

# **Stimulation of stock prices by bank loan announcements after disclosing material weaknesses: Empirical evidence of a moderating effect**

Joost van Kempen – Erasmus School of Economics  
360725

## ***Abstract***

Banks have a special place in the landscape of financial intermediaries. Their monitoring and screening services can pose to be an interesting source of value for investors and can lower information asymmetries between firms and the market. By use of an event study, I analyse the effect of disclosed material weaknesses by firms on the *cumulative abnormal return* that follows after they announce a bank loan. My sample comprises 2,603 syndicated bank loan announcements from 939 firms over the period 2005 – 2015. I find that when firms have disclosed material weaknesses they experience higher abnormal returns when announcing bank loans. Firms that have disclosed more severe material weaknesses experience even higher abnormal returns. Perhaps the biggest contribution of my paper stems from my analysis on bank loan announcement effects on the long run. I find that when firms announce bank loans, the positive *cumulative abnormal return* from the announcement gets followed by negative *cumulative abnormal returns* upon the disclosure date of the subsequent following quarterly results. Moreover, bigger bank loan announcement effects get followed by bigger downward corrections. This would strongly suggest that hype-behaviour among investors is driving bank loan announcement effects, regardless of all the theoretical justifications for the existence of this effect.

**Keywords:** Syndicated loans; Loan announcements; Information asymmetry; Event study; Material weaknesses; SOX 302; Day of the week effect.

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## **1. Introduction**

Over the years, studies have extensively documented the effect that bank loan announcements exert on stock prices. Many theorists have labelled information asymmetry between firms and the market as being the driving force behind abnormal returns that are found after firms announce bank loans (e.g. Pyle & Ieland, 1977; Ramakrishnan and Thakor, 1984; Diamond, 1984). The state of information asymmetry in capital markets infers that one party in a transaction has superior information compared to another (e.g. a firm and its investors). Monitoring, screening, specialization and certification functions of banks have all been suggested to decrease information asymmetry between a firm and its investors, which in turn generates value for the shareholders.

In line with the signalling theory, managers could subsequently reduce the information asymmetry by publicly announcing a bank loan (package). Banks have insider information regarding liquidity, continuation and profitability of firms when extending loans (Kane and Malkiel, 1965; Ramakrishnan and Thakor, 1984). They perform an audit of any firm to establish if these firms can settle their debt. When issuing debt, firms could intuitively use this service of banks to their advantage as a signal to the market that stock prices are presumably undervalued and that banks trust the continuity and profitability of future firms' operations (Fama, 1985). According to multiple empirical studies, this effect exists and managers should take this knowledge into account when contemplating financing (Mikkelson and Partch, 1986; James, 1987).

The purpose of this paper is to examine an extension of the current field of literature by looking at firms that disclosed material weaknesses (MW's) in order to analyse if the known relation between bank loan announcements and increases in firm value would be affected. A material weakness is by definition a deficiency, or a combination of deficiencies, in internal control over financial reporting. Investors use reported numbers of the firm to interpret the effect of bank loan announcements. Looking into the effect of disclosed internal controls would provide a new contribution to the current field of literature. Ideally, it would give an answer to the following research question:

RQ: Will firms' bank loan announcements induce a higher abnormal return when material weaknesses have been disclosed?

When considering financing, dealing with disclosed MW's can be tricky. Disclosing MW's causes the market to penalize the firm. Such consequences are found to be especially relevant for newly public firms that lack a history of performance because their market value can be very sensitive to any surprise. Multiple studies show that, *ex ante*, firms disclosing internal control weaknesses are generally smaller, younger, riskier and financially weaker (e.g. Ashbaugh-Skaife et al., 2007)

Business press and regulators agree that it is important for companies to remediate MW's quickly as they suggest that investor confidence in financial results will drop when internal control problems are present (Pickard, 2005; Nicolaisen, 2004; Niemeier, 2004; Sinnett, 2005). When public companies surprise the market and identify and disclose MW's in their internal controls over financial reporting, there are generally unfavourably consequences, including negative press, loss of investors' confidence, loss of value, etc. (PwC, 2015). The new rules implemented by the Sarbanes-Oxley act (SOx section 302 and 402) in the U.S. requires that management report on internal control over financial reporting and that the chief executive officer (CEO) and chief financial officer (CFO) certify the accuracy of financial statements.

It is noteworthy to mention that my sample will exclusively consist of syndicated bank loans. A syndicated bank loan is a liability offered by a group of banks (syndicate) who cooperate in order to jointly provide capital for the borrower. This way banks share the risk, but it reduces contractual flexibility of the loan (Preece and Mullineaux (1996). I take this approach because the majority of current existing empirical papers does not look into this aspect in much detail, possibly because loan syndication induces much lower *cumulative abnormal returns* – the measurement proxy commonly employed by most papers on this topic, making the results less interesting for academics to report. Section 2 will go into further detail regarding the underlying dynamics of this and other loan characteristics.

Regardless of the approach employed by other authors, statistics from Thomson One (2015) show an increasing trend in global loan syndication, indicating increasing popularity of this type of loan. Out of the \$7.11 trillion of corporate debt issued in the United States in 2014, \$2.34 trillion consisted out of syndicated loans, or 32.9% (Thomson Reuters, 2015). See appendix F for an overview of these statistics.

I am motivated to examine the bank loan announcement consequences for ICW's (Internal control weaknesses) at firms for several reasons. First, bank loans form a large source of external financing in the United States and most other countries (Graham et al. 2008), and it is important for company management to understand the implications of their financing decisions. Second, the general demographics of firms coping with disclosed ICW's indicate that especially these firms should benefit the most from screening and monitoring services associated with bank loans. Finally, the multifaceted features of ICW's (i.e. severity of reported ICW) provides the unique opportunity to acknowledge different states of information asymmetry when observing market returns. Following Kim et al. (2011), who argue that the presence of ICW's is a comprehensive information quality indicator, observing different abnormal returns for different ICW's would for the first time empirically support the notion that different states of information asymmetry coincide with different levels ICW's.

Section 2 will examine existing literature and provide an overview of the current knowledge in the field. Exploration of the existence and dynamics of this effect is a prerequisite of my study as my research question asserts this. The theoretical framework in section 3 will divide the research question as mentioned above in multiple hypotheses in order to explore different facets of this subject – whether more severe material weaknesses result in even higher abnormal returns. Section 4 and 5 will discuss my sample and methodology, while section 6 and 7 examines the results and conclusions of my paper.

## **2. *Meta-analysis***

The meta-analysis in this section aims at reviewing the existing knowledge regarding the effects of bank loan announcements on stock returns. I start by raising the main theoretical arguments that have been outlined long ago by pioneers in this field of research. In a chronological order, the discussion will move from early theoretical papers to more recent papers that empirically examine announcement effects through the use of event studies. The increase in data availability over time helps us to induce new arguments that shapes our hypotheses development. I scrutinize and compare the knowledge gained over the years in this field of literature in order to explain the underlying dynamics and differences between empirical studies.

Since it is important to control for influential variables in order to prevent endogeneity, particular attention will be devoted to the mainstream literature regarding information asymmetry, reputation and demographics of borrowers and lenders. For the purposes of this study, I will highlight how internal control problems can play a role in all of this. Appendix B displays a literature table that sets out a chronological order of papers to provide a convenient overview of literature history.

### **2.1. *Bank loan announcements and information asymmetries***

Early on, King (1966) mentions the influence of information on stock price reactions. He doesn't specify different types of information, but rather looks at in a universal fashion. He argues that stock price reactions to incoming information differs between industries and groups of industries on the long run.

