the firm issues its initial public debt offering. The increase in debt may induce a timelier policy in the firm's financial reports. This is because higher leverage could amplify agency conflicts and

therefore the firm could adopt a timelier policy to mitigate those conflicts (Khan & Watts, 2009; Watts, 2003a). In addition, the size of the firm may increase after the firm issues its initial public debt. To control for these potentially confounding effects we estimate equations (2) and (3) including leverage, size, and BTM with their interaction terms with the original terms in equation (1). Thus, equation (2) is modified as follows:

$$\begin{aligned} E_{it}/P_{it-1} = {} & \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \sum_{t=-5,+5} \gamma_{0,t} DP_t + \sum_{t=-5,+5} \gamma_{1,t} DP_t * R_{it} \\ & + \sum_{t=-5,+5} \gamma_{2,t} DP_t * DR_{it} + \sum_{t=-5,+5} \gamma_{3,t} DP_t * R_{it} * DR_{it} + \delta_1 Size_{it} + \delta_2 Size_{it} * R_{it} \\ & + \delta_3 Size_{it} * DR_{it} + \delta_4 Size_{it} * DR_{it} * R_{it} + \delta_5 Lev_{it} + \delta_6 Lev_{it} * R_{it} \\ & + \delta_7 Lev_{it} * DR_{it} + \delta_8 Lev_{it} * DR_{it} * R_{it} + \delta_9 BTM_{it} + \delta_{10} BTM_{it} * R_{it} \\ & + \delta_{11} BTM_{it} * DR_{it} + \delta_{12} BTM_{it} * DR_{it} * R_{it} + \varepsilon_{it} \end{aligned} \quad (4)$$

Likewise, equation (3) is modified to control for the effect of the change in leverage, size and BTM as follows:

$$\begin{aligned} E_{it}/P_{it-1} = {} & \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \lambda_0 DW + \lambda_1 DW * R_{it} \\ & + \lambda_2 DW * DR_{it} + \lambda_3 DW * R_{it} * DR_{it} + \delta_1 Size_{it} + \delta_2 Size_{it} * R_{it} \\ & + \delta_3 Size_{it} * DR_{it} + \delta_4 Size_{it} * DR_{it} * R_{it} + \delta_5 Lev_{it} + \delta_6 Lev_{it} * R_{it} \\ & + \delta_7 Lev_{it} * DR_{it} + \delta_8 Lev_{it} * DR_{it} * R_{it} + \delta_9 BTM_{it} + \delta_{10} BTM_{it} * R_{it} \\ & + \delta_{11} BTM_{it} * DR_{it} + \delta_{12} BTM_{it} * DR_{it} * R_{it} + \varepsilon_{it} \end{aligned} \quad (5)$$

4.4. Data Description

Table 4.2 reports descriptive statistics for the components of equations (2) to (5). To mitigate the influence of outliers we winsorize the top and bottom 1% of the observations of each tail of the E/P and Return distributions. Also, we report the firms' leverage and size just before and immediately after the IPDO. The mean leverage ratio, Lev, of our sample firms before the initial public debt offer is 0.30, while it is 0.35 after the initial public debt offer. The increase in the leverage ratio is statistically significant at the 1% level. Likewise, the sample firms' mean log of total assets, Size, is significantly higher after the IPDO at the 1% level.

Table 4.2: Summary Statistics

Table 4.2 reports descriptive statistics in two panels. Panel 1 reports summary statistics for the components of equation (1) as specified in Basu (1997). Panel 2 shows descriptive statistics for firm specific characteristics before and after the initial public debt offering.

E_{it}/P_{it} is the earnings per share before extraordinary items divided by the price per share at the beginning of fiscal year *t*. Return is the 12-month discrete stock return ending 3 months after the end of fiscal year *t*. E_{it}/P_{it} and Returns are trimmed at 1%.

Leverage is the long term debt divided by total assets. Assets ($) is the dollar size of total assets. Size is the log of total assets. *, **, *** denote significance at the 10%, 5%, and 1%, respectively.

Variable	Obs.	Mean	Median	SD	Min	Max	Skewness	Kurtosis
Panel 1: Summary Statistics for the Components of Regression 1								
E/P	6897	0.031	0.062	0.210	-1.460	0.407	-4.569	29.46
Return	6897	0.096	0.036	0.474	-0.749	2.225	1.599	7.75
Panel 2: Summary Statistics for Firm Characteristics								
	***t* = -1**				***t* = 1**			
	Obs.	**Mean**	**Median**	**SD**	**Obs.**	**Mean**	**Median**	**SD**
Leverage	878	0.30	0.26	0.189	805	0.35***	0.32	0.19
Assets($)	878	4108	1012	11825	805	5014	1247	15480
Size	878	6.89	6.92	1.666	805	7.16***	7.15	1.62

4.5. Results and Analysis

4.5.1. Tests of Hypothesis 1 and Hypothesis 2

Incremental Timeliness

To test H1 and H2 we estimate equations (2) to (5) and report the results in Tables 4.3 and 4.4. Table 4.3 reports the incremental sensitivity of bad news for each individual year around the issuance of the IPDO. We estimate equation (2) using a window of 11 years around the IPDO. The coefficient of bad news sensitivity β_3 is positive and statistically significant with a value of 0.099 in line with Basu (1997). The coefficients of bad news sensitivity interacted with the period dummies, $\gamma_{3,t}$, for all the years before the initial public debt offer are insignificant, while they are positive and significant at the 5% level for years 1 and 5, and at the 1% level for years 2, 3, and 4. This finding supports hypothesis H1, which suggests that the coefficient of bad news sensitivity will increase after their initial public debt offer. It also supports H2 because the change in asymmetric timeliness continues for five years after the initial public debt offer. The magnitude of the increase in the coefficient of bad news sensitivity is economically significant. After issuing the initial public debt the average asymmetric timeliness of our sample firms doubles in magnitude compared to the base year 0.

Next, we estimate equation (4) which controls for possible confounding effects of the firm's size, leverage, and BTM and report the results in the second column in Table 4.3. The results reported in the second column in Table 4.3 show that the coefficient of the bad news sensitivity interacted with the period dummies, $\gamma_{3,t}$, are still significant for all the years after the IPDO. In addition, the results show that bad news sensitivity nearly doubles in all specifications. This finding is consistent with the findings of Nikolaev (2010) who reports a coefficient of bad news sensitivity of 0.27 for the base model and 0.49 after controlling for size and leverage. The coefficient of the bad news sensitivity interacted with the firm's size δ_4 is negative and statistically significant, which indicates that smaller firms are more conservative than larger firms. In addition, the estimation results of equation (4) shows that the coefficient of the bad news sensitivity interacted with the firm's leverage δ_8 is positive but statistically insignificant. Finally, the coefficient of the bad news sensitivity interacted with the firm's BTM δ_{12} is positive and statistically significant, which indicates that firms with more growth opportunities are more conservative than firms with fewer growth opportunities.

Timing of the Change in the Firm's Timeliness Policy

In Ball and Shivakumar (2008) the authors find evidence suggesting that UK firms begin reporting more conservatively several years before issuing their equity initial public offering (IPO). Our findings reported in Table 4.3. show that the adjustment to the firm's asymmetric timeliness does not take place before the initial public debt offering event. Hence, our results appear to contradict those reported in Ball and Shivakumar. However, we argue that the inconsistencies between the two sets of findings emerge because Ball and Shivakumar use restated accounting numbers in the firms' prospectuses while we use the actual reported numbers.

Ball and Shivakumar (2008) focus on the restated accounting numbers in the UK companies IPO prospectuses. They find a significant difference between reported financials and prospectus financials for the same set of UK companies in the three years before they go public.[25] This evidence implies that the firm's *reported* financials do not

[25] It is important to note that the UK's Companies Act requires private companies to file audited annual financial statements. Hence, private companies' reports are publicly available.

exhibit significant adjustments before the IPO date, hence it is consistent with our findings. In addition, Ball and Shivakumar compare the conditional conservatism in the restated prospectus accruals for firms who issued an initial public offering (IPO) with a control sample of UK private firms that did not go public during the sample period. The authors find that UK firms going public compared to private firms that did not go public report the *restated prospectus* income more conservatively. In this study we use reported financials and therefore it is difficult to compare the two sets of results.

We argue that the ambiguity with respect to the IPDO date could explain the reluctance of firms in adjusting their reporting policies before the IPDO. As Ball and Shivakumar (2008) note, it is difficult to predict when the likelihood of the IPO becomes material enough to impact the company's financials. The ambiguity of the IPDO timing could be greater than that of the IPO due to the lower costs of entry of public debt markets compared to equity markets (Cantillo & Wright, 2000). In addition, the change in the firm's asymmetric timeliness policy possibly will be costly since it could adversely impact the contracts in place. For example, adopting a policy of timelier loss recognition may increase the frequency of debt covenant violations for private debt contracts already in place. Therefore, the firm may delay modifying its policies until it actually contracts with the new investors.

Table 4.3: Incremental Timeliness

Table 4.3 reports the incremental timeliness for each year before and after the first public debt offering. The base year is year 0. Model 1 reports the fixed effects estimation results of equation (2) as follows:

$$E_{it}/P_{it-1} = \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \sum_{t=-5,5} \gamma_{0t} DP_t + \sum_{t=-5,5} \gamma_{1t} DP_t * R_{it} + \sum_{t=-5,5} \gamma_{2t} DP_t * DR_{it} + \sum_{t=-5,5} \gamma_{3t} DP_t * R_{it} * DR_{it} + \varepsilon_{it} \quad (2)$$

Model 2 reports the fixed effects estimation results of equation (4) as follows:

$$E_{it}/P_{it-1} = \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \sum_{t=-5,+5} \gamma_{0,t} DP_t + \sum_{t=-5,+5} \gamma_{1,t} DP_t * R_{it} + \sum_{t=-5,+5} \gamma_{2,t} DP_t * DR_{it} + \sum_{t=-5,+5} \gamma_{3,t} DP_t * R_{it} * DR_{it} + \delta_1 Size_{it} + \delta_2 Size_{it} * R_{it} + \delta_3 Size_{it} * DR_{it} + \delta_4 Size_{it} * DR_{it} * R_{it} + \delta_5 Lev_{it} + \delta_6 Lev_{it} * R_{it} + \delta_7 Lev_{it} * DR_{it} + \delta_8 Lev_{it} * DR_{it} * R_{it} + \delta_9 BTM_{it} + \delta_{10} BTM_{it} * R_{it} + \delta_{11} BTM_{it} * DR_{it} + \delta_{12} BTM_{it} * DR_{it} * R_{it} + \varepsilon_{it} \quad (4)$$

The dependent variable E_{it}/P_{it} is the earnings per share before extraordinary items divided by the price per share at the beginning of fiscal year *t*. R_{it} is the 12-month discrete stock return ending 3 months after the end of fiscal year *t*. DR_{it} is a dummy variable equal to one if Return is negative and zero otherwise. $R_{it}*DR_{it}$ is an interaction term between R_{it} and DR_{it}. DP_t are period dummies. $Size_{it}$ is the log of total assets. Lev_{it} is the long term debt divided by total assets. E_{it}/P_{it} and R_{it} are trimmed at 1%. *, **, *** denote significance at the 10%, 5%, and 1%, respectively.

	Model 1		Model 2		Model 3	
DR_{it}	0.0264***	(4.01)	0.0690*	(1.69)	0.0639	(1.38)
R_{it}	0.0202***	(2.86)	0.00296	(0.07)	0.0028	(0.06)
$DR_{it}*R_{it}$	0.0992**	(2.25)	0.360***	(3.04)	0.345***	(2.71)
$Size_{it}$	-	-	0.0204***	(3.29)	0.0189***	(3.04)
$Size_{it}*DR_{it}$	-	-	-0.0044	(-1.09)	-0.0039	(-0.93)
$Size_{it}*R_{it}$	-	-	0.0025	(0.55)	0.0065	(1.38)
$Size_{it}*R_{it}*DR_{it}$	-	-	-0.0519***	(-4.60)	-0.0573***	(-5.01)
Lev_{it}	-	-	-0.0989***	(-3.47)	-0.0969***	(-3.39)
$Lev_{it}*DR_{it}$	-	-	-0.0200	(-0.57)	-0.0334	(-0.94)
$Lev_{it}*R_{it}$	-	-	0.0083	(0.25)	0.0060	(0.18)
$Lev_{it}*DR_{it}*R_{it}$	-	-	-0.0057	(-0.07)	-0.0308	(-0.37)
BTM_{it}	-	-	0.0409*	(1.92)	0.0338	(1.58)
$BTM_{it}*DR_{it}$	-	-	-0.0117	(-0.43)	-0.0126	(-0.46)
$BTM_{it}*R_{it}$	-	-	-0.0054	(-0.21)	0.0065	(0.25)
$BTM_{it}*R_{it}*DR_{it}$	-	-	0.147**	(2.10)	0.119*	(1.70)
DP_{-5}	0.0113	(0.98)	0.0201*	(1.65)	0.0361*	(1.96)
DP_{-4}	0.0080	(0.71)	0.0146	(1.23)	0.0243	(1.37)
DP_{-3}	0.0108	(0.96)	0.0163	(1.41)	0.0050	(0.28)
DP_{-2}	0.0091	(0.84)	0.0122	(1.10)	0.0212	(1.24)
DP_{-1}	0.0131	(1.22)	0.0132	(1.22)	0.0179	(1.07)
DP_{+1}	-0.0069	(-0.64)	-0.0114	(-1.06)	0.0060	(0.35)
DP_{+2}	0.0008	(0.07)	-0.0058	(-0.52)	0.0258	(1.46)
DP_{+3}	-0.0124	(-1.09)	-0.0208*	(-1.82)	-0.0200	(-1.11)
DP_{+4}	-0.0219*	(-1.89)	-0.0333***	(-2.84)	-0.0022	(-0.12)
DP_{+5}	-0.0208*	(-1.72)	-0.0324***	(-2.65)	-0.0109	(-0.56)

$DP_{-5}*DR_{it}$	-	-	-	-	-0.0157	(-0.51)
$DP_{-4}*DR_{it}$	-	-	-	-	0.0087	(0.28)
$DP_{-3}*DR_{it}$	-	-	-	-	0.0342	(1.15)
$DP_{-2}*DR_{it}$	-	-	-	-	-0.0005	(-0.02)
$DP_{-1}*DR_{it}$	-	-	-	-	-0.0204	(-0.69)
$DP_{+1}*DR_{it}$	-	-	-	-	0.0063	(0.22)
$DP_{+2}*DR_{it}$	-	-	-	-	0.0139	(0.48)
$DP_{+3}*DR_{it}$	-	-	-	-	0.0490	(1.62)
$DP_{+4}*DR_{it}$	-	-	-	-	-0.0148	(-0.48)
$DP_{+5}*DR_{it}$	-	-	-	-	-0.0159	(-0.49)
$DP_{-5}*R_{it}$	-	-	-	-	-0.0369	(-1.24)
$DP_{-4}*R_{it}$	-	-	-	-	-0.0338	(-1.19)
$DP_{-3}*R_{it}$	-	-	-	-	0.0180	(0.60)
$DP_{-2}*R_{it}$	-	-	-	-	-0.0275	(-1.03)
$DP_{-1}*R_{it}$	-	-	-	-	-0.0002	(-0.01)
$DP_{+1}*R_{it}$	-	-	-	-	-0.0594**	(-2.02)
$DP_{+2}*R_{it}$	-	-	-	-	-0.130***	(-4.03)
$DP_{+3}*R_{it}$	-	-	-	-	-0.0355	(-1.09)
$DP_{+4}*R_{it}$	-	-	-	-	-0.0862***	(-2.85)
$DP_{+5}*R_{it}$	-	-	-	-	-0.0592	(-1.55)
$DP_{-5}*DR_{it}*R_{it}$	0.0429	(0.75)	0.0191	(0.33)	0.0614	(0.72)
$DP_{-4}*DR_{it}*R_{it}$	0.0491	(0.89)	0.0203	(0.37)	0.049*	(1.84)
$DP_{-3}*DR_{it}*R_{it}$	0.0525	(0.95)	0.0314	(0.57)	0.0733	(0.89)
$DP_{-2}*DR_{it}*R_{it}$	0.0158	(0.27)	-0.0059	(-0.10)	0.0429	(0.50)
$DP_{-1}*DR_{it}*R_{it}$	0.0056	(0.10)	0.0020	(0.03)	-0.0379	(-0.45)
$DP_{+1}*DR_{it}*R_{it}$	0.135**	(2.38)	0.106*	(1.87)	0.187**	(2.19)
$DP_{+2}*DR_{it}*R_{it}$	0.242***	(4.39)	0.218***	(3.98)	0.469***	(5.72)
$DP_{+3}*DR_{it}*R_{it}$	0.256***	(4.65)	0.239***	(4.38)	0.405***	(4.89)
$DP_{+4}*DR_{it}*R_{it}$	0.226***	(4.04)	0.188***	(3.36)	0.324***	(3.87)
$DP_{+5}*DR_{it}*R_{it}$	0.134**	(2.13)	0.133**	(2.14)	0.211**	(2.22)
Cons	0.0418***	(5.00)	-0.103**	(-2.16)	-0.0982**	(-2.02)
Obs.	6897		6897		6897	

Timeliness before and after IPDO

Table 4.4 reports the results of estimating equation (3). Equation (3) includes a dummy variable that takes the value 1 for the years after the IPDO and 0 for the years before the initial public debt issue. The window before the initial public debt offer includes the years -5 up to -1. The window after the first public debt issue initially includes the years 0 up to 5. In order to test H2, we vary the window of the years after the first public debt issue to include the years 1-5; 2-5; 3-5; and 4-5 respectively. According to H2, the

change in asymmetric timeliness will persist for more than one year after the first public debt issue. Therefore, we expect to find a significant positive λ_3 coefficient for all the specified windows. Each column in Table 4.4 reports the results of estimating equation (3) using each of the specified post debt IPO event window. We use each firm as its own control, thus, we require each firm to have at least one observation before and after the first public debt event. The size of the bad news sensitivity coefficient interacted by the window dummy, λ_3, for the five windows is equal to 0.08, 0.11, 0.09, 0.12, and -0.029 respectively. The increase in the asymmetric timeliness for all windows is statistically significant except for the fifth window, where it is insignificant. These findings support hypothesis H1, which suggests that the coefficient of bad news sensitivity will increase after their initial public debt offer. It also supports H2 because the change in asymmetric timeliness is significant in four windows.

The reported results in Panel 2 show that after controlling for the confounding effects of size, leverage, and BTM, the size of the coefficient of bad news sensitivity interacted by the window dummy, λ_3, is positive and significant for the first four windows. The increase in the timeliness for all windows is statistically significant at the 1% level. In addition, the results indicate that the coefficient of the bad news sensitivity interacted with the firm's size δ_4 is negative and statistically significant. This finding is similar to the one reported in Table 4.3 and indicates that smaller firms are more conservative than larger firms. Also, the estimation results of equation (5) shows that the coefficient of the bad news sensitivity interacted with the firm's BTM δ_{12} is significant in all windows.

In conclusion, the results reported in Tables 4.3 and 4.4 suggest that the firm's asymmetric timeliness increases significantly, statistically and economically, after the IPDO even after controlling for the confounding effects of the firm size, leverage, and BTM.

Table 4.4: Timeliness and IPDO – Panel 1

This panel shows the fixed effects estimation results of equation (3):

$$E_{it}/P_{it-1} = \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \lambda_0 DW + \lambda_1 DW * R_{it} + \lambda_2 DW * DR_{it} + \lambda_3 DW * R_{it} * DR_{it} + \varepsilon_{it} \quad (3)$$

The dependent variable E_{it}/P_{it} is the earnings per share before extraordinary items divided by the price per share at the beginning of fiscal year *t*. R_{it} is the 12-month discrete stock return ending 3 months after the end of fiscal year *t*. DR_{it} is a dummy variable equal to one if Return is negative and zero otherwise. $R_{it}*DR_{it}$ is an interaction term between R_{it} and DR_{it}. $Size_{it}$ is the log of total assets. Lev_{it} is the long term debt divided by total assets. DW is a dummy variable that is coded 1 for the years before the first public debt issue and for the years after the first public debt issue. The years before the first public debt issue include -5 to -1. Each column defines the window for the years after the first public debt issue. *, **, *** denote significance at the 10%, 5%, and 1%, respectively.