Since long ago, researchers have already argued that informational asymmetry is the main driver behind the existence of financial intermediaries (e.g. Pyle & Leland, 1977; Ramakrishnan and Thakor, 1984; Diamond, 1984). This asymmetry is basically a gap of relevant information between the insiders (firm) and the outsiders (market). A problem that stems from this gap of information is adverse selection. In the context of firms seeking financing, this phenomenon arises before the transaction occurs – when potential borrowers most likely to yield an adverse outcome will seek out loans most actively, and thus are the most likely to get one granted (Malkonen, 2013). This typically happens due to hidden information. Another issue arising from informational asymmetries is the agency problem – when agents (i.e. managers) pursue goals that do not align with those of the principals (i.e. shareholders). This happens due to hidden actions and leads to moral hazard problems.

Moral hazard problems occur in a state of information asymmetry where the party paying the consequences of risks knows less than the risk taking party who takes them during a transaction. In financial intermediation theory, banks specialize in information production. The acceptance of loan applications by banks indicate the borrowers' creditworthiness to the capital market (Benston and Smith, 1976; Diamond, 1984). Next to this, banks also obtain client specific information over time as a product of an intimate long-term relationship. Since financial intermediaries, such as banks produce private information not formerly available to outsiders, they can solve moral hazard problems (Diamond, 1991).

As a pioneer in the field, Fama (1985) has highlighted the special role of banks among other corporate financiers. He emphasized that bank loans itself might serve as a strong signal of credibility, profitability and continuity. The stress on this information advantage of banks has already been put on the table by Black (1975) and Kane & Malkiel (1965). Kane and Malkiel point out that incumbent banks have an information advantage over others due to its ability to privately observe the payment behavior of its depositors.

Hence, a bank loan announcement would reduce information asymmetry between a firm and the market. Because information asymmetry is frowned upon by investors due to the risks it brings along, a reduction of this asymmetry will intuitively be appreciated by investors. Backed by the pecking-order theory, managers are generally inclined to favour the issuance of debt over equity more when a higher degree of information asymmetry is present as it would signal to the market that the current stock price is undervalued (Matemilola, 2011).

Academics universally agree about the special role of banks in the capital market and the underlying effects of announcing bank loans. Following these theoretical papers, the empirical research below will be presented by first discussing the borrower (firms) characteristics, lender characteristics (banks), contemporary studies, and the literature regarding firms' internal control deficiencies. Mixed evidence arises mainly in the empirical literature when comparing pre-21<sup>st</sup> century research to contemporary studies.

## **2.2. *Abnormal returns and borrower characteristics***

Mikkelson & Partch (1986) were the first ones to discover and empirically prove that bank credit line announcements result in abnormal returns. As pioneers in the field, they started the literature of bank loan announcement effects. In a Longitudinal study of 360 firms, they analysed the market reaction around the announcement dates of various security offerings. These results later got confirmed in a follow up study of James (1987). He (among other researchers) found a significant positive effect of bank loan announcements on stock prices. He extended the existing research by also finding a larger-than-usual stock price response to the announcement of new credit agreements compared to the announcement of public straight debt or private placements. An explanation for this difference in abnormal performance is that bank loans differ in some aspects such as maturity, or services or negotiating space over terms for different types of loans (e.g. syndicated loans offer less room to negotiate terms on loans). James underlines the role loan demographics play by looking at different loan types.

Later, Lummer & McConnell (1987) add to the literature the distinction between bank loan renewals and initiations. They find that bank loan renewals result in a positive market reaction while initiations do not. This difference suggests that banks are able to convey private information from their ongoing monitoring activities in case of renewals, enhancing their screening process, and causing the capital market to spark a positive abnormal response as a form of appreciation for this. It confirms the notion that investors are able to understand and differentiate between different types of announcements.

When looking at bank loans with different natures, investors are generally found to interpret bank loans that are issued for the purposes of strategic investment decisions as a positive sign. Woolridge & Charles (1990) have looked into the market response to new investment announcements, and discovered a significant abnormal stock return. Rationally, this effect cannot be mistakenly attributed to the bank loan, but to the strategic investment announcement that coincides with it. Nonetheless, it upholds the basic presumption regarding the efficient market hypothesis that the market understands the implications of incoming information.

In their research, Slovin et al. (1992) create a deeper understanding of the effect found by Lummer & McConnell by also investigating the distinction of different firm sizes. He finds little evidence that bank loan announcements convey information to the capital market for large firms. In contrast however, for small firms both debt renewals and initiations they find significant positive share price effects. This is consistent with the arguments of Fama (1985) and Diamond (1991) that smaller firms have less information publicly available and henceforth benefit more greatly from the screening and monitoring services associated with bank loans.

Hadlock and James (2002) employ a sample period of 1980 – 1993 to study a firm's decision of debt over equity. Results indicate that firms are relatively more inclined to choose bank loans when information asymmetry is elevated.

Best & Zhang (1993) argue that firms coping with low prediction errors – differences between analyst forecasts and actual results – have less information asymmetry remaining after the release of the financial analysts' earnings forecast than do firms in the high prediction error group. They find higher significant stock price reactions to bank loan announcements for high prediction error firms than for low prediction error firms. This is theoretically in line with the



ideas of Slovin et al. (1992) and Diamond (1991) that information asymmetry and firm context play a vital role in how capital markets perceive bank loan announcements.

More closely related to my study, Preece and Mullineaux (1996) further looked into the effects of different loan agreement types on loan announcement effects, which was first researched by James (1987). Preece and Mullineaux (1996) hypothesize that contractual flexibility complements monitoring as a source of the market's positive abnormal reaction to bank loans. They find evidence that loan syndication is negatively correlated with the abnormal stock returns following bank loan announcements, which relates to my study considering that my sample consists in entirety of syndicated bank loans. Additionally, they also looked into the effects of bigger issued loan sizes, but couldn't find any statistical significant difference between loan packages.

When analysing the effect of borrower's characteristics on abnormal returns after announcing bank loans, the literature seems to share a general consensus regarding which demographics matter and which do not. Firm size and loan syndication appear to be very influential when bank loans are announced. Appendix D provides a summary of variables that are found to have significant effects on abnormal returns.

Appendix C lists different loan announcement effects of the different studies discussed in this paper. The effect sizes are displayed as percentages of *cumulative abnormal returns* for the different subpopulations employed in these papers. Logically, different subpopulations yield different effect sizes, which can be explained by both Appendix D and section 2.

### **2.3. *Abnormal returns and Lender characteristics***

On the other side of the spectrum, the characteristics of banks have also been investigated to see how they influence the known relationship. Slovin et al. (1988) started this chapter by looking at announced issued loans from a note issuance facility and commercial paper programs backed by a letter of credit. They find that the issuance of securities like these yield a statistically significant positive effect on shareholder's wealth. The authors explain this effect by the certification role of banks, indicating that the reputation and characteristics of lenders play an important role for the market.

Billet et al. (1995) and Johnson (1997) find strong evidence that lenders of higher quality are associated with significantly higher abnormal returns. This goes hand in hand with

the notion that a bank loan from a “good” lender conveys more positive information regarding the borrower’s prospects than would a loan from a “mediocre” banking firm. Billet et al. (1995) also find that announced loans issued at foreign banks spark significant higher effects. This could be explained by the argument that foreign banks are quite selective towards their clients and might be more reluctant to extend a loan to an opaque borrower compared to their domestic counterpart.

However, the results of Billet et al. have been questioned over the years due to the sample they employed. The significant returns found by Billet et al. (1995) are clearly driven by the firms in the smallest decile of firm size, raising the possibility of endogeneity. The main findings get reconfirmed later by Byers et al. (1998). They find that announced loans to U.S. firms by foreign lenders result in significant increases in the value of the borrower’s market value.

Next to the previously discussed importance of contractual flexibility and loan syndication in section 2.2, which was initially highlighted by Preece and Mullineaux (1996), they also researched the relevance of syndicate size. They stipulate that having the capacity to relatively inexpensively renegotiate a bank loan’s terms complements monitoring as a source of value to borrowers. Consequently, contractual flexibility is also valued by shareholders and gets rewarded by higher abnormal returns in the market. Syndicated bank loans are loans offered by a group of lenders (banks) who work together in order to provide the funds to a single borrower (Aintablian and Roberts, 2000). Preece and Mullineaux hypothesize and confirm that as the number of lenders increase (syndicate size) the contractual costs rise and the ability to renegotiate contract terms declines, and hence the abnormal returns decrease.

Loan syndication has been the topic of research of multiple (contemporary) papers and relates to my study in the sense that my sample consists exclusively of syndicated bank loans. Knowing how loan syndication influences my research is evidently quite elemental when interpreting my results.

Datta et al. (1999) add to this by investigating the influence of the bank/firm relationship on the bank loan announcement effect. They provide empirical evidence that this effect gets moderated by the tenure of the bank/firm relationship. The idea behind this is the same as for announcing renewals, considering that banks obtain client specific knowledge over time as a product of an intimate durable relationship. Additionally the authors also reconfirm

the previous research of Diamond (1991) that a firm's reputation is negatively related to the cost of debt. The intensity of the relationship between bank and firm is assumed to also express information regarding the valuation of the firm, however proving this was beyond the scope of this study.

Pre-21<sup>st</sup> century research done in the field of bank loan announcements and abnormal stock returns shows consistent results and a general consensus among academics regarding influential lender demographics that play a role when announcing bank loans. The most notable variables are syndicate size, quality and reputation of the lender (bank), and contractual flexibility of the bank loan (syndicated vs. non-syndicated).

#### **2.4. Contemporary empirical studies**

The aforementioned empirical literature has been re-examined by follow-up studies that again confirm most of the effects that are found by older papers. Aintablian and Roberts (2000) put the existing knowledge to the test in a foreign market, Canada. They validate the key findings from prior studies that bank loan announcements are associated with statistically significant positive abnormal returns. Private placements and loan syndications are also found to be much less significant due to the different nature of these agreements as explained in 2.2.

Andre et al. (2001) still thought the Canadian market held some secrets and also conducted an event study with a Canadian setting in order to explore additional themes. They argued that the introduction of the 1988-capital adequacy requirements by the Canadian authorities inclined banks to lower their level of monitoring commitment at the issuance of credit lines by borrowing firms. This hypothesized result would stem from the incentive to avoid costs that come along with the issuance of off-balance sheet instruments. They provide evidence that there is a big difference in the conveyed information content of announced bank loans for small firms before and after the 1988- capital adequacy requirements. More specifically, they find a smaller *cumulative abnormal return* for small firms announcing bank loans after 1988 compared to before. The paper highlights the importance of governmental regulations and how it affects loan announcement effects.

For the purposes of increasing the external validity of the topic even further, Fery et al. (2003) conducted the same type of event study in an Australian setting. The results demonstrate that the market reacts positively when bank loan announcements are published in the financial press. In another attempt to re-test the validity of current presumptions, Lee and Sharpe (2008)

employ a sample period of 1990 – 1999 and investigate the relationship between a bank's monitoring & screening and the borrower's abnormal returns following a bank loan announcement using a new *ex-ante* proxy – the amounts banks invest in agents, responsible for loan screening and monitoring. The outcome of this paper is, as expected, in line with previous studies.

Marsh (2006) re-visits the effects of lender characteristics by considering the impact of credit risk management through the pooling various types of contractual debt by banks. The results suggest that the bank certification effect is greatly reduced if the bank which extends the loan has engaged in the selling of portfolio credit risk in the past by issuing a collateralized loan obligation. It suggests that the market does not greatly appreciate the information content conveyed by announced bank loans when the bank in question has a track record of securitizing credit risk.

Ordinarily though, positive lender characteristics (e.g. lender reputation) translate into statistically higher abnormal returns when announcing bank loans compared to incriminating lender characteristics (Ross, 2010). Ross finds that reputable firms have the tendency to approach more distinguished, credible banks for financing, subsequently increasing their abnormal returns. Ongena and Roscovan (2013) supplement Ross' findings by looking into the effects of bank origin on abnormal returns when announcing bank loans. They find significantly higher abnormal returns when the bank in question is of high quality, foreign, or local with easier access to private corporate information. These results are in line with the mainstream way of thinking and are not subject to controversy in the literature.

Ongena et al (2008) and Maskara & Mullinieux (2011) both find that bigger firm sizes are negatively correlated to abnormal market returns. These effects appear to be in line with the results of Slovin et al. (1992) and Byers et al. (1998), showing that these effects behave consistently over time.

Fields et al. (2006) however, find that the general significance of bank loan announcement returns has dropped dramatically after the studies conducted by James (1987) and Lummer & McConnell (1989). According to Fields, many advantages associated with bank relationships and loans have lavishly disappeared since the 80's due to changes in the financial system and greater availability of less costly financial information. These improvements to the financial system lowered the information asymmetry between firms and the market, hence

downgrading the monitoring and screening by banks as a source of value to investors. Before These findings induced a new stream of literature, trying to analyse the changing dynamics in this field of research. Inspired by the findings of Fields et al. (2006), multiple studies have revisited the abnormal returns following bank loan announcements before and after the onset of the most recent financial crisis.

From a nearly 200 basis point spread (bps) increase in share price resulting from bank loan announcements found by James (1987) – where 200 basis points represent two percent worth of increase in share price, effect sizes have been diminishing to nearly zero bps just before August 2007, only to return back to around 200 basis points afterwards (Li & Ongena, 2015). It could be argued that in the booming credit market leading up to the financial crisis, the certification of corporate borrowers by banks started to play a smaller role. Once the crisis broke however, banks may have returned to better screening of extending loans and monitoring clients, partly due to increased screening and monitoring standards set by the government (De Haas & Van Horen, 2013).

Li & Ongena (2015) also observe that excess returns are larger for less profitable firms. They claim that higher profitability coincides with lower information asymmetry. Considering this, their observation is far from contentious as it complies with the general academic consensus that firms with higher levels of information asymmetry benefit more from the monitoring and screening services provided by banks when announcing bank loans. However, in this case, profitability would then simply behave as a quality of information indicator for a firm. Additionally they also find a significant effect for the logarithm of the variable loan size. This variable. The inclusion of this variable might be somewhat controversial however. In my line of reasoning, this variable might correlate with the variable firm size as larger firms can issue larger loans, leaving the possibility for endogeneity. This topic will be addressed in section 5.5.

Since it became clear that different economic conditions might affect bank loan announcement effects, Bailey et al. (2011) examined the context of a transitional economy, China, where state-owned banks grant loans based on noisy liquidity assessments on its prospective borrowers. The authors find that when a firm borrows from a poor performing bank, or from a bank with high governmental ownership they experience negative stock returns. Both negative and positive stock effects are possible however, depending on whether the banking system is subject to commercial or political goals. Empirical results indicate that most

loans are extended to troubled firms in order to keep them afloat, which is a result of state-led banking. Overall, the Chinese stock market is aware and understands corporate performance.

Huang et al. (2012) follow up on this by analysing firms that are subject to high degrees of governmental control. They hypothesize and confirm that in China, only firms that are less vulnerable to expropriation experience stock return benefits when issuing debt. This can intuitively be explained by the goals of expropriation, which are to maximize public utility, and not the firm's utility.

When analyzing empirical studies from James (1987) until presently, it becomes clear that different lender, borrower and loan characteristics bring about different effects on the abnormal returns when a firm publicly announces an issued bank loan. The major effects have been categorized in appendix D and do not seem to be susceptible by academic embroilment. Only when confronting effect sizes from contemporary studies with pre-21<sup>st</sup> century ones, it becomes clear that governmental regulations and economic conditions also come into play when the market responds to a bank loan (See appendix C). However, even though information asymmetry between firms and markets decreased over decades, it is still present now and will never disappear, as there will always be a requirement for financial intermediaries, securing the relevance of this field of literature.