	Window: (0,5)		**Window: (1,5)**		**Window: (2,5)**		**Window: (3,5)**		**Window: (4,5)**	
DR_{it}	0.0310***	(2.78)	0.0324***	(2.83)	0.0338***	(2.89)	0.0338***	(2.83)	0.0269**	(2.45)
R_{it}	0.0242**	(2.24)	0.0256**	(2.30)	0.0244**	(2.14)	0.0246**	(2.12)	0.0164	(1.52)
$DR_{it}*R_{it}$	0.164***	(5.28)	0.162***	(5.07)	0.170***	(5.15)	0.169***	(5.02)	0.170***	(5.44)
DW	-0.0089	(-1.09)	-0.0056	(-0.65)	-0.0053	(-0.58)	-0.0030	(-0.31)	-0.0089	(-0.90)
$DW*DR_{it}$	-0.0030	(-0.22)	-0.0085	(-0.58)	-0.0156	(-0.99)	-0.0119	(-0.71)	-0.0240	(-1.39)
$DW*R_{it}$	-0.0073	(-0.52)	-0.0243	(-1.61)	-0.0198	(-1.21)	-0.0215	(-1.24)	-0.0004	(-0.02)
$DW*DR_{it}*R_{it}$	0.0845**	(2.21)	0.110***	(2.72)	0.0889**	(2.03)	0.117**	(2.52)	-0.0296	(-0.61)
Cons	0.0474***	(7.32)	0.0474***	(7.16)	0.0469***	(6.94)	0.0457***	(6.63)	0.0528***	(8.37)
Obs.	6897		6195		5491		4998		4208	

Table 4.4: Timeliness and IPDO – Panel 2

This panel shows the estimation results of equation (5):

$$E_{it}/P_{it-1} = \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \lambda_0 DW + \lambda_1 DW * R_{it} + \lambda_2 DW * DR_{it} + \lambda_3 DW * R_{it} * DR_{it} + \delta_1 Size_{it} + \delta_2 Size_{it} * R_{it} + \delta_3 Size_{it} * DR_{it} + \delta_4 Size_{it} * DR_{it} * R_{it} + \delta_5 Lev_{it} + \delta_6 Lev_{it} * R_{it} + \delta_7 Lev_{it} * DR_{it} + \delta_8 Lev_{it} * DR_{it} * R_{it} + \varepsilon_{it} \quad (5)$$

	Window: (0,5)		Window: (1,5)		Window: (2,5)		Window: (3,5)		Window: (3,5)	
DR_{it}	0.0754*	(1.83)	0.0591	(1.35)	0.0716	(1.51)	0.0856*	(1.71)	0.0168	(0.33)
R_{it}	-0.00516	(-0.13)	-0.0047	(-0.11)	-0.0081	(-0.18)	0.0008	(0.02)	-0.0616	(-1.32)
DR_{it}*R_{it}	0.428***	(3.90)	0.391***	(3.34)	0.433***	(3.44)	0.392***	(2.95)	0.316**	(2.33)
$Size_{it}$	0.0033	(0.58)	0.0007	(0.11)	-0.0033	(-0.51)	-0.0019	(-0.26)	-0.0112*	(-1.65)
$Size_{it}$*DR_{it}	-0.0049	(-1.18)	-0.0028	(-0.62)	-0.0031	(-0.65)	-0.0048	(-0.93)	0.0012	(0.23)
$Size_{it}$*R_{it}	0.0042	(0.92)	0.0047	(0.95)	0.0035	(0.64)	0.0015	(0.26)	0.0049	(0.89)
$Size_{it}$*R_{it}*DR_{it}	-0.0591***	(-5.16)	-0.0527***	(-4.27)	-0.0516***	(-3.84)	-0.0460***	(-3.22)	-0.0332**	(-2.28)
Lev_{it}	-0.102***	(-3.56)	-0.104***	(-3.34)	-0.111***	(-3.28)	-0.130***	(-3.61)	-0.126***	(-3.28)
Lev_{it}*DR_{it}	-0.0204	(-0.57)	-0.0272	(-0.71)	-0.0616	(-1.48)	-0.0680	(-1.54)	-0.0453	(-0.97)
Lev_{it}*R_{it}	0.0163	(0.48)	-0.0075	(-0.20)	0.0123	(0.29)	0.0289	(0.65)	0.0568	(1.24)
Lev_{it}*DR_{it}*R_{it}	-0.0024	(-0.03)	-0.0292	(-0.33)	-0.166*	(-1.73)	-0.236**	(-2.31)	-0.259**	(-2.43)
BTM_{it}	0.0435**	(2.03)	0.0477**	(2.08)	0.0503**	(2.04)	0.0584**	(2.21)	0.0140	(0.53)
BTM_{it}*DR_{it}	-0.0125	(-0.46)	-0.0058	(-0.20)	-0.0053	(-0.17)	-0.0067	(-0.20)	0.0131	(0.38)
BTM_{it}*R_{it}	-0.0041	(-0.16)	0.0027	(0.10)	0.0079	(0.27)	0.0070	(0.23)	0.0387	(1.25)
BTM_{it}*R_{it}*DR_{it}	0.160**	(2.28)	0.161**	(2.17)	0.158**	(1.97)	0.188**	(2.21)	0.178**	(2.06)
DW	-0.0077	(-0.87)	-0.0033	(-0.35)	-0.0007	(-0.07)	0.0008	(0.07)	0.0012	(0.11)
DW*DR_{it}	-0.0004	(-0.03)	-0.0072	(-0.48)	-0.0117	(-0.73)	-0.0065	(-0.38)	-0.0240	(-1.37)
DW*R_{it}	-0.0139	(-0.98)	-0.0292*	(-1.89)	-0.0247	(-1.49)	-0.0260	(-1.49)	-0.0091	(-0.50)
DW*DR_{it}*R_{it}	0.108***	(2.78)	0.128***	(3.08)	0.116***	(2.60)	0.141***	(2.97)	-0.0065	(-0.13)
Cons	0.0222	(0.53)	0.0370	(0.82)	0.0635	(1.33)	0.0516	(1.00)	0.154***	(3.06)
Obs.	6897		6195		5491		4998		4208	

4.5.2. Robustness Checks

4.5.2.1. Varying Size; Leverage; and BTM by Year

In this section we report a modification of equation (4) whereby we vary the company's size, leverage, and BTM by year according to the following equation:

$$\begin{aligned} E_{it}/P_{it-1} = {} & \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \sum_{t=-5,5} \gamma_{0t} DP_t + \sum_{t=-5,5} \gamma_{1t} DP_t * R_{it} \\ & + \sum_{t=-5,5} \gamma_{2t} DP_t * DR_{it} + \sum_{t=-5,5} \gamma_{3t} DP_t * R_{it} * DR_{it} + \delta_1 Size_{it} + \delta_2 Size_{it} * R_{it} \\ & + \delta_3 Size_{it} * DR_{it} + \delta_4 Size_{it} * DR_{it} * R_{it} + \delta_5 Size_{it} * DP_{it} + \delta_6 Lev_{it} \\ & + \delta_7 Lev_{it} * R_{it} + \delta_8 Lev_{it} * DR_{it} + \delta_9 Lev_{it} * DR_{it} * R_{it} + \delta_{10} Lev_{it} * DP_{it} \\ & + \delta_{11} BTM_{it} + \delta_{12} BTM_{it} * R_{it} + \delta_{13} BTM_{it} * DR_{it} + \delta_{14} BTM_{it} * DR_{it} * R_{it} \\ & + \delta_{15} BTM_{it} * DP_{it} + \varepsilon_{it} \end{aligned} \quad (6)$$

We report the results in Table 4.5. Our results are consistent with the ones reported in Table 4.3.

4.5.2.2. Alternative Specification of Basu's Model

The literature has advanced alternative specifications of the Basu's (1997) model. In this section we examine the specification proposed by Ball and Shivakumar (2005).[26] The authors propose the following specification:

$$\Delta NI_{it} = \alpha_0 + \beta_1 \Delta NI_{it-1} + \beta_2 D\Delta NI_{it-1} + \beta_3 \Delta NI_{it-1} * D\Delta NI_{it-1} + \varepsilon_{it} \quad (7)$$

where $\Delta \boldsymbol{NI}_{it}$ is the change in income from year t-1 to t, scaled by beginning book value of total assets; and $\Delta \boldsymbol{NI}_{it\text{-}1}$ is the change in income from year t-2 to t-1, scaled by beginning book value of total assets. $\boldsymbol{D}\Delta \boldsymbol{NI}_{it\text{-}1}$ is a dummy variable taking the value 1 if the prior-year change $\Delta \boldsymbol{NI}_{it\text{-}1}$ is negative. Timely recognition of economic losses implies that losses are recognized as transitory income decreases that tend to reverse. Therefore, we expect a negative sign of the coefficient $\boldsymbol{\beta}_3$.

[26] Khan and Watts (2009) propose a firm-specific measure based on Basu's (1997). However, the research design of this study does not require a firm-specific measure of timeliness, which is advantageous since we overcome the estimation errors associated with measuring a firm-level timeliness proxy.

Table 4.5: Varying Size; Leverage; and BTM by Year

Table 4.5 reports the incremental timeliness for each year before and after the first public debt offering. The base year is year 0. The Table reports the fixed effects estimation results of the following equation:

$$E_{it}/P_{it-1} = \alpha_0 + \beta_1 R_{it} + \beta_2 DR_{it} + \beta_3 R_{it} * DR_{it} + \sum_{t=-5,5} \gamma_{0t} DP_t + \sum_{t=-5,5} \gamma_{1t} DP_t * R_{it} + \sum_{t=-5,5} \gamma_{2t} DP_t * DR_{it}$$
$$+ \sum_{t=-5,5} \gamma_{3t} DP_t * R_{it} * DR_{it} + \delta_1 Size_{it} + \delta_2 Size_{it} * R_{it} + \delta_3 Size_{it} * DR_{it} + \delta_4 Size_{it} * DR_{it} * R_{it}$$
$$+ \delta_5 Size_{it} * DP_{it} + \delta_6 Lev_{it} + \delta_7 Lev_{it} * R_{it} + \delta_8 Lev_{it} * DR_{it} + \delta_9 Lev_{it} * DR_{it} * R_{it}$$
$$+ \delta_{10} Lev_{it} * DP_{it} + \delta_{11} BTM_{it} + \delta_{12} BTM_{it} * R_{it} + \delta_{13} BTM_{it} * DR_{it} + \delta_{14} BTM_{it} * DR_{it} * R_{it}$$
$$+ \delta_{15} BTM_{it} * DP_{it} + \varepsilon_{it} \quad (6)$$

The dependent variable E_{it}/P_{it} is the earnings per share before extraordinary items divided by the price per share at the beginning of fiscal year *t*. R_{it} is the 12-month discrete stock return ending 3 months after the end of fiscal year *t*. DR_{it} is a dummy variable equal to one if Return is negative and zero otherwise. $R_{it}*DR_{it}$ is an interaction term between R_{it} and DR_{it}. DP_t are period dummies. $Size_{it}$ is the log of total assets. Lev_{it} is the long term debt divided by total assets. E_{it}/P_{it} and R_{it} are trimmed at 1%. *, **, *** denote significance at the 10%, 5%, and 1%, respectively.

DR_{it}	0.0539	(1.17)
R_{it}	-0.0093	(-0.20)
$DR_{it}*R_{it}$	0.349***	(2.74)
$Size_{it}$	0.0134*	(1.74)
$Size_{it}*DR_{it}$	-0.0025	(-0.61)
$Size_{it}*R_{it}$	0.0077	(1.64)
$Size_{it}*R_{it}*DR_{it}$	-0.0558***	(-4.86)
Lev_{it}	-0.0833*	(-1.78)
$Lev_{it}*DR_{it}$	-0.0360	(-1.00)
$Lev_{it}*R_{it}$	-0.0044	(-0.13)
$Lev_{it}*DR_{it}*R_{it}$	-0.0168	(-0.20)
BTM_{it}	0.0484	(1.38)
$BTM_{it}*DR_{it}$	-0.0129	(-0.47)
$BTM_{it}*R_{it}$	0.0136	(0.53)
$BTM_{it}*R_{it}*DR_{it}$	0.1040	(1.48)
DP_{-5}	0.0194	(0.31)
DP_{-4}	-0.0295	(-0.47)
DP_{-3}	-0.0290	(-0.47)
DP_{-2}	0.0186	(0.31)
DP_{-1}	0.0161	(0.26)
DP_{+1}	0.0334	(0.53)
DP_{+2}	0.0303	(0.47)
DP_{+3}	-0.136**	(-2.03)
DP_{+4}	-0.0675	(-0.96)
DP_{+5}	-0.0878	(-1.22)
$Size*DP_{-5}$	0.0008	(0.14)
$Size*DP_{-4}$	0.0051	(0.84)
$Size*DP_{-3}$	0.0022	(0.37)
$Size*DP_{-2}$	-0.0009	(-0.15)
$Size*DP_{-1}$	-0.0027	(-0.47)

Size*DP$_{+1}$	-0.0001	(-0.01)
Size*DP$_{+2}$	0.0089	(1.49)
Size*DP$_{+3}$	0.0226***	(3.62)
Size*DP$_{+4}$	0.0170***	(2.63)
Size*DP$_{+5}$	0.0189***	(2.85)
Lev*DP$_{-5}$	0.0170	(0.30)
Lev*DP$_{-4}$	0.111**	(1.97)
Lev*DP$_{-3}$	-0.0201	(-0.37)
Lev*DP$_{-2}$	-0.0114	(-0.21)
Lev*DP$_{-1}$	0.0444	(0.84)
Lev*DP$_{+1}$	-0.0433	(-0.82)
Lev*DP$_{+2}$	-0.0935*	(-1.80)
Lev*DP$_{+3}$	-0.0115	(-0.22)
Lev*DP$_{+4}$	0.0003	(0.01)
Lev*DP$_{+5}$	-0.0915	(-1.53)
BTM*DP$_{-5}$	0.0072	(0.18)
BTM*DP$_{-4}$	-0.0148	(-0.37)
BTM*DP$_{-3}$	0.0291	(0.75)
BTM*DP$_{-2}$	0.0159	(0.40)
BTM*DP$_{-1}$	0.0146	(0.38)
BTM*DP$_{+1}$	-0.0181	(-0.45)
BTM*DP$_{+2}$	-0.0559	(-1.39)
BTM*DP$_{+3}$	-0.0656	(-1.57)
BTM*DP$_{+4}$	-0.0827*	(-1.94)
BTM*DP$_{+5}$	-0.0589	(-1.29)
DP$_{-5}$*DR$_{it}$	-0.0143	(-0.47)
DP$_{-4}$*DR$_{it}$	0.0149	(0.48)
DP$_{-3}$*DR$_{it}$	0.0349	(1.18)
DP$_{-2}$*DR$_{it}$	-0.0010	(-0.03)
DP$_{-1}$*DR$_{it}$	-0.0211	(-0.72)
DP$_{+1}$*DR$_{it}$	0.0076	(0.26)
DP$_{+2}$*DR$_{it}$	0.0157	(0.54)
DP$_{+3}$*DR$_{it}$	0.0539*	(1.78)
DP$_{+4}$*DR$_{it}$	-0.0127	(-0.42)
DP$_{+5}$*DR$_{it}$	-0.0036	(-0.11)
DP$_{-5}$*R$_{it}$	-0.0378	(-1.26)
DP$_{-4}$*R$_{it}$	-0.0311	(-1.08)
DP$_{-3}$*R$_{it}$	0.0228	(0.76)
DP$_{-2}$*R$_{it}$	-0.0277	(-1.02)
DP$_{-1}$*R$_{it}$	-0.0072	(-0.26)
DP$_{+1}$*R$_{it}$	-0.0572*	(-1.93)
DP$_{+2}$*R$_{it}$	-0.123***	(-3.76)
DP$_{+3}$*R$_{it}$	-0.0297	(-0.90)
DP$_{+4}$*R$_{it}$	-0.0843***	(-2.77)
DP$_{+5}$*R$_{it}$	-0.0451	(-1.16)
DP$_{-5}$*R$_{it}$	0.0661	(0.77)
DP$_{-4}$*DR$_{it}$*R$_{it}$	0.043*	(1.76)

$DP_{-3}*DR_{it}*R_{it}$	0.0721	(0.88)
$DP_{-2}*DR_{it}*R_{it}$	0.0466	(0.55)
$DP_{-1}*DR_{it}*R_{it}$	-0.0266	(-0.32)
$DP_{+1}*DR_{it}*R_{it}$	0.199**	(2.32)
$DP_{+2}*DR_{it}*R_{it}$	0.438***	(5.30)
$DP_{+3}*DR_{it}*R_{it}$	0.387***	(4.67)
$DP_{+4}*DR_{it}*R_{it}$	0.300***	(3.56)
$DP_{+5}*DR_{it}*R_{it}$	0.184*	(1.93)
Cons	-0.0718	(-1.08)
Obs.	6897	

We modify equation (6) to incorporate ***DW***, which is a dummy variable that takes the value 1 for the years after the initial public debt offer and 0 for the years before the initial public debt offer. According to H1 and H2, we expect λ_3 to be significantly negative in all windows. We also modify equation (6) to incorporate the confounding effects of size, leverage and BTM. The equation is specified as follows:

$$\begin{aligned}\Delta NI_{it} = {} & \alpha_0 + \beta_1 \Delta NI_{it-1} + \beta_2 D\Delta NI_{it-1} + \beta_3 \Delta NI_{it-1} * D\Delta NI_{it-1} + \lambda_0 DW \\ & + \lambda_1 DW * D\Delta NI_{it-1} + \lambda_2 DW * D\Delta NI_{it-1} + \lambda_3 DW * \Delta NI_{it-1} * D\Delta NI_{it-1} \\ & + \delta_1 Size_{it} + \delta_2 Size_{it} * \Delta NI_{it-1} + \delta_3 Size_{it} * D\Delta NI_{it-1} + \delta_4 Size_{it} * D\Delta NI_{it-1} * \Delta NI_{it-1} \\ & + \delta_5 Lev_{it} + \delta_6 Lev_{it} * \Delta NI_{it-1} + \delta_7 Lev_{it} * D\Delta NI_{it-1} \\ & + \delta_8 Lev_{it} * D\Delta NI_{it-1} * \Delta NI_{it-1} + \delta_9 BTM_{it} + \delta_{10} BTM_{it} * \Delta NI_{it-1} \\ & + \delta_{11} BTM_{it} * D\Delta NI_{it-1} + \delta_{12} BTM_{it} * D\Delta NI_{it-1} * \Delta NI_{it-1} \varepsilon_{it} \end{aligned} \quad (8)$$

We report the estimation results in Table 4.6. The reported results are consistent with our previous findings as λ_3 is significant in all specified windows.

Table 4.6: Alternative Specification of Basu's Model

Table 4.6 shows the estimation results of regression (7) using an alternative window for the years before the first public debt offering. This window includes the years -5 to -1. The regression specification is given by equation (7):

$$\Delta NI_{it} = \alpha_0 + \beta_1 \Delta NI_{it-1} + \beta_2 D\Delta NI_{it-1} + \beta_3 \Delta NI_{it-1} * D\Delta NI_{it-1} + \lambda_0 DW + \lambda_1 DW * D\Delta NI_{it-1} + \lambda_2 DW * D\Delta NI_{it-1} + \lambda_3 DW * \Delta NI_{it-1} * D\Delta NI_{it-1}$$
$$+ \delta_1 Size_{it} + \delta_2 Size_{it} * \Delta NI_{it-1} + \delta_3 Size_{it} * D\Delta NI_{it-1} + \delta_4 Size_{it} * D\Delta NI_{it-1} * \Delta NI_{it-1} + \delta_5 Lev_{it} + \delta_6 Lev_{it} * \Delta NI_{it-1} + \delta_7 Lev_{it} * D\Delta NI_{it-1}$$
$$+ \delta_8 Lev_{it} * D\Delta NI_{it-1} * \Delta NI_{it-1} + \delta_9 BTM_{it} + \delta_{10} BTM_{it} * \Delta NI_{it-1} + \delta_{11} BTM_{it} * D\Delta NI_{it-1} + \delta_{12} BTM_{it} * D\Delta NI_{it-1} * \Delta NI_{it-1} \varepsilon_{it} \quad (8)$$

	Window: (0,5)		Window: (1,5)		Window: (2,5)		Window: (3,5)		Window: (3,5)	
$D\Delta NI_{it-1}$	-0.0134	(-1.12)	-0.0149	(-1.18)	-0.0128	(-0.95)	-0.0151	(-1.06)	-0.0180	(-1.17)
ΔNI_{it-1}	0.187*	(1.75)	0.148	(1.32)	0.1220	(1.06)	0.0883	(0.73)	-0.1450	(-1.09)
$D\Delta NI_{it-1}*\Delta NI_{it-1}$	-0.827***	(-4.51)	-0.777***	(-4.05)	-0.613***	(-3.05)	-0.586***	(-2.81)	-0.525**	(-2.24)
$Size_{it}$	-0.0026	(-1.47)	-0.0029	(-1.57)	-0.0027	(-1.37)	-0.0034	(-1.60)	-0.0007	(-0.34)
$Size_{it}*D\Delta NI_{it-1}$	0.0020*	(1.75)	0.00219*	(1.80)	0.0023*	(1.80)	0.0025*	(1.79)	0.0026*	(1.73)
$Size_{it}*\Delta NI_{it-1}$	-0.0208*	(-1.75)	-0.0166	(-1.33)	-0.0101	(-0.78)	-0.0069	(-0.51)	0.0096	(0.67)
$Size_{it}*\Delta NI_{it-1}*D\Delta NI_{it-1}$	0.0254	(1.26)	0.0189	(0.90)	0.0058	(0.26)	0.0062	(0.27)	0.0019	(0.07)
Lev_{it}	-0.0642***	(-7.36)	-0.0554***	(-5.92)	-0.0541***	(-5.45)	-0.0604***	(-5.68)	-0.0588***	(-4.79)
$Lev_{it}*D\Delta NI_{it-1}$	0.0108	(1.07)	0.0001	(0.01)	0.0025	(0.22)	-0.0047	(-0.39)	0.0130	(0.94)
$Lev_{it}*\Delta NI_{it-1}$	-0.0904	(-0.93)	-0.147	(-1.45)	-0.0698	(-0.67)	-0.0414	(-0.37)	0.0330	(0.25)
$Lev_{it}*D\Delta NI_{it-1}*\Delta NI_{it-1}$	0.387***	(2.79)	0.392***	(2.72)	0.189	(1.21)	0.0703	(0.42)	0.2540	(1.36)
BTM_{it}	-0.0680***	(-11.46)	-0.0673***	(-10.73)	-0.0678***	(-10.18)	-0.0702***	(-9.84)	-0.0752***	(-9.70)
$BTM_{it}*D\Delta NI_{it-1}$	-0.0113	(-1.38)	-0.0075	(-0.88)	-0.0114	(-1.24)	-0.0067	(-0.70)	-0.0122	(-1.16)
$BTM_{it}*\Delta NI_{it-1}$	0.0789	(1.07)	0.117	(1.49)	0.0579	(0.69)	0.0656	(0.73)	0.190*	(1.84)
$BTM_{it}*\Delta NI_{it-1}*D\Delta NI_{it-1}$	-0.338***	(-2.74)	-0.360***	(-2.77)	-0.378***	(-2.73)	-0.374**	(-2.57)	-0.517***	(-3.12)
DW	-0.0001	(-0.05)	0.0004	(0.17)	0.0001	(0.04)	0.0006	(0.21)	0.0013	(0.44)
$DW*D\Delta NI_{it-1}$	-0.0058	(-1.46)	-0.0065	(-1.57)	-0.0071	(-1.63)	-0.0074	(-1.59)	-0.0115**	(-2.22)
$DW*\Delta NI_{it-1}$	-0.0110	(-0.27)	-0.0137	(-0.31)	-0.0188	(-0.41)	0.0014	(0.03)	-0.100*	(-1.89)
$DW*D\Delta NI_{it-1}*\Delta NI_{it-1}$	-0.123*	(-1.75)	-0.138*	(-1.87)	-0.163**	(-2.08)	-0.203**	(-2.47)	-0.163*	(-1.78)
Cons	0.0880***	(6.88)	0.0873***	(6.51)	0.0852***	(6.04)	0.0936***	(6.11)	0.0796***	(4.99)
Obs.	6871		6175		5475		4982		4194	

4.5.2.3. Definition of Alternative Measures of Conservatism

So far we have focused only on one attribute of conditional conservatism, namely timely loss recognition proposed by Basu (1997). In this section, we use two measures of conservatism proposed by Givoly and Hyan (2000). The first measure is the accumulated non-operating accruals and the second is the skewness of earnings relative to the skewness of cash flows from operations. However, it is important to note that these measures capture attributes of conditional and unconditional conservatism. Ryan (2006) argues that the accumulation of negative non-operating accruals is likely to be driven by unconditional conservatism, i.e. the systematic understatement of book values of net assets. Conditional conservatism will lead to transitory negative changes in non-operating accruals, while unconditional conservatism will likely lead to accumulating negative accruals. Therefore, negative accruals may not well identify conditional conservatism. In addition, Ryan (2006) note that the recognition of significant bad news immediately will result in left skewness of the earnings distribution. However, unconditional write-downs of assets in large and significant chunks will have similar effect on the earnings distribution.