## ***2.5. Economic conditions, governmental regulations and firm value parameters***

It is claimed that the changing financial system hasn't left the literature in this field the same over time. Fields (2006) illustrates this by finding a CAR of 1.31% following bank loan announcements for exclusively renewals for his sample period of 1980 – 1990, and a CAR of 0.48% for the period of 1990 – 2000. Assuming that investors are not completely irrational, this difference can only be attributed to reasons mentioned before. Others have also attempted to perform longitudinal studies to measure changes over time, but this has proven to be difficult. Samples from different studies have proven to be difficult to be compared over time since they intrinsically differ from one another. To put this into perspective, I substituted effect sizes of several whole samples of researchers in the United States in a graph displaying changes in GDP over time in order to witness the correlation between economic developments and abnormal returns following bank loan announcements (See appendix G).

In order to maximize comparability over time, I strictly took the abnormal returns from full samples of bank loan announcements. As the graph projects those different effect sizes over time together with the plotted economic performance of the United States, it becomes clear that abnormal returns do not necessarily drop or vanish over time. In contradiction to Fields (2006), I do not find reason to believe that announcement returns disappear over time. He employs a sample of exclusively bank loan renewals over the period of 1980 – 2000, and compares the first decade with the latter one. However, when looking at the univariate analysis of several borrower characteristics of his sample, one could easily see a substantial differences in averages of firm size between the 1980 – 1990 sample and the 1990 – 2000 sample, raising doubts regarding comparability. Next to this, he only looks at bank loan renewals and draws conclusions about bank loan announcements in general.

My approach at comparing studies looks at the full 35 years of event studies. In this period, both high CAR's and low CAR's are found by researchers both early on and more recently. When considering my findings and taking the caveats I find in the study of Fields (2006) into account, I reject his conjecture that bank loan announcements effects are diminishing.

Since abnormal returns are driven by information asymmetries, one cannot predict abnormal returns following bank loan announcements based on macro-economic conditions. Instead, studies show that you have to analyze the economic conditions of the specific firm in order to assess information asymmetries between that firm and the market. In contrast, regulatory interventions that are institutionalized by the government (e.g. screening standards) do yield clearly observable effects on abnormal returns (e.g. Andre et al., 2001; Bailey et al., 2011; Huang et al., 2012). This stems from the principle that regulations could directly affect information asymmetries. Enforced higher standards of screening and monitoring by banks before extending loans will induce greater reductions of information asymmetries between the borrower and market when a loan is granted (e.g. Li and Ongena, 2015). Taking these different macroeconomic effects into account is important when understanding bank loan announcement effects.

Borrower's demographics and economic conditions come into play when announcing a bank loan. Studies in this field of literature have implemented different proxies in order to capture different aspects of the firm in question. Academics have taken the return on assets, profits, Tobin's Q and many other measures to cover firm performance (see appendix B). It has

struck me however that empirical studies have roughly ignored the firms' *earnings per share* (EPS) as a parameter of firm performance or quality. Herewith I will be taking this proxy into account in my dataset. This proxy will equal the basic *earnings per share* excluding all extraordinary items from the financial statements, as is usual in accounting literature.

## **2.6. Internal controls and bank loan contracting**

The literature that looks into the context of internal control deficiencies during the bank loan contracting process is fairly limited and has only been initiated recently. Kim et al. (2011) find higher loan spreads for firms coping with internal control weaknesses (ICW) by 28 bps. Loan rates are also found to be higher for firms that with more severe, company-level ICW's. The major rationale behind the requirement for public disclosures of internal controls stems from the fact that inadequate internal controls lead to the increase of information risk and poorer financial reporting (e.g., U.S. House of Representatives, 2005). Important figures in the regulatory world such as PCAOB former board member Niemeier (2004) and Chief Accountant of the SEC Nicolaisen (2004) have stressed that shareholder confidence will be lower when ICW's are present. When illustrating this setting, Kim et al. (2011) argue that the presence of ICW's is a comprehensive information quality indicator that captures the quality of both inside and publicly reported information.

In section 2 I reviewed different empirical event studies about bank loan announcements and their effects on abnormal returns. Researchers largely agree upon the different dynamics and variables that play a role when a firm announces a bank loan. Based on analysing the 35 year stream of empirical research in this field, I would argue that loan announcement effects have remained consistent over time, which is in contradiction to the views of Fields (2006). The major influential variables and loan announcement effects can be found in appendix D and C, and can be regarded as the main findings of this literature review.

My conclusion on the literature review above provides important support for the viability of my research question from section 1. In the next section, I will explain the underlying dynamics that generate abnormal returns when bank loans are announced. I elaborate on the presence of ICW's as being a comprehensive information quality indicator, and propose a theoretical foundation upon which I build my hypotheses development. The sections afterwards will discuss my sample and research design.



### **3. *Theoretical construct and hypothesis development***

This section extends and combines existing theoretical arguments and explains the expected reaction when firms announce bank loans while coping with disclosed ICW's. Following this, I will also present a set of testable hypotheses illustrating the effects of ICW's in the context of bank loan announcements.

I expect the presence of ICW's to result in higher market returns when announcing bank loans. I anticipate an even greater market return when the announcing firm is coping with even more severe internal control problems. The intuition behind this reasoning will be explained in the following paragraphs.

As mentioned before, the underlying reason for the effectiveness of bank loan announcements have by many been argued to be the information asymmetry in capital markets (e.g. Pyle & Ieland, 1977; Ramakrishnan and Thakor, 1984; Diamond, 1984). The presence of information asymmetry in capital markets infers that one party in a transaction has superior information compared to another. Financial intermediation theory based on information production explains the special role of banks in the capital market by their alleviation these information asymmetries. Banks have superior information over outsiders due to insider knowledge and client specific information, resulting from an intimate partner relationship (Black, 1975; Kane & Malkiel 1965).

When facing a loan application, banks review the firm to gain understanding whether or not these firms can settle their debt. Firms could intuitively exploit this service to their advantage by presenting a bank loan approval to the market that stock prices are presumably undervalued and that banks trust the continuity and profitability of future firms' operations (Fama, 1985). Hence, if a firm is in need of debt financing, the announcement of a granted loan could be a strategic choice. Equity investors assess the credit quality and value of a firm as increasing when bank loans are announced due to reduction of information asymmetry (Ongena et al., 2008). Slovin et al. (1992) show that bank loan announcements are particularly effective for firms with more information asymmetry, such as small firms. This would intuitively make sense when you consider the role information asymmetry plays in the relation between bank loans and borrowers' stock returns.

A company disclosing material weaknesses generally deals with lower investor's confidence (PwC 2015, p. 2). and basically acknowledges a state of information asymmetry.

Considering existing literature, this asymmetry might also moderate the effect of bank loan announcements on stock returns. Multiple studies show that, *ex ante*, firms disclosing internal control weaknesses are generally smaller, younger, riskier and financially weaker (e.g. Ashbaugh-Skaife et al., 2007) . When considering the findings of multiple authors (e.g. Slovin et al., 1992), these demographics indicate that especially firms with ICW's should benefit the most from the screening and monitoring services associated with bank loans.

The debate on this topic arises when you start considering the perspective of investors, as they might start doubting the company's financial position. They might interpret a company facing internal control problems that is increasing its borrowing and shifting its liquidity ratio as one that is showing premature signs of going concern issues. Different capital structures might therefore also play an important role as it is possible that the issuance of new liabilities contribute to or steers away from an optimal capital structure. It has been stressed that investors are not always rational, making predictions about their behaviour rather difficult (Bloomfield, 2002).