Following Givoly and Hayn (2000), we define non-operating accruals as total accruals minus operating accruals (working capital accruals). Specifically, total accruals are defined as net income (Compustat#172) + depreciation (Compustat#14) - cash flow from operations (Compustat#308). Operating accruals are defined as Δaccounts receivable (Compustat#2) - Δinventories (Compustat#3) + Δaccounts payable (Compustat #70) + Δtaxes payable (Compustat #71). If Compustat item #308 is missing we replace cash flow from operations by the following expression: funds from operations (Compustat#110) + Δcurrent assets (Compustat#4) + Δdebt (Compustat#34) - Δcurrent liabilities (Compustat#5) - Δcash (Compustat#1). Following Beatty, Weber, and Yu (2008), we accumulate accruals and total assets for a minimum of two years.

We construct skewness of earnings relative to the skewness of cash flows from operations as follows. First, we calculate earnings deflated by total assets (Compustat #18/Compustat#6) and cash flows deflated by total assets (Compustat#308/Compustat #6). If Compustat item #308 is missing we replace cash flow from operations by the

following expression: funds from operations (Compustat#110) + Δcurrent assets (Compustat#4) + Δdebt (Compustat#34) - Δcurrent liabilities (Compustat#5) - Δcash (Compustat#1). For each firm, we calculate the skewness of earnings and the skewness of cash flows from operations using 11 consecutive observations. We use quarterly observations in order to overcome the estimation errors resulting from estimating the skewness measure using a small number of yearly observations. Finally, we take the difference between the firm's skewness of earnings and skewness of cash flows from operations.

We test H1 and H2 using the accumulated non-operating accruals and the skewness of earnings relative to the skewness of cash flows from operations. We examine the difference in means of non-operating accruals and relative earnings skewness measured using observations from the windows before and after the initial public debt offering. The window before the initial public debt offering includes the years -5 up to -2. The window after the initial public debt offering originally includes the years 0 up to 5. However, we adjust the window after the initial public debt offering to include the years 1-5; 2-5; 3-5 respectively. We expect to find significantly more negative non-operating accruals and more negative earnings skewness after the initial public debt offering. We use each firm as its own control, and thus, we require that each firm has observations before and after the initial public debt offering. Table 4.6 reports the results.

The difference in means for non-operating accruals measure is statistically insignificant between the before and after the initial public debt offering windows. Therefore, there is no evidence that our sample firms accumulate more negative non-operating accruals after the initial public debt offering. The difference in means for relative skewness of earnings is significantly more negative at the 5% level after the initial public debt offering using observations from the window (0,5).

Table 4.7: Non-Operating Accruals and Relative Skewness; and IPDO

Table 4.7 tests for the equality of means for non-operating accruals and relative skewness before and after IPDO. To calculate these proxies before the IPDO, we use observations from the period (-5,-2). To calculate these proxies after the IPDO, we use observations from the period (0,5), then we vary this window as specified in each panel. The values of these proxies before and after the IPDO are tested for equality of means. Non-operating accrual and relative skewness measures are calculated at the firm level. Non-operating accrual is accumulated over 2 years at least and relative Skewness is calculated using 11 observations at least. *, **, *** denote significance at the 10%, 5%, and 1%, respectively.

	Non-Operating Accruals	Relative Skewness
	Window: (0,5)	
Pre	-0.024	-0.895
Post	-0.028	-1.198
Diff	**0.004**	**0.303****
t-test	1.30	2.06
obs.	562	252
	Window: (1,5)	
Pre	-0.024	-0.913
Post	-0.022	-1.072
Diff	**-0.002**	**0.159**
t-test	-0.89	1.00
obs.	503	207

These findings show that the change in the non-operating accruals and the relative earnings skewness before and after the initial public debt offering is insignificant. As we discussed previously, non-operating accruals and relative earnings skewness capture attributes of conditional and unconditional conservatism. In our hypotheses, however, we focus on changes in the firm's conditional conservatism policy. Therefore, we argue that these results may indicate that bondholders do not induce a demand for unconditional conservatism hence our findings of insignificant change in non-operating accruals and relative earnings skewness.

4.6. Conclusion

The purpose of this study is to investigate the effect of debt contracting choices on the evolution of the firm's financial reporting choices. Specifically, we study the change in the firm's level of asymmetric timeliness around the issuance of its initial public debt offering. Asymmetric timeliness deals with the asymmetry of incorporating economic gains and losses into reported earnings, with lower verification requirements and more prompt recognition of economic losses. We focus on this accounting attribute because

lenders are more sensitive to the firm's losses than they are to its profits. Therefore, we expect lenders to exhibit an asymmetric demand for information, with a higher demand for information about economic losses.

It is likely, due to efficiency of information production, that firms communicate with private lenders on an inside basis while they communicate with external, dispersed lenders on outside basis. In this article, therefore, we propose that public debtholders are more concerned than private lenders with the overall quality of financial reporting especially conditional conservatism. Specifically, we propose that bondholders induce a demand for timelier recognition of events that could lead to a substantial decrease in the value of debt securities or could lead to financial distress. Therefore, we expect firms to follow a timelier policy in recognizing their economic losses after issuing public debt for the first time and to commit to this policy in the long run to promote investor confidence.

In this study we examine the change in the degree of timeliness in two states of the firm. The first state is before the firm issues its initial public debt and the second state is after that issuance. Using Basu's (1997) measure, we find that US firms that issued public debt for the first time during the period 1972-2008 significantly increased their degree of asymmetric timeliness. The increase in asymmetric timeliness is statistically and economically significant. Our sample firms increase their degree of timeliness by almost 70% after their initial public debt offer compared to the degree of timeliness before their initial public debt offer. These results suggests that firma contracting with external debtholders for the first time modify their accounting to address greater demand for higher accounting quality from public debtholders.

References

Ahmed, A., Billings, B., Morton, R., & Stanford-Harris, M. (2002). The role of accounting conservatism in mitigating bondholder-shareholder conflicts over dividend policy and in reducing debt costs. *The Accounting Review, 77*, 867-890.

Armstrong, C., Guay, W., & Weber, J. (2010). Role of information and financial reporting in corporate governance and debt. *Journal of Accounting and Economics, 50*, 179-234.

Ball, R., Kothari, S., & Robin, A. (2000). The effect of international institutional factors on properties of accounting earnings. *Journal of Accounting and Economics, 29*, 1-51.

Ball, R., Robin, A., & Sadka, G. (2008). Is financial reporting shaped by equity markets or by debt markets? An international study of timeliness and conservatism. *Review of Accounting Studies, 13*, 168–205.

Ball, R., & Shivakumar, L. (2005). Earnings quality in UK private firms: Comparative loss recognition timeliness. *Journal of Accounting and Economics, 39*, 83-128.

Ball, R., & Shivakumar, L. (2008). Earnings quality at initial public offerings. *Journal of Accounting and Economics, 45*, 324-349.

Blackwell, D., & Kidwell, D. (1988). An investigation of cost differences between public sales and private placements of debt. *Journal of Financial Economics, 22*, 253-278.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics, 24*, 3–37.

Beatty, A., Weber, J., & Yu, J. (2008). Conservatism and debt. *Journal of Accounting and Economics, 45*, 154–174.

Beneish, M., & Press, E. (1993). Costs of technical violation of accounting-based debt covenants. *The Accounting Review, 68*, 233–257.

Berlin, M., & Mester, L. (1992). Debt covenants and renegotiation. *Journal of Financial Intermediation, 2*, 95–133.

Bharath, S., Sunder, J., & Sunder, S. (2008). Accounting quality and debt contracting. *The Accounting Review, 83*, 1–28.

Bhattacharya, S., & Chisea, G. (1995). Proprietary information, financial intermediation, and research incentives. *Journal of Financial Intermediation, 4*, 328–357.

Boot, A. (2000). Relationship banking: What do we know? *Journal of Financial Intermediation, 9*, 7–25.

Cantillo, M., & Wright, J. (2000). How do firms choose their lenders? An empirical investigation. *Review of Financial Studies, 13*, 155-189.

Dichev, I., & Skinner, D. (2002). Large sample evidence on the debt covenant hypothesis. *Journal of Accounting Research, 40*, 1091-1123.

Dietrich, D., Muller, K., & Riedl, E. (2007). Asymmetric timeliness tests of accounting conservatism. *Review of Accounting Studies*, 12, 95-124.

Fama, E. (1985). What's different about banks? *Journal of Monetary Economics, 15*, 29-39.

Fons, J. & Kimball, A. (1991). Corporate Bond Defaults and Default Rates 1970–1990. *The Journal of Fixed Income, 1*, 36-47.

Givoly, D., & Hayn, C. (2000). The changing time-series properties of earnings, cash flows and accruals: Has financial reporting become more conservative? *Journal of Accounting and Economics, 29*, 287-320.

Givoly, D., Hayn, C. K., & Natarajan, A. (2007). Measuring Reporting Conservatism. *The Accounting Review, 82*, 65–106.

Guay, W. (2008). Conservative financial reporting, debt covenants, and the agency costs of debt. *Journal of Accounting and Economics, 45*, 175-180.

Hale, G., & Santos, J. (2008). The decision to access the public bond market: the role of reputation, funding choices and bank relationships. *Journal of Banking and Finance, 32*, 1928–1940.

Holthausen, R., & Watts, R. (2001). The relevance of the value-relevance literature for financial accounting standard setting. *Journal of Accounting and Economics, 31*, 3–75.

Jensen, M., & Meckling, W. (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure. *Journal of Financial Economics, 3*, 306-360.

Johnson, S. (1997). An empirical analysis of the determinants of corporate debt ownership structure. *The Journal of Financial and Quantitative Analysis, 32*, 47-69.

Khan, M., & Watts, R. (2009). Estimation and empirical properties of a firm-year measure of accounting conservatism. *Journal of Accounting and Economics, 48*, 132-150.

LaFond, R., & Watts, R. (2008). The information role of conservatism. *The Accounting Review. 83*, 447-478.

Leftwich, R. (1983). Accounting information in private markets: Evidence from private lending agreements. *The Accounting Review, 58*, 23-42.

Monahan, S. (2008). Discussion of "Is financial reporting shaped by equity markets or debt markets? An international study of timeliness and conservatism". *Review of Accounting Studies, 13*, 206–215.

Myers, S. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5*, 147-175.

Nikolaev, N. (2010). Debt covenants and accounting conservatism. *Journal of Accounting Research, 48*, 51-89.

Patatoukas P. & J. Thomas (2010). Evidence of conditional conservatism: Fact or Artifact. *Working Paper*, Yale University.

Pope, P., & Walker, M. (1999). International differences in the timeliness, conservatism, and classification of earnings. *Journal of Accounting Research, 37*, 53-87.

Qi, C., Subramanyam, K., & Zhang, J. (2010). Accounting quality and liquidity and the cost of debt. *Working Paper*.

Rajan, R., & Winton, A. (1995). Covenants and collateral as incentives to monitor. *The Journal of Finance, 4*, 1113–1146.

Ryan, S. (2006). Identifying conditional conservatism. *European Accounting Review, 15*, 511–525.

Smith, C. (1993). A perspective on accounting based debt covenant violations. *The Accounting Review, 68*, 289-303.

Smith, C. (1986). Investment banking and the capital acquisition process. *Journal of Financial Economics, 15*, 3-29.

Smith, C., & Warner, J. (1979). On financial contracts and optimal capital structure: An analysis of bond covenants. *Journal of Financial Economics, 7*, 117-161.

Watts, R. (2003a). Conservatism in accounting. Part I: explanations and implications. *Accounting Horizons, 17*, 207–221.
Watts, R. (2003b). Conservatism in accounting. Part II: evidence and research opportunities. *Accounting Horizons, 17*, 287–301.
Watts, R., & Zimmerman, J. (1986). *Positive Accounting Theory*: Prentice-Hall, Englewood Cliffs.
Wittenberg-Moerman, R. (2008). The role of information asymmetry and financial reporting quality in debt trading: Evidence from the secondary loan market. *Journal of Accounting and Economics, 46*, 240-260.
Wittenberg-Moerman, R. (2009). The impact of information asymmetry on debt pricing and maturity. *Working Paper (SSRN)*.
Zhang, J. (2008). The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics, 45*, 27–54.

Chapter 5

Monitoring the Firm's Private Loans and the Yield Spread of the Initial Public Debt Offering[27]

Abstract

This study investigates the impact of information associated with previous private borrowings on the yield spread of a firm's initial public debt offering (IPDO). Specifically, this study focuses on information produced through monitoring by credit rating agencies, as measured by the difference between the credit ratings of the company's IPDO and its private debt prior to the issuance of the initial public debt. It also focuses on information produced through monitoring by banks measured by several proxies of the strength of banking relationships. The findings of this study indicate that IPDOs with upgraded and unchanged credit ratings enjoy significantly lower yield spreads. This finding suggests that changes in credit ratings could convey new information to investors which signals the true quality of the firm. In addition, the findings indicate that strong banking relationships significantly reduce yield spreads for initial public debt offerings. This result suggests that a strong banking relationship conveys a positive signal to bondholders regarding the bank's assessment of the quality of the firm.

JEL classification: D82; G12; G21; G24; N20

Keywords: Cross Monitoring; Yield Spread; Information Asymmetry; Banking Relationships; Loan Rating; Rule 144A; Syndicated Loans

[27] We thank participants at the 11th Trans-Atlantic Doctoral Conference for providing useful comments.

5.1. Introduction

Does a firm's private debt record convey valuable information to prospective bondholders when the firm accesses the public debt market for the first time? In this study we empirically examine the impact of information produced by monitoring a firm's private debt before its entry to the public debt markets on the yield spread of the initial public debt offering. Specifically, we investigate the impact of the monitoring provided by rating agencies and by banks. We focus on the firm's entry to the public debt market because initial public debt offers are subject to greater information asymmetry in comparison to seasoned bond offers (Cantillo & Wright, 2000; Diamond, 1989, 1991). Therefore, initial public bond issues present an interesting context for investigating the way on how the information asymmetries facing new external investors resolve.

Our investigation builds on the cross monitoring hypothesis suggested by Booth (1992). According to this hypothesis, cross monitoring between the firm's investors can reduce the overall monitoring costs for all investors. This is because information produced by one claimholder for the purposes of monitoring the firm could benefit other claimholders by reducing their own monitoring costs. In this study we extend Booth's (1992) hypothesis by suggesting that monitoring by one claimholder could convey the true quality of the firm and consequently reduce the adverse selection problem facing other claimholders. Specifically, we propose that monitoring of the firm's private debt, namely monitoring by credit rating agencies and banks, conveys valuable information to prospective bondholders. We hypothesize that prior private loan ratings are useful in evaluating the extent to which the firm is committed to maintain a good credit quality. Therefore credit rating upgrades and unchanged credit ratings are negatively related to the yield spread of the initial public debt offer. In addition, we hypothesize that a strong banking relationship signals the firm's business and credit quality and therefore is negatively related to the yield spread of the initial public debt offer.

In this study, we investigate the impact of credit ratings of private loans raised before the firm's first access to the public debt market, henceforth "prior private loan ratings",

on the spreads of initial public debt offerings. The practice of obtaining credit ratings for private loans, in particular for private placements and syndicated loans agreements, started in the 1990s (Fenn, 2000; Sufi, 2009). Private placements are credit agreements exempted from the registration requirements of the US Securities and Exchange Commission (SEC). Therefore, investors in these securities must qualify according to specific rules of the SEC. In addition, investors in private placements are required to hold these securities for a minimum period of two years. In 1990, Rule 144A allowed private placements issued under this rule to be traded without a minimum period restriction. Syndicated loans, on the other hand, are credit agreements under which more than one bank agrees to make a joint loan to a borrower. The focus of this study is credit ratings assigned to private placements issued under Rule 144A and syndicated loans.

Almost all private placements issued under Rule 144A obtain a loan rating (Fenn, 2000; Huang & Ramirez, 2010). Also, an increasing number of syndicated loans are obtaining a loan rating. For example, Sufi (2009) reports that almost one third of the public equity firms in 2004 had obtained a syndicated loan rating. However, there is little research on the benefits of credit ratings of private debt. One exception is Sufi (2009) who finds that companies with syndicated loan ratings have significantly higher debt ratios. Sufi argues that syndicated loan ratings reduce information asymmetries, and therefore companies with syndicated loan ratings gain increased access to less-sophisticated and uninformed investors in the syndicated loan market. In this study we investigate the impact of loan ratings to claimholders other than investors in the private placements and syndicated loans markets, specifically the impact of prior ratings of the issuer's private debt on the investors in initial public debt offerings (IPDOs).

Another aspect of this study is the investigation of the effect of the strength of banking relationships on the yield spread of the initial public debt offer. We use several measures to approximate the strength of banking relationships. Our main objective is to capture the relative importance of borrowing from the firm's relationship bank compared to its non-relationship banks. Hence, we characterize a stronger banking relationship with greater dependence on the relationship bank relative to the non-relationship banks.

There is a comprehensive body of literature examining the effect of banking relationships on the cost of bank loans (for surveys of the literature see Boot, 2000; and Elyasiani & Goldberg, 2004). Also, a number of studies examine the effect of banking relationships on equity returns (James & Wier, 1990; Slovin, Sushka, & Hudson, 1990; Slovin & Young, 1990). However, there is little research on the value of banking relationships in the public debt markets. One exception is Datta, Iskandar-Datta, & Patel (1999) who investigate the effect of the presence of a bank loan at the time of issuing public debt on bond yield spreads. We complement Datta's et al. (1999) study by examining the effect of the strength of banking relationships rather than the presence of a banking relationship. This is because the value of banking relationships to other claimholders, including bondholders, rests on the relationship bank's ability to assess the firm's long-term viability. This in turn is determined by the capacity of the relationship bank to acquire private, firm-specific information over the course of multiple interactions. Therefore, we expect that only multiple interactions over long time horizon will signal information to other investors in other markets. In addition, Datta's et al. (1999) investigation is consistent with reducing more hazard problems since it investigates the impact of information associated with contemporaneous bank monitoring. Our study, on the other hand, is consistent with reducing adverse selection facing prospective bondholders since we conjecture that prior bank monitoring signals the quality of the firm.

To perform our analysis we focus on the difference between the credit rating assigned to the firm's private debt and the credit rating assigned to its IPDO. Our findings indicate that firms enjoy significantly lower yield spreads when their IPDOs are assigned credit ratings better than or equal to the credit rating assigned to their prior private loans. In addition, we find that strong banking relationships significantly reduce yield spreads. This result is robust to using different proxies for banking relationship strength. Banking relationships could reduce prospective bondholders' screening and investigation costs since the relationship bank's assessment of the quality of the firm takes into consideration information that is not publicly available. Therefore, the strength of banking relationships may signal the firm's business and credit quality. The findings presented in this study suggest that prior private loan ratings and banking

relationships potentially mitigate the information asymmetries facing prospective bondholders, and therefore, are negatively related to yield spreads.

The overall evidence presented in this chapter contributes to the existence body of research on the role of information transparency across asset classes in reducing information asymmetry in the debt markets (Booth, 1992; Mansi, Maxwell, & Miller, 2010). It also corroborates existing evidence on the benefits of bank loans in producing valuable information about the borrower (Datta, Iskandar-Datta, & Patel, 2000; James, 1987; Lummer & McConnell, 1989).

The rest of this study is structured as follows. In Section 2 we describe two types of private lending agreements that are frequently rated and discuss how ratings originated in these agreements. In Section 3 we discuss related research and how we propose to contribute to this literature. Section 4 outlines the hypotheses, the sample, and the specification of the regression model. The descriptive statistics are presented in Section 5, and the results of our analysis are reported in Section 6. We summarize the findings and conclude in Section 7.

5.2. Overview of 144A Private Placements and Syndicated Loans

The purpose of this section is to identify the private debt agreements that often obtain credit ratings, namely 144A private placements and syndicated loans. In what follows, we describe each of these agreements with an emphasis on the role of ratings in the private debt markets.

5.2.1. Private Placements and Rule 144A

Private (bond) placements involve the selling of securities exempted from the Securities and Exchange Commission (SEC) registration requirements to qualified institutional investors. Regulation D enacted by the SEC in 1982 defines a qualified institutional investor as “one who can understand or can employ those who understand the return

and the risk of securities and can bear the risks". Examples of these investors include investment companies, pension funds, and insurance companies. Notably, private placements cannot be resold for at least 2 years. However, in April 1990, the SEC enacted Rule 144A which permitted qualified institutional investors to trade 144A bonds at any time without the two years holding requirements. Similar to non-144A private placements, securities issued under 144A are not registered with the SEC and the issuer only prepares a memorandum to potential investors.[28]

Fenn (2000) notes that Rule 144A facilitated the creation of a liquid domestic private bond market as an alternative to the regulated bond market. The creation of this market is particularly useful for firms seeking speed of issuance and liquidity (Fenn, 2000). However, the speedy issuance of 144A bonds implies that investors may not have sufficient time to examine the firm in order to screen low quality issuers. Firms can overcome this problem by obtaining a credit rating for their 144A securities that provides certification by a credible third party. Also, Rule 144A issues are eligible for trading in the secondary market and credit ratings can facilitate greater liquidity. Findings by extant studies show that the frequency of ratings among 144A securities is high. Huang and Ramirez (2010) and Arena (2010) report that more than 90% of their sample of 144A issues are rated. In contrast, Kwan & Carleton (2010) document that *non*-144A private placements go largely un-rated.

5.2.2. Syndicated Loans

In this section we present an overview of the structure of the syndicated loans and the syndicated loan markets. The purpose of this discussion is to highlight the role of the lead bank in the syndicated loans since we base our measures of the strength of the banking relationship on identifying the relationship lead bank. In addition, we present an overview of the syndicated loan markets with the aim of underlying the importance of loan ratings in those markets.