The role of financial reporting is to provide useful information for its users for making economic decisions (IASB, 2015). Reported numbers by firms are important for the market to interpret the effect of announced bank loans. Firms would ideally want to strive for strong internal controls to ensure that financial reports remain unbiased, which would in turn satisfy investors' demand for neutral information (Goh, B. E., & Li, D., 2011).

When firms disclose their material weaknesses, it would arguably not only lower its investors' confidence, but also acknowledge a state of information asymmetry. Considering the aforementioned theoretical construct, it is likely to assume that more or different MW's also induce different levels of investor distrust. Shareholders are logically able to interpret different levels of internal control problems. It has already been found that firms with more severe internal control weaknesses pay significantly higher loan rates than those with less severe internal control weaknesses (Hammersley et al. 2012). Altogether, the theoretical arguments induce the following two hypotheses:

H1: Bank loan announcements will induce a higher market reaction for firms with reported material weaknesses.

H2: Bank loan announcements will induce a higher market reaction for firms with reported material weaknesses when they are more severe.

The Libby boxes that illustrate the hypothesis above are presented in appendix E. This predictive validity framework displays the concepts of bank loans, stock prices interrelations, and control variables.

To conclude, screening and monitoring services of banks can create value for investors because they reduce the information asymmetry between a firm and the market. A bank loan announcement can therefore increase the announcing firm's equity. When firms have larger information asymmetries, the bank loan announcement would induce higher *cumulative abnormal returns* since the reduction of this information asymmetry would also become greater. Accordingly, investors use reported numbers of the firm to interpret the effect of bank loan announcements. Internal control problems over financial reporting would then theoretically stimulate information asymmetries and in turn cause higher *cumulative abnormal returns*. This premise is the foundation of my hypotheses.

From the next chapters, I will start discussing matters more closely related to my own research. Section 4 will explore my sample, whereas sections 5 and 6 will dive into my research design and statistical analyses.

#### **4. Sample Selection**

This section aims at explaining the data sources, the data handling, and the data itself. In order to explore how bank loan announcements affect stock returns when being issued by companies that have disclosed MW's, I rely on four five sources of information that provide me with: (1) bank loan characteristics, including the exact announcement dates; (2) the market returns for the borrowing firms following the bank loan announcement; (3) firm quarterly fundamentals; (4) data on economic conditions as additional controls in my regressions; and (4) data regarding internal control quality.

##### **4.1. Bank loan characteristics and event dates**

Thomson One (T1) provides all the required bank loan data for this study. This database lists 76,297 syndicated bank loans issued by U.S. based firms between 2002-2016. As I previously mentioned in the introduction, my study's sample consists exclusively out of syndicated bank loans due to various reasons. First and foremost, statistics indicate that globally, loan syndication as loan type is gaining popularity. Thomson Reuters (2015), states that nearly a third of all bank loans (32,9%) in the United States are syndicated as of 2014,

particularizing the importance of research on this loan type. Second, most empirical papers do not primarily look at syndicated loans. See appendix F for actual numbers on loan syndication.

Out of the 76,297 syndicated bank loans, 2,839 observations lack appropriate identification information (e.g. CUSIP, Company Ticker) which is necessary for merging company fundamentals and market returns to the firms that announce bank loans, forcing me to drop them from my sample, ending up with 73,458 observations.

For the purposes of this study, I retain the *Announcement Date* of the bank loans and declared *Use Of Proceeds* in my sample together with workable identification information for matching purposes. The *Announcement Date* variable represents the day investors first hear about the deal.

#### **4.2. Cumulative abnormal returns**

The second database employed is Eventus (through WRDS), and more specifically a Basic Daily Event Study. After combining the CUSIP9 and *Announcement Date* into a unique identification string, I can compute daily stock returns as:  $R_{it} = ((P_{it} - P_{i(t-1)})/P_{i(t-1)}) \times 100 + Div_{it}$ , where  $R_{it}$  represents a firm's stock return over day  $t$  in percentages, taking into account possible interference by dividend declarations on day  $t$ .  $P_{it} - P_{i(t-1)}$  simply equals the difference in stock price between period  $t-1$  and  $t$ . It follows that when no dividends are declared that  $Div_{it}$  is zero. Following Ongena (2008), the pre-estimation period starts 180 days prior to the loan announcement date and ends ten days after this date. *Cumulative abnormal returns* are produced for five different event windows: [-1,0]; [-1,1]; [-2,2]; [-3,3]; & [-5,5], where e.g. [-1,0] represents an event window starting the day before the bank loan announcement, and ending on the day of the announcement, hence a two-day event window. Only 17,391 observations have data on *Cumulative abnormal returns*, forcing me to drop the remaining 56,067 observations from my sample.

#### **4.3. Borrower characteristics and macroeconomic proxy's**

Firm characteristics are collected from Compustat (through WRDS) by using CUSIP's as unique security identification markers for the observations in my dataset. The value of total assets is being used to capture firms' size. Basic *EPS* excluding all extraordinary items from financial statements, and firm *leverage* – through the use of total liabilities – are both derived as control variables. Additionally, the *S&P 500 EPS* is taken for the purposes of controlling for macroeconomic conditions. I use firm turnover to compute *Firm Growth* which is also a

common control variable in existing literature. In order to compute *Tobin's Q* for firms, I collect the total market value of equity for firms. Using various formulas in Microsoft Excel, I determine and match the closest preceding reported company quarterly fundamentals with the appropriate announcement date of bank loans by firms. This way, the data in my sample most accurately represents the knowledge of the market at the time of the bank loan announcements in my sample. 12,896 observations lack data on these company fundamentals, leaving me with a sample of 4,495 observations.

Next to the *S&P 500 EPS*, I use the logarithm of quarterly GDP as a second proxy to cover macroeconomic conditions as a control variable. Data on this is derived from the Federal reserve bank of St. Louis (FRED).

#### **4.4. Internal control quality information**

And finally, in order to determine information regarding disclosed MW's, I use Audit Analytics (through WRDS), by using company Tickers as a unique security identification marker (CUSIP9 generally works better, but Audit Analytics does not employ this security identifier). The variable *Count Weaknesses* is derived to determine (the amount of) internal control problems that firms have, whereas *Severity of IC* indicates how grave the IC problems are. Because 1,892 observations lack this data, my final sample contains 939 firms issuing 2,603 bank loan announcements over the period of 2005 – 2015, which is more than what most studies use in their study, further enhancing the external validity of my research. Appendix A tabulates and summarizes the definitions of variables used in this study and the sample selection process, together with an overview of my sample and sample treatment. An overview of sample sizes of other studies can be found in appendix C.

Thus far, I provided a background on bank loan announcement effects, existing literature, theoretical justifications and the sample that I will be using my study. Section 5 will explain the research design of my paper that will give base to the statistical research that will be conducted in section 6.

## **5. Methodology**

The following paragraphs discuss the methodology I use to study the effect of bank loan announcements on borrower stock returns. This will follow the principles of an event study. Equations are used and labelled to demonstrate the inner workings of *cumulative*

*abnormal returns* and statistical tests. They are explained in chronological order and subsequently implemented in one another.

### **5.1. Announcement Dates**

As mentioned in the previous section, the bank loan *Announcement Date* will be considered as the event day, i.e. day 0. In line with existing literature, one asymmetric event window has been chosen: two-day [-1,0] as the main event window. To get more insight in the effects on stock returns surrounding this event day 0, I also produce four symmetric event windows: three-day [-1,1]; five-day [-2,2]; seven-day [-3,3]; and eleven-day [-5,5]. Due to common practice in event studies, I do not consider bigger event windows. On the long run other factors, such as industry performance and managerial practices will also affect stock returns, making it difficult to identify whether it's the loan announcement or other factors driving the abnormal stock returns.