In syndicated loans two or more banks agree to make a joint loan to a borrower. Although there is a single loan agreement for all syndicate members, every syndicate

[28] In this study we focus on securities issued under Rule 144A. Therefore, our sample period starts from the year 1990. We briefly discuss the traditional private placements for the sake of completeness.

member has a separate claim on the borrower (Dennis & Mullineaux, 2000). The loan is syndicated between the lead bank/banks and the participant members (Standard & Poor's, 2006). This categorization of the syndicated loan members is based on their roles in the syndicate. The first group of members, the lead arrangers or agents, acts as managing agents for the group, negotiating the loan terms, marketing the loan and administering the loan repayments and they receive fees in exchange (Sufi, 2007). The number and allocations of the roles among the lead bank/banks varies between the syndicated credit agreements. The agency section of the syndicated loan agreement names the agent bank/banks and stipulates their roles (Dennis & Mullineaux, 2000). The second group, the non-lead banks, consists of participating banks whose role is to fund part of the syndicated loan.[29]

The syndication process starts when the borrower appoints a lead bank, which is often the borrower's relationship bank (Gadanecz, 2004). Then the lead bank issues a commitment letter to the borrower. In a commitment letter the lead bank commits to fund an entire loan facility, or a proportion of it, with a promise to use good faith effort to arrange funding for the remainder of the loan from other participants (Standard & Poor's, 2006; Wittenberg-Moerman, 2008). This letter determines when the syndication starts relative to the closure of the loan. If the lead bank funds the entire loan, then the syndication could start after the loan is closed. However, if the lead bank funds only a proportion of the loan, then the loan must be syndicated before the loan is closed.

At the marketing stage, the agent bank prepares an information memorandum that contains financial and nonfinancial information about the current and future prospects of the borrower (Sufi, 2007). This memorandum is prepared with the help of the borrower and contains confidential information, and therefore, the recipients of the memorandum usually sign a confidentiality agreement (Dennis & Mullineaux, 2000). The memorandum is accompanied by presentations by the borrower and by meetings with potential participant members. After the marketing stage, the lead bank drafts all loan documents including the loan agreement. After the close of the deal the lead bank is responsible for obtaining waivers and amendments to loan documents.

[29] In the rest of this discussion we use the term lead bank in a singular form.

The transferability of syndicated loans is determined by the borrower's consent and as specified by the transferability clauses in the loan agreement (Gadanecz, 2004). Gadanecz (2004) reports that only 25% of the US syndicated loans between 1993 and 2003 allow the transferability of the syndicated loan to other creditors. The explicit restrictions on the ability of syndicate members to sell loans affects, to some extent, the size of the syndicated loan secondary market compared to the primary market. For example, Sufi (2007) reports that the total volume of syndicated loans secondary market amounted to $120 billion compared to the aggregate syndicated loans outstanding of over $2 trillion. Nonetheless, the syndicated loans are increasingly traded on secondary market. Wittenberg-Moerman (2009) reports a significant trading volume of $510 billion in the US syndicated loan market in 2008.

The rapid growth in the primary and secondary syndicated loan markets prompted the introduction of syndicated loan ratings in the 1990s by Moody's and Standard and Poor's (S&Ps). Sufi (2009) reports that in 2004 almost 30% of companies with publicly traded equity had obtained a loan rating. Arguably, loan ratings boost liquidity in the secondary debt market by reducing information asymmetries facing market participants (Moody's, 1995). In fact, Yi and Mullineaux (2006) and Sufi (2009) suggest that the introduction of loan ratings could be driven by the demand of non-bank institutional investors who are not as informed as the originating banks.

Also, Sufi (2009) argues that loan ratings play an important role in the syndicated loans primary market by reducing the information asymmetries between the syndicate members. Syndicate participants delegate most of the monitoring activities to the lead bank at the loan origination and post-closing loan stages. However, the lead bank owns only a fraction of the loan, and thus, has fewer incentives to monitor once the loan is closed. Further, the lead bank obtains private information about the borrower since it is usually the borrower's relationship bank. Therefore, the lead bank has incentives to use its private information to gain at the expense of other syndicate members by, for example, syndicating riskier loans. Credit ratings provide evaluations of the credit

quality of the issue by an independent third party, which could minimize the potential agency conflicts between syndicate members.

5.3. Related Literature and Contribution

This study attempts to model the impact of information produced by rating agencies and banks by monitoring the firm's private debt on the yield spread of its initial public debt offer. The majority of the relevant literature examines the role of information produced by the firm, especially accounting information, in reducing information asymmetry between the firm and its lenders. It also investigates the resulting price, and to a lesser extent non-price, terms of debt contracts. For example, the extant evidence shows that the quality of the firm's disclosure policy is negatively related to the level and term structure of yield spreads (Sengupta, 1998; Yu, 2005). It also shows that the quality of the firm's accruals are negatively related to the price and non-price terms of debt contracts (Bharath, Sunder, & Sunder, 2008; Francis, LaFond, Olssona, & Schipper, 2005).

However, there is little research on the impact of information produced by the firm's agents on reducing information asymmetries in the debt markets. One important exception is the research that investigates the effect of the arrival of new information about the firm on mitigating information asymmetries and consequently reducing the cost of bank loans. This body of research builds on the premise that insider (informed) banks have an informational advantage over outsider creditors and therefore they could exploit this advantage by charging higher interest rates (Rajan, 1992; Sharpe, 1990). If the firm wants to borrow from another bank, the outside bank will be at an information disadvantage because it does not know the firm's project type while the inside bank does. Therefore, the outside bank will offer high interest rates leading the firm to be held-up by its inside bank. Hence, an increase in public information about the firm, due to equity listing or debt listing for example, reduces significantly the insider bank's information advantage and as a result reduces the firm's borrowing costs (Hale & Santos, 2009; Schenone, 2010; Sunder, 2002).

Schenone (2010) notes that when firms issue shares for the first time they have to provide higher levels of disclosure which reduces the informational asymmetry between the firm's insiders and outsiders. According to Schenone, when a new source of information becomes available, outside banks learn about the firm and therefore the cost of new debt is expected to fall. Using a sample of US bank loans pre and post equity IPO Schenone (2010) finds that bank loans' interest rates pre equity IPO are higher than post equity IPO. Similarly, Hale and Santos (2009) show that interest rates on bank loans decrease after an initial public debt offering (IPDO) compared to interest rates before a debt IPDO. They argue that an IPDO releases new information about the firm, through new credit ratings for example. Consequently, other banks learn new information about the firm and this weakens the inside bank information monopoly and increases the firm's bargaining power.

Booth (1992) examines more general aspects of the impact of information flow between asset classes in reducing information asymmetry in the debt markets. He suggests that observing the monitoring activities by claimholders could result in reducing the information costs among investors in the capital markets because it eliminates the duplication of monitoring activities. He finds evidence that firms with rated public debt enjoy lower costs of bank borrowing compared to firms without public debt. This evidence is consistent with the view that the monitoring activities by credit rating agencies reduce the monitoring costs of banks (Booth, 1992). Also, Mansi, Maxwell, & Miller (2010) document evidence on the value of information contained in analysts' forecasts in the debt markets. They find that the information contained in the analysts' forecast is significantly negatively related to bond yield spreads.

The current study contributes to this literature by suggesting that information produced for the purposes of monitoring the firm's private loans may convey valuable information to prospective bondholders. Private loans are largely ignored in the literature because of the data limitations, although they constitute an important source of corporate financing. Recently, and in line with developments in Dealscan and Securities Data Corporation's data coverage, a growing number of studies have focused on the syndicated loan and private placement markets. However, most of these studies examine issues related to these markets. This study focuses on the interaction between

the markets of syndicated loan and private placement agreements on the one hand and the public debt market on the other. Specifically, the analysis presented in this study sheds light on the benefits of information related to the firm's record of private debt financing in mitigating the information asymmetries facing bondholders. This analysis enhances our understanding of the learning process that takes place between investors in the debt markets and the resulting economic value in terms of reducing the information asymmetries facing investors.

In addition, this study is related to the literature examining the firm's decision to enter the public debt markets for the first time. The extant evidence shows that the speed of entry to the public debt market is negatively influenced by the degree of the firm's information asymmetry (Hale & Santos, 2008). In addition, the evidence shows that the announcements of issuing public debt for the first time is associated with a significant negative stock market reaction (Datta, Iskandar-Datta, & Patel, 2002), potentially due to the large information asymmetry associated with public debt securities (Smith, 1986). Taken together, these results suggest that information asymmetry has economic consequences that could delay the firm's entry to the public debt market. We complement this research by investigating factors that might reduce the information asymmetry facing bondholders contracting with the firm for the first time and consequently reducing the cost of public debt.

In this respect, our study is related to Datta, Iskandar-Datta, and Patel (1999) who estimate a model of the cost of debt for initial public debt offers. The authors select a sample of 98 initial public offers of straight debt issued over the period 1971-1994. Out of their initial sample, 64 firms had bank debt at the time of bond issue while the remaining 34 firms did not. They measure yield spread as the difference between the at the issue yield for the initial public debt offer and the yield for a matching treasury. Their main finding is that the presence of a bank loan at the time of issuing public debt bank relation reduces the spread by around 84 basis points.

Our study complements the evidence in Datta et al. (1999) by identifying two factors relevant to the cost of initial public debt offers: the difference between the credit rating

assigned to the firm's private debt and the credit rating assigned to its IPDO; and the strength of banking relationships. The latter factor is similar to Datta's et al. bank relationship variable because both variables approximate the degree of bank monitoring. However, our bank relationship variable goes beyond measuring the presence of a bank relationship by quantifying the degree of strength of this relationship.

5.4. Research Design

5.4.1. Hypotheses

Our hypotheses build on the cross monitoring hypothesis proposed by Booth (1992). In cross monitoring, a claimholder may reduce her monitoring costs by observing information produced through monitoring activities by other claimholders. In this study we suggest that prior monitoring activities provided for one security may convey information regarding the true quality of the firm and therefore could be beneficial to investors in other securities in the form of mitigating their adverse selection. Specifically, we propose that monitoring of the firm's private debt by rating agencies and banks conveys valuable information to prospective bondholders about the quality of the firm's business and creditworthiness. This in turn reduces the yield spreads charged by prospective bondholders.

Our first hypothesis focuses on monitoring the firm's private loans by rating agencies. We examine credit ratings assigned to the firm's syndicated loans and Rule 144A's private placements issued before its entry to the public debt market. Before an IPDO, some firms are assigned credit ratings to their private debt and at the time of the IPDO firms are assigned credit ratings that arguably take into account all historical information including information contained in any previous loan rating. In this study, we examine if the firm's maintenance of its credit rating provides additional information content regarding the change in the firm's default risk. Diamond (1991) shows that the firm establishes a reputation of a clean track record when it borrows and repays successfully monitored private debt. When the firm issues public debt, bondholders observe the firm's history of non-default and assign low probability of default for reputable firms and lend to those firms at low interest rates. Therefore, firms

issuing public debt face incentives to maintain their credit quality by choosing safe projects. This is because costs of risking the firm's creditworthiness (in the form of higher interest rates for future borrowings) are potentially higher than the payoffs from undertaking risky projects.

Bondholders may find a favourable change in the firm's credit rating valuable since it signals the firm's commitment to sustain a high quality credit record and hence bondholders demand lower interest rate. Therefore, firms face incentives to obtain higher ratings or to sustain their current ratings. We predict that IPDOs that are assigned credit ratings above (below) their loan ratings will enjoy a lower (higher) yield spreads. We also predict that IPDOs that are assigned the same credit ratings as their loan ratings will enjoy lower yield spreads since this signals the companies' commitments to maintain the same credit quality. Therefore, our first hypothesis H1 states that:

H1: IPDOs with credit ratings similar to or above (below) their loan ratings will enjoy lower (higher) yield spreads.

Our second hypothesis focuses on the effect of the strength of banking relationship on the yield spread of the initial public debt offer. The intermediation literature suggests that in relationship banking the bank invests in gathering borrower-specific information beyond what is publicly available over multiple periods of time (Boot, 2000; Boot & Thakor, 2000). Thus, the bank's assessment of the current and future creditworthiness of the borrower is based on information that is probably not available to other creditors who do not invest in monitoring and information production. Although, the information obtained by banks in relationship lending remains confidential, other types of creditors could infer the bank's assessment of the quality of the firm through the maintenance of this relationship. Thus, the firm's multiple interactions with the same lender could indicate that the bank's long-term assessment of the borrower is favourable, which would result in a decrease in other creditors' screening costs. Relationship banking may well be more valuable for companies borrowing publicly for the first time than repeat borrowers since these companies are subject to great information asymmetry. Formally, our second hypothesis H2 states that:

H2: The strength of the banking relationship is negatively related to the yield spread of the initial public debt offer.

5.4.2. Sample Selection and Data Sources

We select all US nonfinancial firms who issued public debt for the first time during the period 1990-2009. We select 1990 as our sample start date because the Securities and Exchange Commission (SEC) enacted Rule 144A in that year. To identify the date of the debt IPO we use the Securities Data Corporation (SDC) new bond issuance database. We construct a list of all debt issues in the US market. Then we sort all issues for each firm and select the first public debt issue. Finally, we match the names of the debt IPO issuers with firms' names identified in Compustat. The sample selection process is described in Table 5.1.

Table 5.1: Sample Selection

Table 5.1 reports the sample selection process.

All nonfinancial US firms identified in Compustat and with an IPDO in the SDC database until the year 2009	**1,042**[a]
Nonfinancial US firms with IPDO after 1990	**505**
Firms with missing SDC data	(106)
Debt issues with all required data	431
Final Sample	**431**

We identify a non US firm in the SDC database under the data items "Nation" and "Primary Exchange Where Issuer's Stock Trades". All firms with a value other than "United States" under the data item "Nation" are classified as a non US firms. All firms with a non US stock exchange under the data item "Primary Exchange Where Issuer's Stock Trades" are classified as a non US firms.

[a] There is an increase in the number of firms in the initial sample used in this chapter compared to Chapter 4. This is because the period ends in 2009 in this chapter while it ends in 2008 in Chapter 4.

Data Sources: The Securities Data Company (SDC) Database.

We collect data related to public debt issues and 144A issues from the Securities Data Company database[30]. We also collect data related to syndicated loans from the DealScan database. Although 144A issues and syndicated loans are private agreements, public data is available from credit agreements contained in public filings with the

[30] DealScan database provides information related to 144As private placements, however, based on our investigation we find that the SDC database coverage is significantly better.

Securities and Exchange Commission. The information contained in these sources is related to the terms of these agreements (interest, maturity, collateral); and in case of syndicated loans the structure of the loan (lead bank; number and identity of participants; loan ownership).

5.4.3. Regression Model

We estimate a multivariate regression model with the gross yield spread, SPREAD, as the dependent variable. The yield spread is defined as the difference in the yield to maturity of the initial public debt offer at the issue time and the yield of a matched Treasury bond (matched in terms of maturity and coupon). We calculate the yield spread using at the issue gross proceeds (total dollar proceeds) from the sale of the bond. This implies that we do not deduct the floatation costs such as the underwriting fees and marketing expenses. We focus on the gross yield spread since we are most interested in bondholders' valuation of the bond's risk. In the rest of this section we define and motivate the inclusion of the independent variables in our model.

5.4.3.1. Prior Private Loan Ratings

The first variables of interest in this study are calculated based on loan ratings of private debt agreements before firms' access to the public debt market. To construct these variables we retrieve a list of 144A issues from the Securities Data Corporation database and a list of syndicated loans from the DealScan database. Then, we identify the 144A securities and syndicated loans issued by our sample companies just before their initial public debt offer. We require that private loans are issued within a time horizon of a minimum of six months and a maximum of five years before the company's initial public debt offer. Next, we identify the last loan issued within the predetermined time horizon for each company. For each loan we record its assigned credit rating. Then, we compare the credit rating assigned for the firm's prior private loan and the one assigned for the firm's IPDO. We have three possible outcomes:[31]

- Upgrade, this is when the credit rating assigned to the firm's IPDO is higher than the firm's prior private loan.

[31] This is similar to Tang (2009).

- Downgrade, this is when the credit rating for the firm's IPDO is lower than the firm's prior private loan.
- Unchanged, this is when the credit rating for the firm's IPDO and the firm's private rating are the same.

Finally, we define three dummy variables as follows. RATING_UPGRADE equals one if the IPDO's credit rating is upgraded and zero otherwise; RATING_DOWNGRADE equals one if the credit rating is downgraded and zero otherwise; and RATING_UNCHANGED equals one if the credit rating is unchanged.

5.4.3.2. Relationship Banking

Our second variable of interest is the strength of the bank-firm relationship. We are particularly interested in capturing two aspects of banking relationship strength: i) the number of interactions between the company and its relationship bank (the frequency); and ii) the relative instances of borrowing from the relationship bank compared to all other banks (the dependency). Our measures of banking relationship strength require data regarding the identity of the lender which is not readily available, except for syndicated loans data available from DealScan database. Therefore, we construct our banking relationship measures using syndicated loans data. We retrieve a list of syndicated loans from the DealScan database. Then, we identify syndicated loans issued by our sample companies within five years before the company's initial public debt offer. For each syndicated loan we identify the lead bank(s) as identified in the Dealscan database.

To construct our measures of banking relationship strength we follow Bharath, Dahiya, Saunders, & Srinivasan (2009) who define three different proxies of banking relationship strength. The first measure, RELATION_DUMMY, is a binary variable that is coded 1 if the firm had borrowed more than once from the same lead bank. For the second measure, RELATION_NUMBER, we identify the lead bank with the greatest number of loans extended to the company, and refer to it as the relationship bank. Then, we divide the number of loans extended by the relationship bank by the

total number of bank loans issued to the company. This measure approximates the relative dependence of the company on a certain bank. The final measure, RELATION_AMOUNT, serves a similar purpose as RELATION_NUMBER, by approximating the company's dependence on one bank but in terms of dollar value. To construct this measure, we identify the relationship bank as the lead bank with the largest amount of loans extended to the company. Then, we divide the amount, in terms of dollar value, of loans issued by the relationship bank by the total amount of bank loans issued to the company. According to our second hypothesis H2, we expect all our proxies for relationship banking to be negatively related to the yield spread.

5.4.3.3. Control Variables

Bond Rating

Credit rating opinions provide a measure of the relative creditworthiness of companies, i.e., their ability and willingness to serve their debt in full and on time. We convert bond ratings into an ordinal scale that is coded 6 if Standard and Poor's rating is AAA, AAA-, AA+; 5 if S&P's rating is AA; AA-, A+ etc. Similarly the bond rating is coded 6 if Moody's rating is Aaa, Aaa1, Aaa2, AA3; 5 if Moody's rating is Aa, Aa1, Aa2, Aa3 etc. Table 5.2 documents the numerical equivalent used to code all of Moody's and Standard and Poor's credit ratings (Nordena & Webera, 2004). We expect bonds with higher credit quality, alternatively lower default risk, to be assigned higher ratings. Hence, we expect bond ratings to be negatively associated with yield spreads.

Table 5.2: Mapping of Credit Ratings

Table 5.2 shows the numerical equivalent used in this study to code Moody's and Standard and Poor's credit ratings.

Moody's	Standard & Poor's	
Above Investment Grade:		
Aaa, Aaa1, Aaa2, Aaa3	AAA, AAA-, AA+	6
Aa, Aa1, Aa2, Aa3	AA, AA-, A+	5
A, A1, A2, A3	A, A-, BBB+	4
Baa, Baa1, Baa2, Baa3	BBB, BBB-, BB+	3
Below Investment Grade:		
Ba, Ba1, Ba2, Ba3	BB, BB-, B+	2
B, B1, B2, B3 and below	B, B-, CCC+ and below	1

The ratings of Standard and Poor's and Moody's do not match all the time. To account for this we create two variables. The first, BOND_RATING_HIGH, is coded with the equivalent value of the higher rating of Standard and Poor's of Moody's. The second, BOND_RATING_LOW, is coded with the equivalent value of the lower rating of Standard and Poor's of Moody's. Table 5.3 reports the distribution of bond ratings.

Table 5.3: Distribution of Bond Ratings

Table 5.3 reports the distribution of bond ratings when they are recorded with the higher (lower) of S&P's or Moody's.

Code of the Bond Rating	Bond Ratings Recoded with the Higher of S&P's or Moody's	Bond Ratings Recoded with the Lower of S&P's or Moody's	Difference
6	4	8	4
5	12	23	11
4	68	106	38
3	154	132	22
2	67	78	11
1	126	84	36

Bond Issue Size

We include the natural logarithm of the dollar amount of the bond issue size, ISSUE_SIZE. The bond issue size can affect the yield spread in one of two ways. It could be negatively related to yield spreads because the economies of scale on floatation costs are greater for larger issues (Blackwell & Kidwell, 1988; Smith, 1986). On the other hand, because ISSUE_SIZE measures the increase in the firm's total dollar value of debt it could approximate the increase in the firm's financial risk, and thus, be positively related to yield spreads. Since we calculate the yield spreads net of floatation costs, it is unlikely that ISSUE_SIZE will capture the economies of scale effect, therefore, we expect ISSUE_SIZE to be positively related to yield spreads.

Bond Maturity

Bond maturity, MATURITY, is defined as at-the issue years to maturity. Longer maturities expose bondholders to greater uncertainty regarding the firm's condition and overall economic status (Blackwell & Kidwell, 1988; Flannery, 1986). Therefore, we expect the bond maturity to be positively related to its yield spread. However, previous

studies findings' indicate an ambiguous relationship between the cost and maturity of debt (see for example Beatty, Weber, & Yu, 2008; Bharath et al., 2009; and Fenn, 2000). Thus, we leave the sign of MATURITY coefficient to be empirically resolved.

Bond Sinking Fund Provisions

Although sinking fund provisions increase the bondholder's likelihood of receiving the principal amount of the bond (Blackwell & Kidwell, 1988), they are usually attached to riskier bonds (Smith & Warner, 1979). Therefore, we expect, all else equal, bonds with sinking fund provisions to have higher yield spread. We define a binary variable, SINKING_FUND, which we code one if the debt contract has a sinking fund provision and zero otherwise.

Bond Callable Provision

Callable provisions allow the firm to redeem the bond before its maturity, typically to take advantage of future low interest rates. Therefore, callable bonds expose bondholders to the risk of investing their funds at unfavourable rates (Blackwell & Kidwell, 1988; Mansi et al., 2010). Hence, we expect that callable bonds to have higher yield spreads. We define a binary variable, CALLABLE, which we code one if the debt contract has callable provisions and zero otherwise.

Bond Listing

We also include LISTED_DEBT, which is a binary variable that we code one if the firm's initial public bond is listed in an organized exchange and zero if it is traded over the counter. In order to list a security in an organized exchange the firm and the security must meet minimum requirements relating to size, profitability, disclosure etc. This in turn could reduce the information asymmetry regarding the new issue. Thus, we expect bond issues traded in an organized exchange to have lower yields, given everything else is equal.

Firm Size

As for the firm characteristics, we include the firm's assets size, SIZE, defined as the natural logarithm of the firm's total assets at time *t*-1. Larger firms are less information-opaque compared to smaller firms because they are older, have more analysts following, and greater investor recognition (Bharath et al., 2009; Blume, Lim, & Mackinlay, 1998; Mansi et al., 2010). Thus, we expect firm size to be negatively related to the yield spread.

Leverage

We also include the ratio of the book value of long-term debt over the book value of total assets at time *t*-1, LEVERAGE, in our model. The probability of default is likely to increase with the increase of debt in the firm's capital structure (Bharath et al., 2009; Mansi et al., 2010). Therefore, we expect investors in corporate debt to demand higher yield spreads from companies with high leverage.

Tangible Assets

Investors in corporate debt generally consider firm's with larger tangible assets safer investments because they provide collateral and they are easy to liquidate in the event of default (Bharath et al., 2009). We measure the firm's tangibility as the ratio of fixed assets over total assets, FIXED_ASSETS. We expect the ratio of fixed assets to be negatively related to yield spreads.

High Technology Firms

We also include a dummy variable, HIGH_TECH, that is coded one if the bond offer is issued by a firm operating in a high technology industry, and zero otherwise. We classify the industries with the following Standard Industrial Classifications (SIC) codes as high technology industries: high-tech manufacturing (3571-3579, 3651, 3652, 3661, 3663, 3669, 3671, 3672, 3674-3679, 3812, 3821-3829, 3844, 3845, 3861); high-tech communications services (4812; 4813; 4822; 4841; 4899); and high-tech software and computer-related services (7371-7379). Firms operating in high technologies are subject

to significant business risk. Therefore, we expect, all else is equal, investor of bonds issued by these firms to demand higher bond yields.

Equity Listing

We expect firms with equity listed in the New York Stock Exchange (NYSE) to be subject to a lower degree of information asymmetry. Listed equity on the NYSE must meet minimum listing requirements, which is likely to screen-out risky firms. In addition, it requires stringent disclosure requirements which increase the amount of public available information about the firm. We include LISTED_EQUITY, which is a binary variable that is coded is coded one if the firm's equity is listed on the NYSE and zero otherwise. The next Table summarizes the variable Definitions.

Table 5.4: Variable Definitions

Variable	Definition
RATING_UPGRADE	A binary variable that is coded 1 if the company IPDO's credit rating is assigned an improved credit rating compared to the last private debt agreement before the company's initial public debt issue.
RATING_DOWNGRADE	A binary variable that is coded 1 if the company IPDO's credit rating is assigned a worse credit rating compared to the last private debt agreement before the company's initial public debt issue.
RATING_UNCHANGED	A binary variable that is coded 1 if the company IPDO's credit rating is assigned the same credit rating as its last private debt agreement before the company's initial public debt issue.
RELATION_DUMMY	A binary variable that is coded 1 if the firm had borrowed more than once from the same lender in the last five years before the firm's first access to the public debt.
RELATION_NUMBER	The number of loans extended by the relationship bank divided by the total number of loans issued to the company in the last 5 years before the firm's first access to the public debt.
RELATION_AMOUNT	The amount, in terms of dollar value, of loans extended by the relationship bank divided by the total amount of loans issued to the company in the last 5 years before the firm's first access to the public debt.
SIZE	The natural logarithm of the firm's total assets.
SIZE ($)	Total assets in dollar value.
LEVERAGE	The ratio of long-term debt over total assets.
FIXED_ASSETS	The ratio of property, plant and equipment over total assets.
HIGH_TECH	A binary variable that is coded 1 if the firm operates in a high technology industry and 0 otherwise.
LISTED_EQUITY	A binary variable that is coded 1 if the firm's shares are listed in the New York Stock Exchange (NYSE) and 0 otherwise.
SPREAD	Yield spread is the difference between the yield of initial public debt offer and the yield of a matched treasury at the issue date.
BOND_RATING	BOND_RATING is coded 6 if S&P's rating is AAA, AAA-, AA+; 5 if S&P's rating is AA; AA-, A+ etc. Similarly, RATING is coded 6 if Moody's rating is Aaa, Aaa1, Aaa2, AA3; 5 if Moody's rating is Aa, Aa1, Aa2, Aa3 etc. We create two variables to account for the mis-match in S&P's and Moody's ratings. BOND_RATING_LOW indicates that the bond rating is recoded with the lower of S&P's or Moody's. BOND_RATING_HIGH indicates that the bond rating is recoded with the higher of S&P's or Moody's.
ISSUE_SIZE	The natural logarithm of the issue size.
ISSUE_SIZE ($)	The issue size in dollar value.
MATURITY	The number of years until maturity.
SINKING_FUND	A binary variable that is coded 1 if the debt contract has a sinking fund provision and 0 otherwise.
CALLABLE	A binary variable that is coded 1 if the debt contract has call provisions and 0 otherwise.
LISTED_DEBT	A binary variable that that is coded 1 if the firm's first debt issue is listed in an organized stock exchange and 0 if its traded over the counter.

Data Sources: Data related to public debt and 144A securities is collected from the Securities Data Company Database (SDC). Data related to syndicated loans is collected from DealScan. Financial data is collected from Compustat.

5.5. Descriptive Statistics

The first panel in Table 5.5 reports the characteristics of companies issuing public debt for the first time, issuers thereafter, at time *t*-1. Our sample issuers are smaller compared to the average repeating bond issuer. We report an average assets size of $5,371 million, while recent studies by Kwan and Carleton (2010) and Arena (2010) report an average assets' size of $12,246 million and $15,086 million respectively. However, our sample issuers have similar leverage and fixed assets ratios compared to the average repeating bond issuer. We report leverage and fixed assets ratios of 36% and 76% respectively. Similarly, Arena (2010) reports leverage and fixed assets ratios of 37% and 71% respectively. Finally, 22% of our sample firms operate in a high technology industry, and 71% have their equity listed in the New York Stock Exchange (NYSE). The assets size of our sample firms makes it likely that they face greater information asymmetry compared to the repeating bond issuer, which is consistent with Cantillo & Wright's (2000) finding.

The first panel in Table 5.5 also reports the characteristics of our sample of initial public debt offerings. The average issue size is $234 millions, and the average term to maturity is approximately 11 years. Also, 72% of the new public debt issues are callable, 2% have sinking funds provisions, and 8% are listed in an organized stock exchange (mostly the New York Stock Exchange). The average rating roughly corresponds to a Standard & Poor's rating of BBB and a Moody's rating of Baa. Out of our initial public debt offers, 258 bonds are investment grade representing around 60% of the sample. In comparison, Datta et al. (1999) report an average issue size of $81 millions, with 12.5 years to maturity. They also report that around 84% of their initial bonds have call provisions, while 44% have sinking fund provisions. Finally, they report that less than 30% of their sample consists of investment grade bonds.

Table 5.5: Issuers and Issues Characteristics

Table 5.5 reports descriptive statistics for a sample of nonfinancial public US companies who announced an initial public debt offering during the period 1990-2009 and for their initial bonds. RATING_UPGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned an improved credit rating compared to its last private debt agreement before its IPDO. RATING_DOWNGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned a worse credit rating compared to last private debt. RATING_UNCHANGED is a binary variable that is coded 1 if the company IPDO's credit rating is assigned the same credit rating as its last private debt. RELATION_DUMMY is a binary variable that is coded 1 if the firm had borrowed more than once from the same lead bank in the last five years before the firm's IPDO. RELATION _NUMBER is the number of loans extended by the relationship bank divided by the total numbers of loans issued to the company. RELATION_AMOUNT the amount of loans extended by the relationship bank divided by the total amount of loans issued to the company. SIZE is the natural logarithm of the firm's total assets. SIZE ($) is total assets in dollar value. LEVERAGE is the ratio of long-term debt over total assets. FIXED_ASSETS is the ratio of property, plant and equipment over total assets. HIGH_TECH is a binary variable that is coded 1 if the firm operates in a high technology industry. LISTED_EQUITY is a binary variable that is coded 1 if the firm's shares are listed in the NYSE. SPREAD is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. BOND_RATING is coded 6 if S&P's rating is AAA, AAA-, AA+; 5 etc, and is coded 6 if Moody's rating is Aaa, Aaa1, Aaa2, AA3 etc. BOND_RATING_LOW the bond rating is recoded with the lower of S&P's or Moody's. BOND_RATING_HIGH the bond rating is recoded with the higher of S&P's or Moody's. ISSUE_SIZE is the natural logarithm of the issue size. ISSUE_SIZE($) is the principal size in dollar value. MATURITY is the number of years until maturity. SINKING_FUND is a binary variable that is coded 1 if the debt contract has a sinking fund provision. CALLABLE is a binary variable that is coded 1 if the debt contract has call provisions. LISTED_DEBT is a binary variable that is coded 1 if the firm's initial bond is listed in an organized stock exchange. All ratios are expressed in decimal points.

Panel 1: Prior Private Loan Ratings Sample (Obs. 431)								
	Obs.	**Mean**	**Med**	**SD**	**Min**	**Max**	**Skew**	**Kurt**
Issuers:								
RATING_UPGRADE	431	0.016	0	-	-	-	-	-
RATING_DOWNGRADE	431	0.020	0	-	-	-	-	-
RATING_UNCHANGED	431	0.088	0	-	-	-	-	-
RELATION_DUMMY	431	0.246	0	-	-	-	-	-
RELATION_NUMBER	431	0.203	0	0.368	0	1	1.38	3.142
RELATION_AMOUNT	431	0.216	0	0.387	0	1	1.30	2.821
SIZE	431	7.65	7.68	1.32	4.32	12.46	0.21	2.76
SIZE ($)	431	5,371	2,169	14,542	74	257,819	12.82	214.03
LEVERAGE	431	0.36	0.32	0.20	0.04	1.85	2.18	12.89
FIXED_ASSETS	431	0.76	0.73	0.44	0.01	3.06	0.98	6.08
HIGH_TECH	431	0.22	0	-	-	-	-	-
LISTED_EQUITY	431	0.71	1	-	-	-	-	-
Issues:								
SPREAD	431	261.02	202	191.93	20	902	0.99	3.41
BOND_RATING_LOW	431	2.501	3	1.197	1	6	0.234	2.35
BOND_RATING_HIGH	431	2.838	3	1.251	1	6	0.102	2.375
ISSUE_SIZE	431	5.46	5.30	0.90	1.61	6.89	-1.73	10.41
ISSUE_SIZE ($)	431	234	200	156.1	5	800	1.18	4.21
MATURITY	431	10.94	10.01	6.60	1.01	49.05	2.39	9.02
SINKING_FUND	431	0.02	0	-	-	-	-	-
CALLABLE	431	0.72	1	-	-	-	-	-
LISTED_DEBT	431	0.08	0	-	-	-	-	-

Table 5.5: Continued.

Panel 2: Banking Relationship Strength Sample (Obs. 184)								
Description	**Obs.**	**Mean**	**Med**	**SD**	**Min**	**Max**	**Skew**	**Kurt**
Issuers:								
RELATION_DUMMY	184	0.56	1	-	-	-	-	-
RELATION_NUMBER	184	0.46	0.60	0.43	0	1	0.05	1.27
RELATION_AMOUNT	184	0.49	0.61	0.45	0	1	-0.06	1.15
SIZE	184	7.66	7.71	1.23	5.07	10.73	0.16	2.56
SIZE ($)	184	4,511	2,240	7105	160	45,789	3.47	16.61
LEVERAGE	184	0.35	0.33	0.17	0.05	0.98	0.81	3.96
FIXED_ASSETS	184	0.72	0.68	0.44	0.01	3.06	1.04	6.07
HIGH_TECH	184	0.17	0	0.38	-	-	-	-
LISTED_EQUITY	184	0.85	1	0.36	-	-	-	-
Issues:								
SPREAD	184	240.24	197.50	172.27	20	902	1.03	3.82
BOND_RATING_LOW	184	2.489	3	1.289	1	6	0.083	2.165
BOND_RATING_HIGH	184	2.799	3	1.200	1	6	0.122	2.087
ISSUE_SIZE	184	5.35	5.30	0.82	0	6.86	-1.99	13.49
ISSUE_SIZE ($)	184	236	200	145	1	800	1.23	4.66
MATURITY	184	10.25	10.01	5.83	1.01	40.02	2.61	10.75
SINKING_FUND	184	0.02	0	0.13	0	1	7.64	59.35
CALLABLE	184	0.75	1	0.43	-	-	-	-
LISTED_DEBT	184	0.07	0	0.26	-	-	-	-

The second panel of Table 5.5 reports summary statistics for companies with prior syndicated loans. We identified 184 companies that issued a syndicated loan within five years before the company issued its initial public debt offering. More than half of these companies repeated borrowing from the same lead bank. The average percentage rate of the times the company borrows from the same relationship bank relative to all of its borrowings is about 46%. Similarly, the percentage rate of the amount the company borrows from the same relationship bank relative to all of its borrowing is around 49%.

In addition, the number of companies who had a credit rating for their syndicated loans is 25 companies. The summary statistics for companies who had a previous syndicated loan is similar to the statistics of the full sample. However, the percentage rate of companies listed on the New York Stock Exchange (NYSE) for the sample consisting of firms with previous syndicated loans is 85%, which is higher than the 71% rate for the full sample. In addition, the characteristics of the initial bonds issued by companies who had a previous syndicated loan are comparable to the initial bonds issued by

companies in the full sample. However, the yield spread mean for bonds issued by companies who had a previous syndicated loan is 240 basis points, which is lower than the full sample average of 261 basis points.

Table 5.6 reports descriptive statistics for companies with and without previous ratings and for their bond issues. It also reports difference in means test results between characteristics of companies with and without prior private loan ratings and between characteristics of their initial bond offers. In terms of issuer characteristics, companies with prior private loan ratings are significantly larger with higher leverage and are listed more frequently in the NYSE compared to companies without prior private loan ratings. Bonds issued by companies with prior private loan ratings compared to the ones without have significantly larger issue sizes with lower bond ratings and more frequent callable provisions. Table 5.6 shows that the yield spreads of bonds issued by companies with prior private loan ratings are not statistically different from the yield spreads of bonds issued by companies without prior private loan ratings. However, this finding might be mechanical since companies with prior private loan ratings are riskier than the ones without prior private loan ratings evident by their significantly lower bond ratings.

Table 5.6: Characteristics of Companies with and without Prior Private Loan Ratings

Table 5.6 reports descriptive statistics for the sample companies with loan ratings and for the sample companies without loan ratings and the corresponding difference in means test results. The sample consists of 431 nonfinancial public US companies who announced an initial public debt offering during the period 1990-2009. SIZE is the natural logarithm of the firm's total assets. SIZE ($) is total assets in dollar value. LEVERAGE is the ratio of long-term debt over total assets. FIXED_ASSETS is the ratio of property, plant and equipment over total assets. HIGH_TECH is a binary variable that is coded 1 if the firm operates in a high technology industry. LISTED_EQUITY is a binary variable that is coded 1 if the firm's shares are listed in the NYSE. SPREAD is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. BOND_RATING is coded 6 if S&P's rating is AAA, AAA-, AA+; 5 if S&P's rating is AA; AA-, A+ etc. Similarly, BOND_RATING is coded 6 if Moody's rating is Aaa, Aaa1, Aaa2, AA3; 5 if Moody's rating is Aa, Aa1, Aa2, Aa3 etc. BOND_RATING_LOW indicates that the bond rating is recoded with the lower of S&P's or Moody's. BOND_RATING_HIGH indicates that the bond rating is recoded with the higher of S&P's or Moody's. ISSUE_SIZE is natural logarithm of the issue size. ISSUE_SIZE($) is the principal size in dollar value. MATURITY is the number of years until maturity. SINKING_FUND is a binary variable that is coded 1 if the debt contract has a sinking fund provision. CALLABLE is a binary variable that is coded 1 if the debt contract has call provisions. LISTED_DEBT is a binary variable that is coded 1 if the firm's initial bond is listed in an organized stock exchange. All ratios are expressed in decimal points. Wilcoxon is the Wilcoxon rank-sum test. ***, **, * denote significance at the 1%, 5%, and 10% respectively.

	Without Prior Private Loan Ratings (Obs. 377)							With Prior Private Loan Ratings (Obs. 54)								
	Mean	Med	SD	Min	Max	Skew	Kurt	Mean	Med	SD	Min	Max	Skew	Kurt	t-test	Wilcoxon
SIZE	7.60	7.56	1.34	4.32	12.46	0.25	2.76	8.00	8.09	1.14	5.73	10.73	0.12	2.87	-2.11**	-2.20**
SIZE ($)	5,313	1,924	15198	74.86	257819	12.76	205.18	5,780	3,257	8763	308.88	45789	3.36	14.83	-	
LEVERAGE	0.35	0.32	0.21	0.04	1.85	2.34	13.96	0.41	0.37	0.18	0.09	0.98	0.98	4.05	-1.92*	-2.62***
FIXED_ASSETS	0.75	0.73	0.42	0.01	2.73	0.80	5.21	0.79	0.74	0.52	0.09	3.06	1.62	8.09	-0.58	-0.150
HIGH_TECH	0.21	1	-	-	-	-	-	0.22	1	-	-	-	-	-	0.12	0.12
LISTED_EQUITY	0.69	1	-	-	-	-	-	0.85	1	-	-	-	-	-	-2.43**	-2.42**
SPREAD	259.16	190	197.04	32.00	902.00	1.03	3.39	274.00	272	152.41	20.00	670.00	0.50	2.95	-0.53	-1.36
BOND_RATING_LOW	2.544	3	1.22	1	6	0.21	2.34	2.203	2	1.02	1	4	0.13	1.76	1.96**	1.89*
BOND_RATING_HIGH	2.891	3	1.26	1	6	0.08	2.38	2.463	3	1.11	1	5	0.09	1.99	2.37**	2.33**
ISSUE_SIZE	5.26	5.30	0.92	0.00	6.89	-1.76	10.41	5.57	5.65	0.69	3.22	6.80	-0.60	4.09	-2.45**	-2.65***
ISSUE_SIZE ($)	228	200	156.05	1.00	750.00	1.23	4.27	280	250	149.49	25.00	800	1.04	4.53	-	
MATURITY	11.10	10.01	6.70	1.01	49.05	2.28	8.32	9.77	10.01	5.77	2.02	40.02	3.51	17.79	1.39	0.30
SINKING_FUND	0.02	0	-	-	-	-	-	0.00	0	-	-	-	-	-	1.15	1.15
CALLABLE	0.70	1	-	-	-	-	-	0.89	1	-	-	-	-	-	-2.92***	-2.90***
LISTED_DEBT	0.08	0	-	-	-	-	-	0.07	0	-	-	-	-	-	0.27	0.27

Table 5.7 reports the mean yield spreads for observations with upgraded, downgraded and unchanged credit ratings. It also reports the mean yield spreads for the full sample in Panel 1 and for a matching sample in Panel 2.[32] Out of a total number of 431 companies issuing public debt for the first time, only 54 companies had had a prior private loan rating. Out of 54 observations with prior private loan rating we find that 7 observations are assigned an IPDO credit rating above their loan rating; 8 observations are assigned an IPDO credit rating below their loan rating; while the majority of 39 observations are assigned the same rating for their IPDOs and private loans.

Table 5.7: Univariate Analysis for Companies with and without Prior Loan Rating

Table 5.7 reports the difference of means in yield spreads of the initial public debt offers for observations with and without prior loan ratings. The sample consists of 431 nonfinancial public US companies who announced an initial public debt offering during the period 1990-2009. The dependent variable, SPREAD, is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. RATING_UPGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned an improved credit rating compared to last private debt agreement before its first public debt issue. RATING_DOWNGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned a worse credit rating compared to last private debt agreement before its first public debt issue. RATING_UNCHANGED is a binary variable that is coded 1 if the company IPDO's credit rating is assigned the same credit rating as its last private debt agreement before its first public debt issue. Wilcoxon is the Wilcoxon rank-sum test. ***, **, * indicate significance at the 1%, 5%, and 10% respectively.

Panel 1: Full Sample						
	Without Loan Rating		**With Loan Rating**			
	No.	**Mean Yield Spread**	**No.**	**Mean Yield Spread**	**t-test**	**Wilcoxon**
RATING_UPGRADE	377	259.16	7	185	0.988	1.25
RATING_DOWNGRADE	377	259.16	8	339.5	-1.14	-1.65*
RATING_UNCHANGED	377	259.16	39	276.54	-0.54	-1.42
Panel 2: Matched Sample						
RATING_UPGRADE	7	231.14	7	185	0.643	0.831
RATING_DOWNGRADE	8	314	8	339.5	-0.868	-0.105
RATING_UNCHANGED	39	309.41	39	276.54	1.081	0.360

[32] We match companies based on their industry; default risk approximated by Altman's Z-score; and assets size. Matched observations from the control group and the treated group are required to have the same HIGH_TECH value. Observations are classified into 10 risk groups based on their Altman's Z-score values at *t*-1. Matched observations are required to belong to the same risk group. Finally, observations from the control group must have an assets size within a 10% range of the matching observation in the treated group.

We find that the mean yield spread for observations with upgraded credit ratings compared to the ones without loan ratings is lower but statistically insignificant. In panel 2, we also find that the mean yield spread for observations with upgraded credit ratings compared to a matched control group without loan ratings is lower but statistically insignificant. In addition, we find that the difference of means in the yield spreads for observations with downgraded credit ratings compared to the ones without loan ratings is insignificant, but the Wilcoxon test result is significant. However, in the matched sample the t-test and Wilcoxon test results are insignificant.

Finally, we find that the mean yield spread for observations with unchanged credit ratings is higher than the one for observations without prior loan ratings. However, companies with private loan ratings are significantly riskier than the ones without private loan ratings. As a result, companies with private loan ratings might have higher spreads compared to the ones without ratings to reflect the higher default risk. In panel 2, we find that for a matched sample the mean yield spread for companies with unchanged credit ratings is actually lower than the one for their matched companies without prior loan ratings. However, the t-test and Wiclcoxon test results are insignificant.

Table 5.8 presents test results for the difference in yield spread means and the Wilcoxon rank-sum tests for RATING_UPGRADE, RATING_DOWNRADE, and RATING_UNCHANGED for the sub-sample of observations with prior private loan ratings.