### **5.2. Abnormal Returns**

An abnormal return is generally defined as the product of the actual stock return in the event window minus the common return on the same event day. In order to obtain an abnormal return, it is important to define a reasonable estimation window for the normal returns together with a good benchmark return model. Following Karafiath (1988), I employ the 'classic' approach based on the market model, which indicates the relationship between the return of the market index and the return of a given stock:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \quad (1)$$

Where  $R_{it}$  is the individual firms' stock, defined as:  $((P_{it} - P_{i(t-1)})/P_{i(t-1)}) + Div_{it}$ ,  $i$  representing an individual firm on day  $t$ , taking into account possible interference by dividend declarations on day  $t$ .  $R_{mt}$  equals the stock market return on day  $t$ , defined as  $((P_{mt} - P_{m(t-1)})/P_{m(t-1)}) + Div_{mt}$ .  $\beta_i$  and  $\alpha_i$  are the parameters to be estimated over an estimation window. The prediction error  $\varepsilon_{it}$  then defines the abnormal returns within this model. Following Ongena (2008), the pre-estimation period starts 180 days prior to the loan announcement date and ends ten days after this date. Following this, it is necessary to compute the normal return which can be derived using the following equation:

$$NR_{it} = e(\alpha_i) + e(\beta_i)R_{mt} \quad (2)$$

Where  $NR_{it}$  is the normal return, and  $e(\alpha_i)$  and  $e(\beta_i)$  are the estimated parameters produced by the OLS regression. Hereafter, it is possible to compute the normal return in each day within my five event windows for each loan announcement. Finally, the abnormal daily returns can be obtained through:

$$AR_{it} = R_{it} - NR_{it} \quad (3)$$

Where  $AR_{it}$  is the abnormal daily returns. The actual return for borrowers  $R_{it}$  has been produced by equation (1) and the normal return  $NR_{it}$  by equation (2). The aforementioned equations and steps are incorporated in the inner workings of Eventus when conducting an event study. I merely explain the basic event study methodology that goes behind this process.

### **5.3. Cumulative abnormal returns**

Using the market returns on stocks in the equity market, I can now estimate the market model and obtain the *cumulative abnormal return* within each event window:

$$CAR_i = AR_{i,t1} + AR_{i,t2} = \sum_{t=t1}^{t2} AR_{it} \quad (4)$$

Where  $CAR_i$  represents the *cumulative abnormal return*, and  $t1$  and  $t2$  enclose the event window of two days by forming the upper and lower bounds. Basically equation (4) sums up the abnormal returns calculated in equation (3). It is now also possible to aggregate the CARs over the cross-section of events to calculate the commonly used *CAAR – cumulative average abnormal returns*:

$$CAAR = \frac{1}{N} \sum_{i=1}^N CAR_i \quad (5)$$

which basically averages the CAR over a certain event window.

### **5.4. Univariate analysis**

It is important to get insight in the sample in order to understand how the event windows compare to those of other papers. I test the CARs for all my event windows for the period of 2005 to 2015 in order to examine whether the following equation holds merit:

$$CAR_i = 0. \quad (6)$$

This equation will be tested by running a t-test. When the results are statistically significant, it indicates that the bank loan announcements have an effect on market returns. Section 6.1 will explore the empirical implications of the univariate analysis into further detail.

### 5.5. *Multivariate analysis*

The CARs will be regressed on several independent variables over the time period of 2005 – 2015 to observe how the explained variable is affected by different factors. Building forth upon equation (4), the basic regression model can be formulated as:

$$CAR_i = \alpha + \sum_i \beta_i X_i + \varepsilon_i \quad (7)$$

Where  $CAR_i$  represents the abnormal return for the event window being used for company  $i$ .  $\alpha$  is the intercept and  $\sum_i \beta_i X_i$  depicts the sum of the coefficients  $\beta_i$  of all the independent variables  $X_i$  that are used to determine  $CAR_i$  in the model. Estimating (6) will produce the stock cumulative abnormal reactions  $CAR_i$  for my event windows. If these are economically and statistically significant, I can start to explain the cross-sectional variation in a multivariate specification using a collection of specific firm characteristics. For stock markets, this will give me the following (OLS) regression model:

$$CAR_i = \alpha + \beta_1 \text{Material Weaknesses} + \beta_2 \text{Renewal} + \beta_3 \text{Leverage} + \beta_4 \text{Firm growth} + \beta_5 \text{Firm size} + \beta_6 \text{Tobin's Q} + \beta_7 \text{EPS} + \beta_8 \text{Stock exchange closed} + \beta_9 \text{S\&P 500 EPS} + \beta_{10} \text{Log quarterly GDP} \varepsilon, (\varepsilon \sim n(0, \sigma)) \quad (8)$$

The variable  $\beta_1$ Material Weaknesses represents a dummy variable indicating whether or not the firm has internal control problems as disclosed by the firm.  $\beta_2$ Renewal is also a dummy variable, indicating whether bank loans are initialized or renewed. Finally,  $\beta_3$ ;  $\beta_4$ ;  $\beta_5$  and  $\beta_6$  represent general company demographics that are generally implemented by mainstream literature to conduct the model's explanatory power.  $\beta_7$  is included on my own account considering that *earnings per share* has mostly been ignored in the literature as a performance indicator. The variable  $\beta_8$ Stock exchange closed is included after conducting a background check of my sample. This will be further highlighted in section 6.3. Variable measurements and definitions can be found in appendix A. The last two variables  $\beta_9$  and  $\beta_{10}$  are controls to take the macroeconomic conditions into account. Respectfully they are the 'earnings per share of the S&P 500', and the 'logarithm of quarterly GDP'. Macroeconomic



context has also been roughly ignored by current literature. The inclusion of this by my study might therefore be a contribution to current literature.

As a result of implementing firm *EPS*, I am forced to drop the commonly employed *return on assets* as performance indicator due to multicollinearity issues (see appendix H for a correlation table).

Li & Ongena (2015) find a significant effect in their regression for the logarithm of loan package sizes. Per contra, when I test this variable in a spearman correlation test, it flags an abnormally high correlation with the variable firm size. This finding is straightforward in my view as larger firms by principle issue larger loan packages. Hence, this variable should not be included in a regression due to endogeneity issues either in my multivariate analysis, or that of Li & Ongena (2015). Subsequently, I end up with ten regression variables in equation (8) and (9). The multivariate analysis will also look into the severity of internal control problems in order to test the second hypothesis as described in section 3. To do this, I have to adopt a second regression model in which I will replace  $\beta_1$ Material Weaknesses by a dummy variable indicating severe internal control problems. Intuitively, these variables cannot coexist in one model due to multicollinearity issues. This model will look as follows:

$$\begin{aligned} \text{CAR}_i = & \alpha + \beta_1 \text{Severe ICW} + \beta_2 \text{Renewal} + \beta_3 \text{Leverage} + \beta_4 \text{Firm growth} + \\ & \beta_5 \text{Firm size} + \beta_6 \text{Tobin's Q} + \beta_7 \text{EPS} + \beta_8 \text{Stock exchange closed} + \\ & \beta_9 \text{S\&P 500 EPS} + \beta_{10} \text{Log quarterly GDP } \varepsilon, (\varepsilon \sim n(0, \sigma)). \end{aligned} \quad (9)$$

The next chapter will provide various statistical analyses based on all the previous sections that address the research question and hypotheses from sections 1 and 3.

## **6. Empirical results**

In this section I will discuss and elaborate on the results of the event study analysis of the market reaction following a bank loan announcement in the context of disclosed internal control problems. I start off with a univariate analysis where I will measure the effect of bank loan announcements on market returns in different event windows. In the second part, a multivariate analysis will explain the cross-sectional variation in my regression models to help understand what drives these *cumulative abnormal returns*.

## 6.1. Univariate analysis

Table 1 projects the univariate statistics for the *cumulative abnormal returns* (CARs) during the sample period of 2005 – 2015. The number of observations (n) equals 2603. The table reports the mean, standard deviation, minimum, median, maximum, and the percentage of CARs larger than zero. Next to this, the results of two tests are also included within the reporting of the table: (1) a *t*-statistic of a two tailed test of the hypothesized equality of the CARs to zero, and (2) the *P*-value of a binomial test for a positive sign probability equaling 0.5.

**Table 1**

Descriptive statistics of *Cumulative Abnormal Returns* (CARs)

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This table displays the univariate statistics for the *cumulative abnormal returns* (CARs) for different event windows. The amount of observations (n) respectfully equals 2603 for the sample period of 2005 to 2015. The parameters employed in this table are: (1) the mean, (2) standard deviation, (3) a *t*-statistic of a two-tailed test of the hypothesized equality of the CARs to zero, (4) the lowest value (Min), (5) the median, (6) the highest value (Max), (7) the percentage of the CARs larger than zero, and (8) the *P*-value of a binomial test for a positive sign probability equaling 0.5. \*\*\*, \*\*, \* Represents significance at 1%, 5% and 10%.

---

Event window	Mean (%)	StDev (%)	<i>t</i> -Test	Min (%)	Median (%)	Max (%)	%CARs>0	<i>P</i> -value binominal test
[-1;0]	0.23%	4.01%	2.94***	-26.60%	0.12%	71.38%	51.98%	0.023***
[-1;1]	0.35%	5.06%	3.49***	-35.38%	0.16%	61.60%	51.75%	0.039***
[-2;2]	0.62%	7.06%	4.51***	-75.62%	0.43%	92.51%	55.44%	0.000***
[-3;3]	0.75%	8.64%	4.43***	-96.80%	0.57%	113.66%	55.17%	0.000***
[-5;5]	0.85%	11.69%	3.70***	-143.20%	0.83%	101.27%	54.32%	0.000***

---

While the table reports all five event windows for completeness, I will mainly be focussing on the two most salient ones, namely [-1;0] and [-5;5]. For the sake of comparison, I will also incorporate the event window [-2;2] in my regression in order to see how this stacks against the findings of Li and Ongena (2015), since their results stem from a sample period that most closely resembles mine out of all literature. Appendix C lists an overview of empirical studies together with the basis point spread (bps) found for the employed event windows. My two-day CAR [-1;0] equals a magnitude of 23 bps for the total sample of 2,603. This result approaches Best & Zhang (1993) and Ongena et al. (2008) where they find results of 32 and

26 bps. However it falls short to the results found by Lummer & McConnell (1989) and Billet et al. (1995), as they report significant excess returns of 61 and 68 bps respectfully.

Inspired by Slovin et al. (1992), Maskara & Mullineaux (2011) conclude that many papers incorporate a significant amount of small firms in their sample, boosting the level of information asymmetry and hence the excess returns that they find. The significant returns found by Billet et al. (1995) are clearly driven by the firms in the smallest decile of firm size. The significant abnormal returns are limited to the smallest 10% of their sample. The findings of Maskara & Mullineaux (2011) raise the possibility of endogeneity issues for most empirical literature. A correlated omitted variable (Firm size) could influence both the level of information asymmetry of a firm making a bank loan announcement, and the *cumulative abnormal return* following a bank loan announcement. Contrary what most other papers put in practice, it is important to control for this aspect in order to determine how firm size affects the results. In my sample this is especially crucial considering that multiple studies show, *ex ante*, firms disclosing internal control weaknesses are generally smaller, younger, riskier and financially weaker (e.g. Ashbaugh-Skaife et al., 2007).

Table 2 dives deeper in the underlying characteristics of the sample by looking at firm size, creating 6 different subsamples in order to understand the demographics of the studied sample. Contrary to the sample of Billet et al. (1995), the significance of my results stretches far beyond the smallest 10% of my sample. The smallest 50% firms of my sample with IC problems (n=32) yield a significant excess return of 2.75% following a bank loan announcement, making it among the highest of all in the history of this field of literature. When looking at the larger 50% of firms dealing with IC problems (n=32), the excess return is only 0.32% and not significant based on its binomial test *P*-value. Both returns are still significantly bigger when comparing them to the subsamples of the total sample, respectfully 0.31% for smaller firms (n=1303) and 0.15% for larger firms (n=1300). All of this implies that smaller firm size is a very strong moderator for the effect on excess returns for firms coping with IC problems. The total sample of firms coping with IC problems (n=64) also yield significant results with an excess return of 1.54% and is significant based on a two-tailed *t*-test.

**Table 2**

*Cumulative abnormal returns* for big and small firms coping with IC problems

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This table displays the univariate statistics for big and small firms for both firms coping with IC problems, as for the total sample. The median (1) encompasses the 50<sup>th</sup> percentile of *Firm Size* (log total assets) and is being used to create subsamples for smaller and larger firms for both firms coping with IC problems and for the total sample. Firm size (2) indicates the different categories classified by the logarithm of total assets, resulting in 6 subgroups. Other parameters displayed are (3) Observations (n), (4) a *t*-statistic of a two-tailed test of the hypothesized equality of the CARs to zero, (5) the *P*-value of a binomial test for a positive sign probability equaling 0.5, and (6) the mean of CARs in percentages. \*\*\*, \*\*, \* Represents significance at 1%, 5% and 10%.

	Median	Firm size	Observations (n)	<i>t</i> -Test	<i>P</i> -Value	CAR %
Firms coping with IC problems	3.040	Firm size < 3.04	32	2.79***	0.09*	2.75%
		Firm size >= 3.04	32	0.85	0.43	0.32%
		Total	64	2.82***	0.13	1.54%
All firms in sample	3.495	Firm size < 3.495	1303	2.46***	0.690	0.31%
		Firm size >=3.495	1300	1.62*	0.000***	0.15%
		Total	2603	2.94***	0.023**	0.23%

The way IC problems affect the effect on the *cumulative abnormal returns* following a bank loan announcement is the main finding of this paper and has been partially illustrated in the univariate analyses displayed in table 1 and 2. Valuation effects of loan announcements are much higher for firms dealing with IC problems, especially when they are small. Knowing that firm size is an important factor, the multivariate analysis will address the concern that CARs may be affected (other) by firm characteristics.

## 6.2. Multivariate analysis

In table 3, I regress on ten different (control) variables as presented by equation (8) and (9), which are defined in appendix A. These variables, including control variables, are used in both regression equations for the three event windows [-1;0], [-2;2], and [-5;5], ending up with a total of six regression models. Models 1 and 2 represent equation (8) and (9) in the setting of the *cumulative abnormal return* corresponding to event window [-1;0], model 3 and 4 represent equation (8) and (9) in the setting of event window [-2;2], and model 5 and 6 represent equation (8) and (9) in the setting of event window [-5;5]. In this multivariate analysis, the first event

window [-1;0] is considered to be the most important due to its accuracy (least noise), whereas event window [-5;5] yields the biggest *cumulative abnormal return* in the univariate analysis, and event window [-2;2] is taken into consideration for comparison to other contemporary studies (e.g. Li and Ongena, 2015). The variable *Stock exchange closed* is a dummy variable which will be further explained in section 6.3 as this was a collateral effect that came to light when conducting a background check of my sample data, and is not part of my hypothesis development.

**Table 3**

*Cross-sectional regressions on whole sample*

This table reports the coefficients of the cross-sectional variables from the ordinary least square regressions. The variables *IC problems*, *Severe IC problems*, *Loan renewals*, and *Stock exchange closed* represent dummy variables where 1 infers a firm coping with disclosed material weaknesses, disclosed severe material weaknesses, announced the bank loan on the day without stock trading (e.g. holiday or weekends), or a renewal on a loan contract. The dependant variable for models (1) and (2) is CAR[-1;0], for models (3) and (4) it is CAR[-2;2], and for models (5) and (6) it is CAR[-5;5]. The projected coefficients are on the first row with the standard error in parentheses. All variables are defined in appendix A, and the number of observations equal 2,603 in all models. \*\*\*, \*\*, \* Represents significance at 1%, 5% and 10%.