Table 5.8: Univariate Analysis for Companies with Prior Loan Rating

Table 5.8 reports the difference of means in yield spreads of the initial public debt offers for observations with prior loan ratings. The sample consists of 431 nonfinancial public US companies who announced an initial public debt offering during the period 1990-2009. The dependent variable, SPREAD, is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. RATING_UPGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned an improved credit rating compared to last private debt agreement before its first public debt issue. RATING_DOWNGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned a worse credit rating compared to last private debt agreement before its first public debt issue. RATING_UNCHANGED is a binary variable that is coded 1 if the company IPDO's credit rating is assigned the same credit rating as its last private debt agreement before its first public debt issue. Wilcoxon is the Wilcoxon rank-sum test. ***, **, * indicate significance at the 1%, 5%, and 10% respectively.

	Control Group		Treated Group			
	No.	Mean Yield Spread	No.	Mean Yield Spread	t-test	Wilcoxon
RATING_UPGRADE	47	287.25	7	185	1.68*	1.65*
RATING_DOWNGRADE	46	262.61	8	339.5	-1.33	-1.16
RATING_UNCHANGED	15	267.40	39	276.54	-0.196	-0.319

We find that both the t-test and Wiclcoxon test results are significant for the difference of means/rank in the yield spreads for observations with upgraded credit ratings compared to the rest of observations with prior loan ratings. However, we do not find evidence of a significant difference for the downgraded and unchanged observations.

Table 5.9: Correlation Matrix

Table 5.9 reports correlations between the variables used in the study. The sample consists of nonfinancial public US firms who announced an initial public debt offering during the period 1990-2009. RATING_UPGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned an improved credit rating compared to last private debt agreement before its first public debt issue. RATING_DOWNGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned a worse credit rating compared to last private debt agreement before its first public debt issue. RATING_UNCHANGED is a binary variable that is coded 1 if the company IPDO's credit rating is assigned the same credit rating as its last private debt agreement before its first public debt issue. RELATION_DUMMY is a binary variable that is coded 1 if the firm had borrowed more than once from the same lead bank in the last five years. RELATION_NUMBER is the number of loans extended by the relationship bank divided by the total numbers of loans issued to the company in the last 5 years before the firm's first access to the public debt market. RELATION_AMOUNT the amount of loans extended by the relationship bank divided by the total amount of loans issued to the company in the last 5 years before the firm's first access to the public debt market. SIZE ($) is total assets in dollar value. LEVERAGE is the ratio of long-term debt over total assets. FIXED_ASSETS is the ratio of property, plant and equipment over total assets. HIGH_TECH is a binary variable that is coded 1 if the firm operates in a high technology industry. LISTED_EQUITY is a binary variable that is coded 1 if the firm's shares are listed in the NYSE. SPREAD is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. BOND_RATING is coded 6 if S&P's rating is AAA, AAA-, AA+; 5 if S&P's rating is AA; AA-, A+ etc. Similarly, BOND_RATING is coded 6 if Moody's rating is Aaa, Aaa1, Aaa2, AA3; 5 if Moody's rating is Aa, Aa1, Aa2, Aa3 etc. BOND_RATING_LOW indicates that the bond rating is recoded with the lower of S&P's or Moody's. BOND_RATING_HIGH indicates that the bond rating is recoded with the higher of S&P's or Moody's. ISSUE_SIZE is the natural logarithm of the issue size. ISSUE_SIZE($) is the principal size in dollar value. MATURITY is the number of years until maturity. SINKING_FUND is a binary variable that is coded 1 if the debt contract has a sinking fund provision. CALLABLE is a binary variable that is coded 1 if the debt contract has call provisions. LISTED_DEBT is a binary variable that is coded 1 if the firm's initial bond is listed in an organized stock exchange. ** denotes significance at the 5% level or better.

Table 5.9: Continued.

Panel 1: Prior Private Loan Ratings Sample (Obs. 431)																
	SPREAD	RATING_ UPGRADE	RATING_ DOWN GRADE	RATING_ UN CHANGED	BOND RATING (L)	BOND RATING (H)	ISSUE SIZE	MAT-URITY	SINKING FUND	CALL-ABLE	LISTED DEBT	SIZE	LEVE-RAGE	FIXED ASSET	HIGH TECH	LISTED EQUITY
SPREAD	1.00															
RATING_ UPGRADE	-0.05	1.00														
RATING_ DOWNGRADE	0.03	-0.04	1.00													
RATING_ UNCHANGED	0.06	-0.02	-0.04	1.00												
BOND RATING (L)	-0.72**	0.02	-0.09	-0.06	1.00											
BOND RATING (H)	-0.72**	-0.01	-0.09	-0.06	0.92**	1.00										
ISSUE SIZE	0.04	0.08	0.08	0.05	0.06**	0.10**	1.00									
MATURITY	-0.24**	-0.05	-0.07	0.03	0.27**	0.24**	0.02**	1.00								
SINKING FUND	0.07	-0.02	-0.05	-0.02	-0.05	-0.06	-0.06	0.00	1.00							
CALLABLE	0.46**	0.08	0.09	0.08	-0.38**	-0.39**	0.23**	-0.10**	-0.06	1.00						
LISTED DEBT	0.13**	-0.04	-0.01	0.02	-0.17**	-0.16**	0.03	0.03	0.19**	0.06	1.00					
SIZE	-0.35**	0.12**	0.05	0.04	0.52**	0.53**	0.55**	0.10**	-0.09	-0.05	-0.07	1.00				
LEVERAGE	0.41**	0.03	0.09	0.01	-0.50**	-0.53**	-0.01	-0.12**	0.11**	0.23**	0.14**	-0.43**	1.00			
FIXED ASSETS	-0.09	-0.02	0.03	0.03	0.10**	0.12**	-0.04	0.11**	0.10**	-0.05	-0.02	0.09	0.08	1.00		
HIGH_TECH	0.02	0.07	-0.07	0.07	0.02	0.04	0.13**	-0.01	-0.04	0.03	0.07	0.06	-0.02	-0.32**	1.00	
LISTED EQUITY	-0.25**	0.04	0.09	0.05	0.22**	0.25**	0.04	0.00	0.02	-0.15**	-0.09	0.19**	-0.23**	0.06	-0.08	1.00

Table 5.9: Continued.

Panel 2: Banking Relationship Strength Sample (Obs. 184)

	SPREAD	RELATION DUMMY	RELATION NUMBER	RELATION AMOUNT	BOND RATING (L)	BOND RATING (H)	ISSUE SIZE	MAT-URITY	SINKING FUND	CALL-ABLE	LISTED DEBT	SIZE	LEVE-RAGE	FIXED ASSET	HIGH TECH	LISTED EQUITY
SPREAD	1.00															
RELATION DUMMY	-0.04	1.00														
RELATION NUMBER	-0.03	0.97**	1.00													
RELATION AMOUNT	-0.03	0.98**	0.99**	1.00												
BOND RATING (L)	-0.70**	-0.06	-0.07	-.05	1.00											
BOND RATING (H)	-0.72**	-0.10	-0.11	-.08	0.91**	1.00										
ISSUE SIZE	0.04	0.09	0.07	0.08	0.14**	0.18**	1.00									
MATURITY	-0.24**	-0.11**	-0.09**	-0.10**	0.09	0.11	0.02	1.00								
SINKING FUND	0.07	0.03	0.05	0.04	-0.13**	-0.16**	-0.06	0.00	1.00							
CALLABLE	0.46**	0.11**	0.10**	0.10**	-0.30**	-0.35**	0.23**	-0.10**	-0.06	1.00						
LISTED DEBT	0.13**	-0.06	-0.05	-0.05	-0.25**	-0.27**	0.03	0.03	0.19**	0.06	1.00					
SIZE	-0.35**	0.04	0.03	0.02	0.50**	0.53**	0.55**	0.10**	-0.09	-0.05	-0.07	1.00				
LEVERAGE	0.41**	0.02	0.02	0.02	-0.54	-0.59**	-0.01**	-0.12**	0.11**	0.23**	0.14**	-0.43**	1.00			
FIXED ASSETS	-0.09	-0.03	-0.03	-0.04	-0.01	0.00	-0.04	0.11**	0.10**	-0.05	-0.02	0.09	0.08	1.00		
HIGH_TECH	0.02	0.00	0.00	-0.01	0.02	0.07	0.13**	-0.01	-0.04	0.03	0.07	0.06	-0.02	-0.32**	1.00	
LISTED EQUITY	-0.25**	0.16**	0.14**	0.15**	0.32**	0.36**	0.04	0.00	0.02	-0.15**	-0.09	0.19**	-0.23**	0.06	-0.08	1.00

5.6. Results and Analysis

5.6.1. Bond Yield Spreads and Prior Private Loan Ratings

To test our first hypothesis H1, we estimate several regression models using two different samples. In our regressions the yield spread, SPREAD, is the dependent variable. Also, our main variables of interest are RATING_UPGRADE, RATING_UNCHANGED and RATING_DOWNGRADE.

First, we estimate a regression model using the full sample. The purpose of estimating this regression is to analyze if the difference between the IPDO credit rating and the prior loan rating conveys additional information regarding the credit quality of the firm. According to our first hypothesis H1, we expect that firms who maintain the same or obtain higher credit ratings signal information on their commitment to keep a clean credit record. Therefore, we expect RATING_UPGRADE, and RATING_UNCHANGED to be negatively related to the yield spreads and RATING_DOWNGRADE to be positively related to the yield spreads of the IPDOs. We report the results in Table 5.10.

We find that RATING_UPGRADE and RATING_UNCHANGED are negatively related to the yield spread at the 5% level, while RATING_DOWNGRADE is not significantly related to the yield spread. The results indicate that IPDOs with upgraded credit ratings could convey positive signal about the firm's true credit quality, thereby reducing the yield spread significantly. However, we do not find evidence of information transmission in the case of IPDOs with downgraded credit ratings. The negative significant relation of RATING_UNCHANGED to yield spread indicates that maintaining the same rating could signal the firm's commitment to its credit quality. However, we find that the size of the coefficient of RATING_UPGRADE is larger than the one of RATING_UNCHANGED. This result indicates that the impact of assigning a higher credit rating for the IPDO is greater than the impact of maintaining the same rating.

Table 5.10: Bond Yield Spreads and Prior Private Loan Ratings for Full Sample

Table 5.10 reports estimation results with yield spreads of the initial public debt offers as the independent variable and the changes in credit ratings between IPDOs and prior loan ratings as the main test variables. The sample consists of nonfinancial public US companies who announced an initial public debt offering during the period 1990-2009; and for their initial bonds. SPREAD is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. RATING_UPGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned an improved credit rating compared to last private debt agreement before its first public debt issue. RATING_DOWNGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned a worse credit rating compared to last private debt agreement before its first public debt issue. RATING_UNCHANGED is a binary variable that is coded 1 if the company IPDO's credit rating is assigned the same credit rating as its last private debt agreement before its first public debt issue. BOND_RATING is coded 6 if S&P's rating is AAA, AAA-, AA+; 5 if S&P's rating is AA; AA-, A+ etc. Similarly, BOND_RATING is coded 6 if Moody's rating is Aaa, Aaa1, Aaa2, AA3; 5 if Moody's rating is Aa, Aa1, Aa2, Aa3 etc. BOND_RATING_LOW the bond rating is recoded with the lower of S&P's or Moody's. BOND_RATING_HIGH the bond rating is recoded with the higher of S&P's or Moody's. ISSUE_SIZE is the natural logarithm of the issue size. ISSUE_SIZE($) is the principal size in dollar value. MATURITY is the number of years until maturity. SINKING_FUND is a binary variable that is coded 1 if the debt contract has a sinking fund provision. CALLABLE is a binary variable that is coded 1 if the debt contract has call provisions. LISTED_DEBT is a binary variable that is coded 1 if the firm's initial bond is listed in an organized stock exchange. All ratios are expressed in decimal points. SIZE ($) is total assets in dollar value. LEVERAGE is the ratio of long-term debt over total assets. FIXED_ASSETS is the ratio of property, plant and equipment over total assets. HIGH_TECH is a binary variable that is coded 1 if the firm operates in a high technology industry. LISTED_EQUITY is a binary variable that is coded 1 if the firm's shares are listed in the NYSE. All specifications include a time trend variable. Regressions are estimated with robust standard errors. t-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	I		II	
RATING_UPGRADE	-120.34**	(-2.51)	-150.39***	(-3.06)
RATING_UNCHANGED	-51.02**	(-2.25)	-55.81**	(-2.37)
RATING_DOWNGRADE	-8.84	(-0.25)	-17.63	(-0.41)
BOND_RATING_LOW	-93.55***	(-11.57)	-	-
BOND_RATING_HIGH	-	-	-90.11***	(-12.18)
ISSUE_SIZE	5.86	(0.74)	15.80**	(2.11)
MATURITY	-1.48**	(-2.12)	-2.04***	(-2.80)
SINKING_FUND	80.14**	(2.48)	66.83**	(2.26)
CALLABLE	62.81***	(5.09)	59.98***	(4.69)
LISTED_DEBT	0.14	(0.01)	8.81	(0.43)
SIZE	-4.65	(-0.58)	-9.29	(-1.24)
LEVERAGE	63.80*	(1.74)	32.94	(0.88)
FIXED_ASSETS	-12.38	(-0.80)	-5.39	(-0.34)
HIGH_TECH	11.54	(0.71)	15.28	(0.96)
LISTED_EQUITY	-34.08**	(-2.53)	-27.58*	(-1.97)
YEAR_IPDO	6.15***	(3.21)	5.92***	(2.96)
Cons	435.70***	(9.27)	452.87***	(9.88)
Obs.	431		431	
R2	0.582		0.585	

Table 5.10 continued.

Variance Inflation Factors (VIF)		
RATING_UPGRADE	1.07	1.07
RATING_UNCHANGED	1.12	1.12
RATING_DOWNGRADE	1.04	1.04
BOND_RATING_LOW	2.14	-
BOND_RATING_HIGH	-	2.07
ISSUE_SIZE	1.77	1.8
MATURITY	1.1	1.12
SINKING_FUND	1.08	1.08
CALLABLE	1.49	1.47
LISTED_DEBT	1.08	1.09
SIZE	2.63	2.73
LEVERAGE	1.69	1.63
FIXED_ASSETS	1.22	1.21
HIGH_TECH	1.17	1.17
LISTED_EQUITY	1.13	1.13
YEAR_IPDO	1.56	1.56

The correlation matrix reported in Table 5.9 shows that some of the explanatory variables are significantly correlated with each other, which raises the possibility that mutlicollinearity is present. In order to quantify the impact of correlations among the independent variables in the regression reported in Table 5.10, we compute the Variance Inflation Factor (VIF) for each variable and report the findings in Table 5.10. The literature suggests that values of VIF that exceed five may be a cause of concern. The results of the VIF reported in Table 5.10 show that all the VIF values are less than three which indicates that multicollinearity does not seem to pose a problem in our model.

In the regression reported in Table 5.10 we assign a value of zero for observations without prior private loan ratings. Therefore, the variables RATING_UPGRADE, RATING_UNCHANGED, and RATING_DOWNGRADE also pick up the effects relating to the presence of a prior private loan rating, while we are interested in estimating the effects of changes in the credit ratings. In order to eliminate this possibility we examine the re-estimate the same model using the sub-sample of firms with prior private ratings. Within the sub-sample of observations with prior private ratings we expect that IPDOs which are assigned higher credit ratings or maintain their ratings will be negatively related to the yield spread. In contrast, we expect IPDOs

which are assigned lower credit ratings will be positively related to the yield spread. We report the results in Table 5.11.

Similar to the results reported in Table 5.10, we find that RATING_UPGRADE is negatively related to the yield spread at the 5% level, while RATING_UNCHANGED is not significantly related to the yield spread. In unreported results we find that RATING_DOWNGRADE is not significantly related to the yield spread.

In relation to the VIF figures, we find that some of the reported VIF values are close to five, which might raise the possibility that multicollinearity is present and influences the results derived from the model. In order to assess the impact of multicollinearity in the regression, we identify the explanatory variable with the highest level of correlations with the other variables. We find that SIZE is significantly correlated with many of the explanatory variables. We estimate the regression without SIZE and find qualitatively similar result with VIF values less than 2.5 (results not reported).

It is important to note that caution is required when making inferences based on the results presented in Tables 5.10 and 5.11. A main and a valid concern regarding these results is that the evidence could be unreliable due to the very small number of upgraded IPDOs observations. We discuss this point in the Limitations section presented in Chapter 6.

Table 5.11: Bond Yield Spreads and Prior Private Loan Ratings for the Sub-Sample of Observations with Prior Loan Ratings

Table 5.11 reports estimation results with yield spreads of the initial public debt offers as the independent variable and the changes in credit ratings between IPDOs and prior loan ratings as the main test variables. The sample consists of nonfinancial public US companies who announced an initial public debt offering during the period 1990-2009 and who had a prior private loan rating. SPREAD is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. RATING_UPGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned an improved credit rating compared to last private debt agreement before its first public debt issue. RATING_DOWNGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned a worse credit rating compared to last private debt agreement before its first public debt issue. RATING_UNCHANGED is a binary variable that is coded 1 if the company IPDO's credit rating is assigned the same credit rating as its last private debt agreement before its first public debt issue. BOND_RATING is coded 6 if S&P's rating is AAA, AAA-, AA+; 5 if S&P's rating is AA; AA-, A+ etc. Similarly, BOND_RATING is coded 6 if Moody's rating is Aaa, Aaa1, Aaa2, AA3; 5 if Moody's rating is Aa, Aa1, Aa2, Aa3 etc. BOND_RATING_LOW the bond rating is recoded with the lower of S&P's or Moody's. BOND_RATING_HIGH the bond rating is recoded with the higher of S&P's or Moody's. ISSUE_SIZE is the natural logarithm of the issue size. ISSUE_SIZE($) is the principal size in dollar value. MATURITY is the number of years until maturity. SINKING_FUND is a binary variable that is coded 1 if the debt contract has a sinking fund provision. CALLABLE is a binary variable that is coded 1 if the debt contract has call provisions. LISTED_DEBT is a binary variable that is coded 1 if the firm's initial bond is listed in an organized stock exchange. All ratios are expressed in decimal points. SIZE ($) is total assets in dollar value. LEVERAGE is the ratio of long-term debt over total assets. FIXED_ASSETS is the ratio of property, plant and equipment over total assets. HIGH_TECH is a binary variable that is coded 1 if the firm operates in a high technology industry. LISTED_EQUITY is a binary variable that is coded 1 if the firm's shares are listed in the NYSE. All specifications include a time trend variable. Regressions are estimated with robust standard errors. t-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

	I		II	
RATING_UPGRADE	-143.25*	(-1.83)	-185.01**	(-2.27)
RATING_UNCHANGED	-27.68	(-0.58)	-37.84	(-0.76)
BOND_RATING_LOW	-89.07***	(-2.69)	-	-
BOND_RATING_HIGH	-	-	-64.94**	(-2.20)
ISSUE_SIZE	-2.20	(-0.07)	0.99	(0.03)
MATURITY	-2.62	(-1.41)	-3.78*	(-1.97)
CALLABLE	100.31***	(3.02)	99.10**	(2.52)
LISTED_DEBT	-24.42	(-0.70)	-40.00	(-0.97)
SIZE	34.32	(1.02)	26.52	(0.77)
LEVERAGE	111.00	(0.84)	183.35*	(1.67)
FIXED_ASSETS	-13.92	(-0.45)	-26.56	(-0.87)
HIGH_TECH	47.52	(1.03)	51.80	(1.12)
LISTED_EQUITY	-49.17	(-1.07)	-52.11	(-1.10)
YEAR_IPDO	0.11	(0.02)	1.51	(0.24)
Cons	203.18	(1.41)	202.11	(1.34)
Obs.	54		54	
R2	0.403		0.358	

Table 5.11 continued.

Variance Inflation Factors (VIF)		
RATING_UPGRADE	2.12	1.96
RATING_UNCHANGED	1.98	1.95
BOND_RATING_LOW	3.63	-
BOND_RATING_HIGH	-	3.49
ISSUE_SIZE	2.26	2.26
MATURITY	1.36	1.34
CALLABLE	1.32	1.33
LISTED_DEBT	1.38	1.38
SIZE	4.43	4.53
LEVERAGE	2.09	1.87
FIXED_ASSETS	1.5	1.48
HIGH_TECH	1.64	1.63
LISTED_EQUITY	1.38	1.41
YEAR_IPDO	2.23	2.3

5.6.2. Bond Yield Spreads and Banking Relationships

To test our second hypothesis H2, we estimate several regression models with yield spread, SPREAD, as the dependent variable and several proxies for the strength of banking relationship as our main variables of interest. According to our second hypothesis H2, we expect companies with strong banking relationships to significantly have lower yield spreads than companies with weak banking relationships. Therefore, we expect our three proxies of the banking relationship to be negatively related to the yield spread. Table 5.12 reports the estimation results.

Our first proxy of the strength of banking relationships, RELATION_DUMMY, is negative and significant at the 1% level. Companies that repeat borrowing from the same lead bank enjoy lower yield spreads for their initial public debt offer by 40.81 (48.33) basis points. Similarly, RELATION_NUMBER is negative and significant at the 1% level. Companies who borrow all their funds from the same lead bank have lower yield spreads by almost 45.35 (51.98) basis points compared to companies who borrow from a different lead bank each time they require debt financing. Our final proxy for the strength of relationship, RELATION_AMOUNT, is negative and significant at the 1% level with a coefficient size of 39.73 (47.80). As for mutlicollinearity, the reported VIF values indicate that multicollinearity does not seem to pose a problem in our model as all values are less than three which is below the threshold value of five used in the literature.

Table 5.12: Yield Spreads and the Strength of Banking Relationships for the Full Sample

Table 5.12 reports regression estimation results with yield spreads of the initial public debt offers as the independent variable. The sample consists of nonfinancial public US companies who announced an initial public debt offering during the period 1990-2009; and for their initial bonds. SPREAD is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. RATING_UPGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned an improved credit rating compared to last private debt agreement before its first public debt issue. RATING_DOWNGRADE is a binary variable that is coded 1 if the company IPDO's credit rating is assigned a worse credit rating compared to last private debt agreement before its first public debt issue. RATING_UNCHANGED is a binary variable that is coded 1 if the company IPDO's credit rating is assigned the same credit rating as its last private debt agreement before its first public debt issue. RELATION_DUMMY is a binary variable that is coded 1 if the firm had borrowed more than once from the same lead bank in the last five years. RELATION_NUMBER is the number of loans extended by the relationship bank divided by the total numbers of loans issued to the company in the last 5 years before the firm's first access to the public debt market. RELATION_AMOUNT the amount of loans extended by the relationship bank divided by the total amount of loans issued to the company in the last 5 years before the firm's first access to the public debt market. BOND_RATING is coded 9 if S&P's rating is AAA, AAA-, AA+; 8 if S&P's rating is AA; AA-, A+ etc. Similarly, BOND_RATING is coded 9 if Moody's rating is Aaa, Aaa1, Aaa2, AA3; 8 if Moody's rating is Aa, Aa1, Aa2, Aa3 etc. BOND_RATING_LOW indicates that the bond rating is recoded with the lower of S&P's or Moody's. BOND_RATING_HIGH indicates that the bond rating is recoded with the higher of S&P's or Moody's. ISSUE_SIZE is the natural logarithm of the issue size. MATURITY is the number of years until maturity. SINKING_FUND is a binary variable that is coded 1 if the debt contract has a sinking fund provision. CALLABLE is a binary variable that is coded 1 if the debt contract has call provisions. LISTED_DEBT is a binary variable that is coded 1 if the firm's initial bond is listed in an organized stock exchange. SIZE is the natural logarithm of the firm's total assets. LEVERAGE is the ratio of long-term debt over total assets. FIXED_ASSETS is the ratio of property, plant and equipment over total assets. HIGH_TECH is a binary variable that is coded 1 if the firm operates in a high technology industry. LISTED_EQUITY is a binary variable that is coded 1 if the firm's shares are listed in The NYSE. All specifications include a time trend variable. Regressions are estimated with robust standard errors. t-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

Table 5.12: Continued.

	RELATION_DUMMY				RELATION_NUMBER				RELATION_AMOUNT			
RELATION_DUMMY	-40.81***	(-2.76)	-48.33***	(-3.20)	-	-	-	-	-	-	-	-
RELATION_NUMBER	-	-	-	-	-45.35***	(-2.65)	-51.98***	(-2.98)	-	-	-	-
RELATION_AMOUNT	-	-	-	-	-	-	-	-	-39.73**	(-2.40)	-47.80***	(-2.84)
RATING_UPGRADE	-108.1**	(-2.34)	-136.0***	(-2.88)	-107.5**	(-2.35)	-135.8***	(-2.90)	-108.7**	(-2.36)	-136.6***	(-2.90)
RATING_UNCHANGED	-33.48	(-1.41)	-35.23	(-1.42)	-38.59*	(-1.65)	-41.71*	(-1.70)	-38.34	(-1.63)	-40.72*	(-1.65)
RATING_DOWNGRADE	2.058	(0.06)	-5.173	(-0.11)	-0.507	(-0.01)	-8.435	(-0.20)	-0.621	(-0.02)	-8.16	(-0.19)
BOND_RATING_LOW	-93.29***	(-11.66)	-	-	-93.63***	(-11.66)	-	-	-93.52***	(-11.65)	-	-
BOND_RATING_HIGH	-	-	-90.68***	(-12.42)	-	-	-90.82***	(-12.44)	-	-	-90.84***	(-12.43)
ISSUE_SIZE	6.942	(0.89)	16.98**	(2.30)	6.76	(0.86)	16.79**	(2.28)	6.832	(0.87)	16.91**	(2.29)
MATURITY	-1.675**	(-2.38)	-2.258***	(-3.09)	-1.607**	(-2.28)	-2.181***	(-2.99)	-1.608**	(-2.28)	-2.186***	(-2.99)
SINKING_FUND	88.46***	(2.62)	76.60**	(2.48)	90.48***	(2.65)	78.57**	(2.52)	88.84***	(2.63)	77.19**	(2.50)
CALLABLE	65.40***	(5.33)	62.51***	(4.95)	64.46***	(5.26)	61.48***	(4.88)	64.61***	(5.26)	61.66***	(4.88)
LISTED_DEBT	-3.233	(-0.15)	4.517	(0.22)	-3.143	(-0.15)	4.858	(0.23)	-2.824	(-0.13)	5.00	(0.24)
SIZE	-5.361	(-0.68)	-9.768	(-1.30)	-5.374	(-0.68)	-9.871	(-1.32)	-5.419	(-0.68)	-9.904	(-1.32)
LEVERAGE	63.28*	(1.71)	31.06	(0.82)	62.94*	(1.70)	30.93	(0.82)	62.91*	(1.70)	30.67	(0.81)
FIXED_ASSETS	-14.04	(-0.91)	-7.212	(-0.46)	-14.1	(-0.91)	-7.238	(-0.46)	-14.21	(-0.92)	-7.45	(-0.47)
HIGH_TECH	12.06	(0.74)	15.93	(1.01)	12.11	(0.74)	15.97	(1.01)	-12.3	(-0.75)	16.23	(1.02)
LISTED_EQUITY	-28.94**	(-2.15)	-21.33	(-1.53)	-29.78**	(-2.23)	-22.51	(-1.62)	-29.71**	(-2.21)	-22.16	(-1.59)
YEAR_IPDO	6.304***	(3.33)	6.086***	(3.07)	6.382***	(3.36)	6.174***	(3.11)	6.326***	(3.33)	6.117***	(3.08)
Cons	439.7***	(9.33)	458.3***	(9.92)	441.3***	(9.36)	459.8***	(9.98)	440.9***	(9.34)	459.7***	(9.97)
No. of Firms	431		431		431		431		431		431	
Ad_R2	0.592		0.591		0.591		0.590		0.590		0.589	

Table 5.12: Continued.

	Variance Inflation Factors (VIF)					
RELATION_DUMMY	1.19	1.19	-	-	-	-
RELATION_NUMBER	-	-	1.13	1.13	-	-
RELATION_AMOUNT	-	-	-	-	1.15	1.15
RATING_UPGRADE	1.08	1.08	1.08	1.08	1.08	1.08
RATING_UNCHANGED	1.22	1.22	1.17	1.17	1.18	1.18
RATING_DOWNGRADE	1.05	1.05	1.04	1.05	1.05	1.05
BOND_RATING_LOW	2.07	-	2.07	-	2.07	-
BOND_RATING_HIGH	-	2.14	-	2.15	-	2.15
ISSUE_SIZE	1.8	1.77	1.8	1.77	1.8	1.77
MATURITY	1.13	1.11	1.13	1.11	1.13	1.11
SINKING_FUND	1.09	1.09	1.09	1.09	1.09	1.09
CALLABLE	1.48	1.49	1.47	1.49	1.48	1.49
LISTED_DEBT	1.09	1.09	1.09	1.09	1.09	1.09
SIZE	2.73	2.63	2.73	2.63	2.73	2.63
LEVERAGE	1.63	1.69	1.63	1.69	1.63	1.69
FIXED_ASSETS	1.22	1.22	1.22	1.22	1.22	1.22
HIGH_TECH	1.17	1.17	1.17	1.17	1.17	1.17
LISTED_EQUITY	1.15	1.16	1.14	1.15	1.15	1.15
YEAR_IPDO	1.56	1.56	1.56	1.57	1.56	1.57

Similar to the concern outlined in the previous section, we only use observations with syndicated loans in order to measure the strength of the banking relationship and assign a value of zero for observations without syndicated loans. Therefore, the variables measuring the strength of banking relationship could also pick up the effects of the presence of syndicated loans rather than the strength of banking relationship.

To check the robustness of our results reported in Table 5.12, we estimate the same regressions using the sub-sample of observations with syndicated loans. We report the estimation results in Table 5.13. The results reported in Table 5.13 are similar to the ones reported in Table 5.12. All our proxies of the strength of banking relationships are significant with the expected negative signs. The VIF values reported in Table 5.13 indicate that multicollinearity does not raise a concern in our regression since all values are less than three.

Our results suggest that the strength of the relationship between the firm and its lead bank significantly reduces yield spreads of initial public debt offerings. This result is consistent with the previously documented evidence on the value of banking relationships in the equity market (James, 1987; James & Wier, 1990; Lummer & McConnell, 1989) and the debt market (Datta et al., 2000).

5.6.3. Other Control Variables

Our estimations include different proxies for default risk: BOND_RATING; ISSUE_SIZE; and LEVERAGE. The coefficient of bond rating, BOND_RATING, is negatively related to yield spreads at the 1% level in all of our estimations. This implies that a full letter upgrade in the bond rating, for example from Aa to Aaa, would result in a significant decrease in the yield spread. The coefficient of ISSUE_SIZE is positive and significant at the 5% level in a number of estimations reported in Tables 10 and 12. Issuing new bonds increases the total dollar value of debt and consequently the firm's riskiness, hence the positive coefficient. Also, the LEVERAGE coefficient has the expected positive sign, indicating that higher leverage increases the firm's financial risk and consequently yield spreads. However, LEVERAGE is not significant in most of our estimations and significant at the 10% level in the reminding estimations.

Table 5.73: Yield Spreads and the Strength of Banking Relationships for Observations with Prior Syndicated Loans

Table 5.13 reports regression estimation results with yield spreads of the initial public debt offers as the independent variable. The sample consists of 184 nonfinancial public US companies who issued a syndicated loan in the last five years before they announced an initial public debt offering during the period 1990-2009. The dependent variable, SPREAD, is the difference between the yield of the initial public debt offer and the yield of a matching Treasury. RELATION_DUMMY is a binary variable that is coded 1 if the firm had borrowed more than once from the same lead bank in the last five years. RELATION_NUMBER is the number of loans extended by the relationship bank divided by the total numbers of loans issued to the company in the last 5 years before the firm's first access to the public debt market. RELATION_AMOUNT the amount of loans extended by the relationship bank divided by the total amount of loans issued to the company in the last 5 years before the firm's first access to the public debt market. BOND_RATING is coded 9 if S&P's rating is AAA, AAA-, AA+; 8 if S&P's rating is AA; AA-, A+ etc. Similarly, BOND_RATING is coded 9 if Moody's rating is Aaa, Aaa1, Aaa2, AA3; 8 if Moody's rating is Aa, Aa1, Aa2, Aa3 etc. BOND_RATING_LOW indicates that the bond rating is recoded with the lower of S&P's or Moody's. BOND_RATING_HIGH indicates that the bond rating is recoded with the higher of S&P's or Moody's. ISSUE_SIZE is the natural logarithm of the issue size. MATURITY is the number of years until maturity. SINKING_FUND is a binary variable that is coded 1 if the debt contract has a sinking fund provision. CALLABLE is a binary variable that is coded 1 if the debt contract has call provisions. LISTED_DEBT is a binary variable that is coded 1 if the firm's initial bond is listed in an organized stock exchange. SIZE is the natural logarithm of the firm's total assets. LEVERAGE is the ratio of long-term debt over total assets. FIXED_ASSETS is the ratio of property, plant and equipment over total assets. HIGH_TECH is a binary variable that is coded 1 if the firm operates in a high technology industry. LISTED_EQUITY is a binary variable that is coded 1 if the firm's shares are listed in The NYSE. All specifications include a time trend variable. Regressions are estimated with robust standard errors. t-statistics are in parentheses. ***, **, * indicate significance at the 10%, 5%, and 1% respectively.

Table 5.13: Continued.

	RELATION_DUMMY				RELATION_NUMBER				RELATION_AMOUNT			
RELATION_DUMMY	-39.91**	(-2.05)	-44.50**	(-2.22)	-	-	-	-	-	-	-	-
RELATION_NUMBER	-	-	-	-	-46.35**	(-2.12)	-49.70**	(-2.23)	-	-	-	-
RELATION_AMOUNT	-	-	-	-	-	-	-	-	-36.97*	(-1.72)	-42.90*	(-1.96)
BOND_RATING_LOW	-86.64***	(-6.46)	-	-	-86.81***	(-6.43)	-	-	-86.68***	(-6.43)	-	-
BOND_RATING_HIGH	-	-	-91.00***	(-8.23)	-	-	-90.83***	(-8.23)	-	-	-91.12***	(-8.24)
ISSUE_SIZE	-3.711	(-0.25)	4.79	(0.35)	-4.109	(-0.28)	4.399	(0.32)	-3.61	(-0.24)	4.901	(0.36)
MATURITY	-1.881	(-1.53)	-1.533	(-1.37)	-1.744	(-1.43)	-1.378	(-1.27)	-1.755	(-1.45)	-1.398	(-1.28)
SINKING_FUND	120.4**	(2.48)	110.9**	(2.37)	129.7***	(2.65)	120.0**	(2.54)	121.6**	(2.50)	113.2**	(2.42)
CALLABLE	82.73***	(5.56)	66.66***	(4.31)	81.04***	(5.46)	64.94***	(4.21)	81.51***	(5.47)	65.29***	(4.21)
LISTED_DEBT	34.83	(0.95)	24.49	(0.70)	35.08	(0.95)	25.23	(0.72)	35.72	(0.98)	25.25	(0.72)
SIZE	5.873	(0.41)	5.769	(0.44)	5.845	(0.41)	5.573	(0.43)	5.32	(0.37)	5.193	(0.40)
LEVERAGE	88.09*	(1.66)	47.71	(0.86)	85.51	(1.60)	45.47	(0.82)	85.27	(1.60)	44.58	(0.80)
FIXED_ASSETS	-20.11	(-0.87)	-21.76	(-0.93)	-21.12	(-0.91)	-22.92	(-0.97)	-21.69	(-0.92)	-23.51	(-0.99)
HIGH_TECH	5.206	(0.24)	19.00	(0.84)	6.123	(0.27)	20.28	(0.88)	7.669	(0.34)	21.54	(0.93)
LISTED_EQUITY	-33.08	(-1.53)	-18.88	(-0.85)	-36.02*	(-1.69)	-22.06	(-1.01)	-33.22	(-1.53)	-19.14	(-0.86)
YEAR_IPDO	1.197	(0.53)	1.026	(0.42)	1.262	(0.56)	1.07	(0.44)	1.094	(0.48)	0.939	(0.38)
Cons	408.0***	(6.24)	421.2***	(6.47)	413.1***	(6.26)	425.9***	(6.56)	410.7***	(6.20)	424.8***	(6.50)
No. of Firms	184		184		184		184		184		184	
Ad_R2	0.543		0.545		0.543		0.544		0.539		0.541	

Table 5.13: Continued.

	Variance Inflation Factors (VIF)					
RELATION_DUMMY	1.13	1.13	-	-	-	-
RELATION_NUMBER	-	-	1.13	1.13	-	-
RELATION_AMOUNT	-	-	-	-	1.11	1.12
BOND_RATING_LOW	2.07	-	2.07	-	2.07	-
BOND_RATING_HIGH	-	2.52	-	2.52	-	2.53
ISSUE_SIZE	1.86	1.84	1.86	1.84	1.86	1.84
MATURITY	1.12	1.12	1.11	1.12	1.12	1.12
SINKING_FUND	1.13	1.13	1.15	1.15	1.14	1.14
CALLABLE	1.36	1.42	1.36	1.42	1.36	1.42
LISTED_DEBT	1.16	1.18	1.16	1.18	1.16	1.18
SIZE	2.59	2.59	2.59	2.58	2.59	2.58
LEVERAGE	1.59	1.7	1.58	1.69	1.58	1.69
FIXED_ASSETS	1.23	1.23	1.22	1.22	1.22	1.22
HIGH_TECH	1.23	1.23	1.23	1.23	1.22	1.23
LISTED_EQUITY	1.18	1.22	1.19	1.23	1.19	1.22
YEAR_IPDO	1.55	1.55	1.55	1.56	1.55	1.55

We also include a number of variables that capture the firm's information risk. Larger firms are expected to be subject to less information asymmetries compared to smaller firms. We include SIZE to approximate the information risk. The coefficient of SIZE is insignificant in all estimations. Also, we include two measures of firm visibility due to the listing of debt (LISTED_DEBT) or equity (LISTED_EQUITY) in an organized exchange. The coefficient of LISTED_DEBT is negative but insignificant in all estimations. On the other hand, the coefficient of LISTED_EQUITY is negative and significant at the 5% level for the estimations that use the full sample. This finding suggests that the visibility of the firm, in terms of its listing in the NYSE, has a significant impact on the yield spread.

Other control variables include MATURITY which we expect to have a positive association with yield spread. However, the MATURITY coefficient is negative and significant at the 1% level in the estimations using full samples. An increase in debt maturity by one year significantly reduces the yield spread. This result is consistent with other documented findings in the literature (Beatty et al., 2008; Bharath et al., 2009; and Fenn, 2000). The coefficients of the sinking fund and callable provisions have the expected positive sign and are significant at the 5% and 1% level respectively. The coefficient on the fixed assets ratio, FIXED_ASSETS, has the expected sign but is insignificant in all estimations. Finally, our estimations include a variable that captures the business risk, HIGH_TECH, which has the expected positive sign but is insignificant in all estimations.

5.7. Conclusion

In this study we investigate the impact of information produced by monitoring activities of the firm's private debt on yield spreads for initial public bond offers. Initial public bond offers are ideal setting for studying how information asymmetries resolve in the public debt markets because they are subject to greater information asymmetry in comparison to seasoned bond offers. In addition, this study allows us to investigate elements in the firm's private debt financing, which is a largely ignored topic in the literature.

The firm's private debt is monitored by the banks themselves. Also, some of the firm's private debt is monitored by rating agencies. We approximate monitoring by rating agencies by the difference between the credit ratings of IPDOs and prior private loans. Also, we approximate monitoring by banks by the strength of the relationship between the firm and its bank. To perform our analysis, we estimate a multivariate regression model to explain the cross-section variation in yield spreads of initial public debt offerings issued by nonfinancial US firms during the period 1990-2009, with the difference between the IPDOs and prior private loans credit ratings and the strength of banking relationship as our main variables of interest.

Our findings indicate that the IPDOs which are assigned higher or the same ratings compared to the ratings assigned for the firms' prior private loans are negatively and significantly related to yield spreads. In addition, we show that strong banking relationships reduce yield spreads significantly. This finding is robust to using different measures of the strength of the banking relationship. The findings of the present study are consistent with our proposition that information related to monitoring the firm's private debt reduces significantly the information asymmetries facing prospective bondholders. Obtaining the same or higher credit rating for the firm's IPDO compared to the credit rating of its private loan could signal the firm's commitment to maintain a clean credit track record. In term of the strength of banking relationships, the relationship bank's assessment of the quality of the firm takes into consideration information that is not available to bondholders. Therefore, strong banking relationships can reduce prospective bondholders' adverse selection because it signals the firm's business and credit quality.

References

Arena, M. (2010). The corporate choice between public debt, bank loans, traditional private debt placements, and 144A debt issues. *Review of Quantitative Finance and Accounting, forthcoming*.

Beatty, A., Weber, J., & Yu, J. (2008). Conservatism and debt. *Journal of Accounting and Economics, 45*, 154–174.

Bharath, S., Dahiya, S., Saunders, A., & Srinivasan, A. (2009). Lending relationships and loan contract terms. *The Review of Financial Studies*, doi:10.1093/rfs/hhp1064.

Bharath, S., Sunder, J., & Sunder, S. (2008). Accounting quality and debt contracting. *The Accounting Review, 83*, 1–28.

Blackwell, D., & Kidwell, D. (1988). An investigation of cost differences between public sales and private placements of debt. *Journal of Financial Economics, 22*, 253-278.

Blume, M., Lim, F., & Mackinlay, A. (1998). The declining credit quality of U.S. corporate debt: Myth or reality? *The Journal of Finance, 53*, 1389-1413.

Boot, A. (2000). Relationship banking: What do we know? *Journal of Financial Intermediation, 9*, 7–25.

Boot, A., & Thakor, A. (2000). Can relationship banking survive competition? *The Journal of Finance, 55*, 679-713.

Booth, J. (1992). Contract costs, bank loans, and the cross-monitoring hypothesis. *Journal of Financial Economics, 31*, 25-41.

Cantillo, M., & Wright, J. (2000). How do firms choose their lenders? An empirical investigation. *Review of Financial Studies, 13*, 155-189.

Datta, S., Iskandar-Datta, M., & Patel, A. (1999). Bank monitoring and the pricing of corporate public debt. *Journal of Financial Economics, 51*, 435-449.

Datta, S., Iskandar-Datta, M., & Patel, A. (2000). Do bank relationships matter in public debt offerings? *Journal of Applied Corporate Finance, 12*, 120-127.

Datta, S., Iskandar-Datta, M., & Patel, A. (2002). Some evidence on the uniqueness of initial public debt offerings. *The Journal of Finance, 55*, 715 - 743.

Denis, D., & Mihov, V. (2003). The choice among bank debt, non-bank private debt, and public debt: Evidence from new corporate borrowings. *Journal of Financial Economics, 70*, 3-28.

Dennis, S., & Mullineaux, D. (2000). Syndicated loans. *Journal of Financial Intermediation, 9*, 404–426.

Diamond, D. (1989). Reputation acquisition in debt markets. *Journal of Political Economy, 97*, 828-862.

Diamond, D. (1991). Monitoring and reputation: The choice between bank loans and directly placed debt. *Journal of Political Economy, 99*, 689-721.

Elyasiani, E., & Goldberg, L. (2004). Relationship lending: A survey of the literature. *Journal of Economics and Business, 56*, 315–330.

Fenn, G. (2000). Speed of issuance and the adequacy of disclosure in the 144A high-yield debt market. *Journal of Financial Economics, 56*, 383–405.

Flannery, M. (1986). Asymmetric information and risky debt maturity choice. *The Journal of Finance*(41), 19–37.

Francis, J., LaFond, R., Olsson, P., & Schipper, K. (2005). The market pricing of accruals quality. *Journal of Accounting and Economics, 39*, 295-327.

Gadanecz, B. (2004). The syndicated loan market: structure, development and implications. *BIS Quarterly Review*, 75-89.

Hale, G., & Santos, J. (2008). The decision to access the public bond market: the role of reputation, funding choices and bank relationships. *Journal of Banking and Finance, 32*, 1928–1940.

Hale, G., & Santos, J. (2009). Do banks price their informational monopoly? *Journal of Financial Economics, 93*, 185-206.

Huang, R., & Ramirez, G. (2010). Speed of issuance, lender specialization, and the rise of the 144A debt market. *Financial Management, 39*, 643-673.

James, C. (1987). Some evidence on the uniqueness of bank loans. *Journal of Financial Economics, 19*, 217-235.

James, C., & Wier, P. (1990). Borrowing relationships, intermediation, and the cost of issuing public securities. *Journal of Financial Economics, 28*, 149-171.

Kwan, S., & Carleton, W. (2010). Financial contracting and the choice between private placement and publicly offered bonds. *Journal of Money, Credit and Banking, 42*, 907-929.

Lummer, S., & McConnell, J. (1989). Further evidence on the bank lending process and the capital-market response to bank loan agreements. *Journal of Financial Economics, 25*, 99-122.

Mansi, S., Maxwell, W., & Miller, D. (2010). Analyst forecast characteristics and the cost of debt. *Review of Accounting Studies*, doi: 10.1007/s11142-11010-19127-11142.

Moody's. (1995). New initiative on bank credit facility ratings.

Rajan, R. (1992). Insiders and outsiders: The choice between informed and arm's-length debt. *The Journal of Finance, 47*, 1367-1400.

Schenone, C. (2010). Lending relationships and information rents: Do banks exploit their information advantages? *The Review of Financial Studies, 23*, 1149-1199.

Sengupta, P. (1998). Corporate disclosure quality and the cost of debt. *The Accounting Review, 73*, 459-474.

Sharpe, S. (1990). Asymmetric information, bank lending and implicit contracts: A stylized model of customer relationships. *The Journal of Finance, 45*, 1069–1087.

Slovin, M., Sushka, M., & Hudson, C. (1990). External monitoring and its effect on seasoned common stock issues. *Journal of Accounting and Economics, 12*, 397-417.

Slovin, M., & Young, J. (1990). Bank lending and initial public offerings. *Journal of Banking and Finance, 14*, 729-740.

Smith, C. (1986). Investment banking and the capital acquisition process. *Journal of Financial Economics, 15*, 3-29.

Smith, C., & Warner, J. (1979). On financial contracts and optimal capital structure: An analysis of bond covenants. *Journal of Financial Economics, 7*, 117-161.

Standard, & Poor's. (2006). A Guide to the U.S. Loan Market.

Sufi, A. (2007). Information asymmetry and financing arrangements: Evidence from syndicated loans. *Journal of Finance, 62*, 629-668.

Sufi, A. (2009). The real effects of debt certification: Evidence from the introduction of bank loan ratings. *Review of Financial Studies, 22*, 1659–1691.

Sunder, J. (2002). Information production in stock markets and cost of bank debt. *Working Paper, North western University*.

Tang, T. (2009). Information asymmetry and firms' credit market access: Evidence from Moody's credit rating format refinement. Journal of Financial Economics, 93, 325-351.

Wittenberg-Moerman, R. (2008). The role of information asymmetry and financial reporting quality in debt trading: Evidence from the secondary loan market. *Journal of Accounting and Economics, 46*, 240-260.

Wittenberg-Moerman, R. (2009). The impact of information asymmetry on debt pricing and maturity. *Working Paper (SSRN)*.

Yi, H.-C., & Mullineaux, D. (2006). The informational role of bank loan ratings. *Journal of Financial Research, 29*, 481–501.

Yu, F. (2005). Accounting transparency and the term structure of credit spreads. *Journal of Financial Economics, 75*, 53-84.

Chapter 6

Conclusions

This thesis investigates the role of information in the public debt markets in three essays. The first essay examines the impact of the firm's outstanding public debt on its decision to disclose bad news by issuing profit warnings. The second essay analyzes the effect of the firm's issuance of its initial public debt offering (IPDO) on its accounting reporting attributes, in particular timely loss recognition. The third essay investigates the impact of information produced through monitoring prior private loans by credit rating agencies and banks on the yield spreads of IPDOs. In this chapter, I will summarise the main findings of each essay, discuss the limitations, and propose future research extensions.

6.1. Summary of the Findings

The first essay, presented in Chapter 3, examines the impact of public debt on the decisions of companies to issue profit warnings in the UK. UK companies exhibit a high frequency of profit warnings and face low threat of litigation by investors relative to US companies. This makes it likely that determinants other than litigation affect the UK companies' decision to warn the market of bad news. I identify a sample of UK companies subject to a material negative earnings surprise during the period 2001-2008. This identification strategy is chosen because debtholders have an asymmetric loss function as they are subject to the firm's downside risk but they do not share its profits. Therefore, debtholders are expected to be more sensitive to bad news than good news and therefore will have greater demand for information about bad news compared to good news. The final sample consists of 829 firm-year observations, out of which 138 firm-year observations have outstanding public debt.

Then, I estimate a probit model to explain the variation in the probability of issuing a profit warning for our UK sample. The main variables of interest are the firm's

closeness to financial distress, approximated by the firm's interest cover ratio multiplied by -1, and the existence of outstanding public debt in the firm's capital structure. The findings show that the firm's interest cover ratio, multiplied by -1, is significantly negatively related to the probability of issuing a profit warning. This finding suggests that firms closer to financial distress are more likely to hide bad news. Also, the findings show that the presence of public debt does not have a significant impact on the probability of issuing a warning. Further investigation indicates that the firm's outstanding public debt mitigates the negative impact of closeness to financial distress on the probability of issuing a profit warning. More specifically, the impact of the interest cover ratio is insignificant for firms with public debt, while it is significant for those without public debt. Moreover, the findings indicate that the sample firms with, compared to those without, public debt are more likely to issue a profit warning in the event of permanent bad news.

To check the robustness of these findings, I estimate the profit warning model by accounting for the confounding effects of self-interested managers and large shareholders. Also, I vary the initial criteria of defining the material earnings surprise. Finally, I account for the possibility that some profit warnings may be released on scheduled dates and for the confounding effects of interim management statements. The results are robust to these checks with qualitatively similar results.

The findings presented in the first essay indicate that UK companies closer to financial distress are likely to take advantage of the low threat of litigation by hiding bad news to benefit shareholders at the expense of third parties. However, I fail to find similar evidence for UK firms with outstanding public debt. The latter finding suggests that firms with public debt are deterred from engaging in opportunistic disclosure behaviour as they may incur agency costs resulting from damaging their reputations for faithful disclosures. In addition, the findings in the first essay suggest that UK firms with public debt are more forthcoming than those without in issuing profit warnings in the event of permanent bad news. The overall evidence presented in Chapter 3 suggests that firms with public debt are concerned with timely and faithful disclosure and are deterred from hiding bad news.

The second essay, presented in Chapter 4, examines the impact of the initial public debt offering (IPDO) on the timeliness properties of the firm's accounting income. The study's research design overcomes a number of limitations of previous studies. First, it allows us to study the change in timeliness over time for the same set of firms and not the variation in a cross-section of firms. This overcomes the criticisms levelled against Basu's (1997) model that Basu type regressions capture a spurious relationship between bad news and earnings. Second, this setting allows determining the causality direction between the existence of public debt and timeliness. The increase in the timeliness properties after the event date, the IPDO, is likely to be driven by demands from the debt markets. This investigation, therefore, highlights the dynamics of solving potential information asymmetries through accounting choices when the firm contracts with public debt investors for the first time.

The sample includes nonfinancial US firms who announced an IPDO during the period 1972-2008. The final sample consists of 878 firms with 6897 firm-year observations. Then, I estimate a fixed effect model following Basu's (1997) model specification including individual year dummies. I examine the incremental sensitivity of bad news for the years after the IPDO event, where the bad news sensitivity is expected to increase significantly after the IPDO date.

The findings of the second essay indicate that the coefficient of bad news sensitivity increases, economically and statistically, after the firm's initial public debt offer. The findings also indicate that the increase in asymmetric timeliness continues for several years after the initial public debt offer. These results are robust to possible confounding effects of the firm's size and leverage and to alternative specification for the Basu's model. However, they are not robust to using alternative measures of conservatism, namely the accumulated non-operating accruals and the skewness of earnings relative to the skewness of cash flows from operations. One possible explanation is that these alternative measures capture aspects of unconditional conservatism rather than conditional conservatism. Since the debt market has a differential demand for conservatism, with a greater demand for conditional conservatism, this could result in an insignificant impact of the IPDO event on the accumulation of non-operating accruals and the skewness of earnings.

The findings in the first and second essays are complementary and are consistent with the first proposition of the present thesis. The findings show that that firms with public debt, outstanding and initial, are likely to adopt a timelier policy of disclosing bad news (are more likely to issue profit warnings in the case of permanent bad news) and a timelier policy of reporting economic losses (increase their degree of timeliness after issuing public debt). They also show that firms with outstanding public debt are not likely to engage in opportunistic disclosure behaviour (they are not likely to hide bad news when they are closer to financial distress). The overall evidence is consistent with the thesis' first proposition that the public debt markets induce a demand for faithful and timely information especially in the event of bad news.

The third essay, outlined in Chapter 5, also utilizes the setting of initial public debt offers (IPDOs). Initial public debt offerings are subject to greater information asymmetry compared to seasoned bond offerings and therefore provide an ideal setting for this study since I am interested in investigating the ways in which information asymmetries resolve in the debt markets. I identify a sample of IPDOs issued by US nonfinancial firms during the period 1990-2009. The sample consists of 431 of IPDOs, out of which 54 bonds are issued by companies with a credit rating assigned for one of their previously issued 144A or syndicated loans. In addition, 184 bonds are issued by companies with previous syndicated loan.

Then, I estimate a regression model to explain the cross-section variation in the yield spreads of our sample of IPDOs. I calculate the yield spreads using the at the issue gross proceeds, that is without deducting the underwriting fees and other floatation costs, to focus on the cost of debt from the point view of bondholders. The main variables of interest are the difference between the credit ratings of the company's IPDO and its prior private loan; and the strength of the pre-IPDO banking relationships. These two variables approximate monitoring the firm's private debt by rating agencies and banks. I expect these rating upgrades and strong banking relationships to be negatively related to the yield spreads of IPDOs.

In order to construct the first variable(s) of interest, I compare the credit rating assigned for the firm's prior private loan and the one assigned for its IPDO. Then I define three indicator variables: the first is coded one for IPDOs with higher credit ratings compared to the prior private loan ratings; the second is coded one for downgraded IPDOs; and the third is coded one if the credit rating is unchanged between IPDOs and the prior private loan. The findings indicate that the IPDOs which are assigned the same or higher ratings compared to the ratings assigned for the firms' prior private loans are negatively and significantly related to yield spreads.

The second variable of interest is the strength of the banking relationship. I focus on one attribute of the banking relationship, namely the dependency of the company on one bank relative to other banks. Therefore, our proxy of banking relationships focuses on the number, alternatively the amount, of loans a company borrows from its relationship bank relative to all its borrowing from all other banks. To perform the analysis I utilize bonds issued by companies with previous syndicated loans. This is because the analysis requires detailed data about the identity of the banks which is available in machine readable form for syndicated loans. I identify the company's relationship bank as the one with the most frequent number, alternatively largest amount, of loans. I find that the strength of banking relationship is negatively and significantly related to the yield spreads of IPDOs. This finding is robust to using different proxies of the strength of banking relationships.

The findings of the third essay suggest that monitoring of the firm's private debt produces information relevant to prospective bondholders. This finding extends the extant empirical evidence on the effect of cross monitoring on the cost of debt. In the analysis I focus on historical information produced before the firm issues its IPDO, whereas the extant empirical evidence focuses on contemporaneous information. Obtaining the same or higher credit rating for the firm's IPDO compared to its private loan rating could signal the firm's commitment to maintain a clean credit track record. In addition, the strength of the banking relationship may signal the firm's business and credit quality. This is because relationship banks accumulate private information about the company that assess the current and future prospects of the firm. Although this

information is not publicly available, the relationship bank's multiple interactions with the firm can signal that its long-term assessment of the bank is favourable.

6.2. Limitations and Recommendations for Future Research

The main limitation of the first essay, presented in Chapters 3, is the small number of treated observations. Specifically, in Chapter 3 the number of firm-year observations with outstanding public debt constitutes around 17% of the overall observations. The relative small number of treated observations may result in a low variation in the sample and therefore weakens the significance of the proposed hypotheses. On the other hand, extreme values in small samples may drive the results towards certain directions. In either case, the robustness of the results would be enhanced using a greater number of treated observations relative to the overall sample.

Another limitation of the first essay is that the profit warning model used in the essay does not control for the confounding effects of some variables that could influence the company's disclosure policy. In identifying the profit warning model used in the essay I closely followed the literature on event-driven disclosures including Kasznik and Lev (1995); Tucker (2007); and Kothari, Shu, & Wysocki (2009). However, the disclosure literature has identified variables that influence the company's disclosure choices, such as audit quality, governance and proxies that measure the probability of the threat of litigation (Lang & Lundholm, 1996; Dunn & Mayhew, 2004; Ajinkya, Bhojraj & Sengupta, 2005; Karamanou & Vafeas, 2005; Atiase, Supattarakul, & Tse, 2006). One limitation of the first essay is that I do not control for the impact of these variables on the companies' decisions to issue profit warnings.

With regard to recommended future research, I argue in the first essay that the threat of litigation in the UK is weak hence has low impact on the UK companies' decisions to warn. Therefore, I do not attempt to measure the probability of shareholders' litigation. However, some US studies attempt to measure the firm's specific probability of litigation risk. For example, Shu (2000) and Atiase, Supattarakul, & Tse (2006) measure the probability of shareholders' litigation as a function of firm characteristics. One

potential research extension for the first essay is to estimate the UK companies' litigation risk and examine its impact on their decisions to issue profit warnings.

In addition, in the first essay I examine the market reaction to profit warning announcements. I find that warning firms experience large and statistically significant negative returns on the day of the warning. This finding is similar to the evidence documented by other UK studies including Collett (2004) and Helbok & Walker (2003). A viable research extension is to examine the market reaction to earnings announcements for warning and non-warning companies subject to a negative earnings surprise. Examining this research is interesting given the recent findings of US studies documented in Tucker (2007) and Xu (2008).

The main limitation of the second essay, presented in Chapter 4, relates to the validity of the timeliness proxy. In Chapter 4, I focus primarily on Basu's (1997) measure to approximate the timeliness of loss recognition. The Basu model has been challenged on several grounds. Some studies question the appropriateness of a reverse regression where accounting income is the dependent variable and return is the independent variable (Ryan, 2007; Givoly, Hayn & Natarajan, 2007; Dietrich, Muller & Riedl, 2007). Accounting income explains return and therefore the error term of a reverse regression is not independent of returns. Hence, the coefficient of the return term is biased. Ball, Kothari & Nikolaev (2010) argue that applying a weaker functional form of the Basu regression where income, the independent variable in the Basu model, is the expectations of earnings conditional on return realization will lead to an unbiased estimate of the return coefficient. Ball et al. (2010) argue that this form is more consistent with the logic of Basu's model that does not intend to identify a causal effect of earnings on returns but to identify the timeliness with which earnings reflect public information contained in returns.

In terms of the study presented in Chapter 4, the most relevant criticism is the validity of the Basu model, i.e., the results from estimating equation (3) can be consistent with timeliness although firms are not following a timely policy of economic loss recognition. In other words, one may obtain a significant positive bad news sensitivity

coefficient due to reasons not related to timeliness. For example, Dietrich et al. (2007) propose that the Basu model is subject to a truncation bias. They argue that partitioning the data based on negative and positive returns will result in estimating a stronger relationship between losses and returns than gains and returns. This is because the causality between earnings and returns in conjunction with the asymmetry in the earning-return distributions (the negative skewness) may result in a mechanical and stronger correlation between losses and negative earnings than gains and positive earnings. Similarly, Patatoukas & Thomas (2010) show that it is possible to obtain a stronger relationship between losses and returns if the sample contains sub-samples of high frequency of losses and negative returns. Ball et al. (2010) argue that the endogeniety of the explanatory variable is irrelevant in this instance since partitioning is with respect to the dependent variable. Therefore, truncating based on returns does not introduce a mechanical negative correlation with the error term hence the truncation bias discussed in Dietrich et al. (2007).

In relation to the study presented to Chapter 4, the research design aims to show a significant change in the size of the bad news coefficient over time for the same set of sample firms. Assuming that the distributions of earnings and returns of our set of firms are subject to some data regularities that would result in a stronger relationship between losses and returns than gains and returns, then one expect similar bad news coefficient before and after the IPDO event date to be found. There is no obvious reason that the IPDO event will intensify the data regularities in the earning-return distributions that result in even stronger spurious relationship between losses and negative returns.

Another limitation of the second essay is that the robustness checks show that alternative measures of conservatism do not produce consistent results with the ones produced using Basu's (1997) timeliness measure. Other studies such as Zhang (2010) report consistent empirical findings of Basu's measure and the accumulated non-operating accruals and relative skewness measures.

Also, one limitation of the second essay is that I do not account for the impact of the firm's governance on its timeliness policy. In the analysis presented in Chapter 4, I

control for the confounding effects of size, leverage and book to market. However, recent studies show that the firm's governance, in addition to these variables, is significantly associated with timeliness (Garcia-Lara, Garcia-Osma & Penalva, 2009; Bona-Sanchez, Perez-Aleman & Santana-Martin, 2011). Issuing public debt could lead to significant changes in the firm's size, leverage and growth opportunities set. However, it is not clear that issuing public debt will have significant impact on the firm's governance structure. In the analysis I use each firm as its own control and therefore including governance variables is not likely to significantly change the results.

As for suggested future research extensions, I focus in Chapter 4 on the timeliness properties of accounting income. The choice of this property is driven by the hypothesis that debtholders are concerned with unexpected events that increase the default risk due to their asymmetric payoffs (Watts, 2003). For future research I recommend investigating the relationship between debt contracting and other dimensions of financial reporting quality such as accruals management (Ball and Shivakumar, 2008; Bharath, Sunder, and Sunder, 2008).

In Chapter 5 I face important data limitations. The number of IPDOs issued by companies with previous loan ratings amounts to only 54 observations. Then, I construct three variables based on the difference between the credit rating assigned for the firm's prior private loan and the one assigned for the firm's IPDO. Out of 54 observations with prior private loan rating I find 7 upgraded observations; 8 downgraded observations; and 39 observations with the same rating for their IPDO and private loans. The findings of the study show that the upgraded observations enjoy significantly lower yield spreads. Due to the small number of upgraded observations the evidence could be unreliable and difficult to generalize. However, this evidence could be useful for future research that could examine if firms pursue a stable credit rating in order to minimize their yield spreads.

In addition, some studies such as Pittmana & Fortin (2004) and Fortin & Pittman (2007) show that auditor choice has an impact on debt pricing for newly public firms and for private firms. One limitation of the third essay is that I do not control for the impact of

the auditor choice on the yield spread of IPDOs. Another limitation in Chapter 5 is that I limit the analysis to study one dimension in debt contracts, namely spreads. Recent studies by Nikolaev (2010) and Bharath et al., (2008) study other dimensions in debt contracting such as the maturity of the debt contract and debt covenants.

In summary, this thesis attempts to bring new insights to the extant literature by reporting evidence that suggests that there are dynamics in the information supply and demand in the public debt markets. The evidence presented in this thesis suggests that public debtholders's demand for information, especially bad news, induces the firm to supply profit warnings and timely financial reports. In addition, the reported evidence suggests that information regarding one asset class can mitigate the information asymmetry facing investors in other claims. Information related to the firm's private debt decreases the yield spreads charged by investors in IPDOs and mitigates the information content of ratings assigned to these IPDOs.

References

Ajinkya, B., Bhojraj, S., & Sengupta, P. (2005). The association between outside directors, institutional investors and the properties of management earnings forecasts. *Journal of Accounting Research, 43*, 343–376.

Atiase, R., Supattarakul, S., & Tse, S. (2006). Market reaction to earnings surprise warnings: the incremental effect of shareholder litigation risk on the warning effect. *Journal of Accounting, Auditing and Finance, 21*, 191–222.

Ball, R., Kothari, S. P., & Nikolaev, V. (2010). Econometrics of the Basu Asymmetric Timeliness Coefficient and Accounting Conservatism. *Working Paper (SSRN).*

Ball, R., & Shivakumar, L. (2008). Earnings quality at initial public offerings. *Journal of Accounting and Economics, 45*, 324-349.

Basu, S. (1997). The conservatism principle and the asymmetric timeliness of earnings. *Journal of Accounting and Economics, 24*, 3–37.

Bharath, S., Sunder, J., & Sunder, S. (2008). Accounting quality and debt contracting. *The Accounting Review, 83*, 1–28.

Bona-Sanchez, C., Perez-Aleman, J., & Santana-Martin, D. (2011). Ultimate ownership and earnings conservatism. *European Accounting Review, 20*, 57-80.

Collett, N. (2004). Reactions of the London Stock Exchange to company trading statements announcement. *Journal of Business, Finance and Accounting, 31*, 3-35.

Dietrich, D., Muller, K., & Riedl, E. (2007). Asymmetric timeliness tests of accounting conservatism. *Review of Accounting Studies*, 12, 95-124.

Dunn, K., & Mayhew, B. (2004). Audit firm industry specialization and client disclosure quality. *Review of Accounting Studies, 9*, 35–58.

Fortin, S., & Pittman, J. (2007). The Role of Auditor Choice in Debt Pricing in Private Firms. *Contemporary Accounting Research, 24*, 859–896.

Garcia-Lara, J., Garcia-Osma, B., & Penalva, F. (2009). Accounting conservatism and corporate governance. *Review of Accounting Studies, 14*, 161–201.

Givoly, D., Hayn, C., & Natarajan, A. (2007). Measuring Reporting Conservatism. *The Accounting Review, 82*, 65-106.

Helbok, G., & Walker, M. (2003). On the willingness of UK companies to issue profit warnings: regulatory, earnings surprise permanence, and agency cost effects. *Working Paper (SSRN).*

Karamanou, I., & Vafeas, N., (2005). The association between corporate boards, audit committees, and management earnings forecasts: An empirical analysis. *Journal of Accounting Research, 43*, 453-486.

Kasznik, R., & Lev, B. (1995). To warn or not to warn: Management disclosures in the face of an earnings surprise. *The Accounting Review, 70*, 113–134.

Kothari, S. P., Shu, S., & Wysocki, P. (2009). Do managers withhold bad news? *Journal of Accounting Research, 47*, 241-276.

Lang, M. & Lundholm. R. (1996). Corporate disclosure policy and analyst behaviour. *The Accounting Review, 71*, 467–492.

Nikolaev, N. (2010). Debt covenants and accounting conservatism. *Journal of Accounting Research, 48*, 51-89.

Patatoukas P. & J. Thomas (2010). Evidence of conditional conservatism: Fact or Artifact. *Working Paper*, Yale University.

Pittmana, J., & Fortin, S. (2004). Auditor choice and the cost of debt capital for newly public firms. *Journal of Accounting and Economics, 37*, 113-136.

Ryan, S. (2006). Identifying conditional conservatism. *European Accounting Review, 15*, 511–525.
Tucker, J. (2007). Is openness penalized? Stock returns around earnings warnings. *The Accounting Review, 82*, 1055-1087.
Watts, R. (2003a). Conservatism in accounting. Part I: explanations and implications. *Accounting Horizons, 17*, 207–221.
Xu, W. (2008). Market reactions to warnings of negative earnings surprises: further evidence. *Journal of Business Finance & Accounting, 35*, 818–836.
Zhang, J. (2008). The contracting benefits of accounting conservatism to lenders and borrowers. *Journal of Accounting and Economics, 45*, 27–54.