Variables	(1)	(2)	(3)	(4)	(5)	(6)
IC problems	0.012** (0.005)		0.036*** (0.009)		0.049*** (0.015)	
Severe IC problems		0.022*** (0.008)		0.029*** (0.014)		0.056*** (0.023)
Firm size (log assets)	-0.002* (0.001)	-0.002* (0.001)	-0.003* (0.002)	-0.003* (0.002)	-0.008** (0.003)	-0.008*** (0.003)
Leverage	0.002 (0.004)	0.001 (0.004)	-0.024*** (0.007)	-0.024*** (0.007)	-0.040*** (0.011)	-0.038*** (0.011)
Firm growth	0.001 (0.002)	-0.001 (0.002)	-0.005* (0.004)	-0.005* (0.004)	-0.005 (0.007)	-0.005 (0.007)
Loan renewals	0.002 (0.003)	0.002 (0.003)	0.004 (0.004)	0.004 (0.004)	0.013* (0.007)	0.013* (0.007)
EPS	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	-0.001 (0.002)	-0.001 (0.002)

Tobin's Q	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	-0.002 (0.002)	-0.003 (0.002)
Stock exchange closed	-0.011*** (0.003)	-0.011*** (0.003)	-0.009* (0.006)	-0.001* (0.006)	-0.007 (0.010)	-0.008 (0.010)
S&P 500 EPS	0.000*** (0.000)	0.000*** (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
Log GDP	0.000 (0.001)	0.000 (0.001)	-0.004 (0.002)	-0.004 (0.002)	-0.005 (0.003)	-0.004 (0.003)
<i>Intercept</i>	0.013* (0.005)	0.013* (0.006)	0.033*** (0.009)	0.035*** (0.009)	0.070*** (0.017)	0.072*** (0.016)
<i>R-square</i>	0.012	0.013	0.018	0.014	0.016	0.014

Firms that are smaller, earn less and issue loan renewals are expected to be more potent in generating a higher abnormal return after announcing a bank loan (e.g. Diamond, 1991; Slovin et al., 1992; Aintablian and Roberts, 2000; Li and Ongena, 2015). The regression results of *IC problems* and *Severe IC problems* are entirely consistent with my earlier interpretation that firms find themselves in a higher state of information asymmetry when disclosing material weaknesses, supporting the assumption of Kim et al. (2011) that the presence of ICW's is a comprehensive information quality indicator. This also unequivocally supports H1 that bank loan announcements will induce a higher market reaction for firms with reported material weaknesses.

Interestingly, the proxy *S&P 500 EPS* shows significance for regression model 1 and 2, indicating that macroeconomic context helps explaining the *cumulative abnormal return* after a bank loan announcement. The performance of the S&P seems positively correlated with the CAR's of the two-day event window, meaning that *cumulative abnormal returns* increase when the S&P performs better. It is in fact quite naturally to observe firms producing higher CAR's when economic conditions are better. This would infer that both microeconomic and macroeconomic conditions are important when announcing bank loans.

Table 3 also partly confirms my earlier expectations regarding some control variables. *Firm size* seems to behave consistently significant over different event windows, whereas Firm growth and Loan renewals show significance on a 10-percent level for only event window [-2;2] and [-5;5]. Perhaps the biggest surprise is the significance of the variable *Leverage* that

becomes significant in larger event windows. However, this could be explained by the presumption that not all information is instantly processed by the market following a bank loan announcement, but that it requires time for the market to comprehend the impact of the bank loan announcement. It then becomes understandable that levered firms are likelier to generate lower CAR's. New loans issued by highly levered firms could lead to a departure away from an optimal capital structure, raising the possibility to expect greater losses. This notion goes against the results of Li & Ongena (2015) who claim that higher leverage actually contributes to a higher *cumulative abnormal return*. However, descriptive statistics show that their average sample leverage is 25%, opposed to a leverage of 60% of my sample. Intuitively it is also possible that the issuance of loans actually contribute to an optimal capital structure. It therefore strongly depends on the employed sample to understand how the issuance of new liabilities takes effect.

Following this, in order to acquire a deeper understanding of the underlying dynamics for firms coping with ICW's, I run a second regression on a sub-sample with only ICW firms. The additional regression will also provide insight in the contribution of the severity of material weaknesses to the *cumulative abnormal return*. Considering the lack of comparability with other literature, I will only employ the most salient event window [-1;0]. The results are presented in table 4.

**Table 4**

Cross sectional regressions on sub-sample (only ICW firms)

This table reports the coefficients of the cross-sectional variables from the ordinary least square regressions. The variables *Severe IC problems*, *Loan renewals*, and *Stock exchange closed* represent dummy variables where 1 infers a firm coping with disclosed severe material weaknesses, announced the bank loan on the day without stock trading (e.g. holiday or weekends), or a renewal on a loan contract. The dependant variable is CAR[-1;0]. The projected coefficients are on the first row with the standard error in parentheses. All variables are defined in appendix A, and the number of observations equal 64. \*\*\*, \*\*, \* Represents significance at 1%, 5% and 10%.

Variable	CAR [-1;0]
Severe IC problems	0.013* (0.011)
Firm size (log assets)	-0.018** (0.008)

Leverage	-0.025 (0.025)
Firm growth	-0.063 (0.046)
Loan renewals	-0.033 (0.029)
EPS	-0.002 (0.011)
Tobin's Q	-0.033*** (0.009)
Stock exchange closed	-0.007 (0.041)
S&P 500 EPS	0.002 (0.001)
Log GDP	-0.012 (0.011)
Intercept	0.162** (0.070)
R-square	0.300

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Tables 3 and 4 show different pictures with respect to significance levels of the variables employed in the regressions. For ICW firms, the most striking firm demographic that behaves differently from the total sample is the Tobin's Q. This indicates that for ICW firms, the firm will experience lower abnormal returns following a bank loan announcement as the market value of the firm rises relative to the total asset value. More interestingly, the variable *Severe IC problems* is also significant on a 10-percent level, supporting H2 that bank loan announcements will induce a higher market reaction for firms with reported material weaknesses when they are more severe. Macroeconomic factors do not seem to play a role in influencing the *cumulative abnormal return* either for the total sample as for ICW firms.



### 6.3. Bank loan announcements when the stock exchange is closed

When analysing my dataset, I noticed a collateral effect with respect to the *variable Stock exchange closed*. This dummy variable represents a bank loan announcement that has been made when the stock exchange is closed. Subsequently the market will react the first next day when it's open (e.g. a bank loan announcement made in the weekends will receive response on Mondays). The data regarding this point is retrieved from Eventus along with the *cumulative abnormal returns*. Looking at table 3 will reveal a significant effect on a 1-percent level of this variable on the *cumulative abnormal return* for the event window [-1;0] when announcing a bank loan. The significance drops when looking at bigger event windows, which intuitively makes sense, considering that the effect gets thinned out over time. This indicates that when firms announce bank loans when the stock exchange is closed, *cumulative abnormal returns* get negatively affected on the first following day when the trading resumes.

To put this in perspective, table 5 compares a univariate analysis of this variable with the total sample. It points out positive stock return of 23 bps for the total sample, and a negative *cumulative abnormal return* of 84 bps for the firms that announced their bank loans on a non-trading day. The demographics of both samples are similar, including the use of proceeds of the loans, leaving no room for endogeneity. This difference of more than one percent in stock returns is then difficult to account for when assuming the market is efficient, especially when considering that a non-trading day should not have any influence from a rational point of view.

**Table 5**

*Cumulative abnormal returns* for firms disclosing bank loans when stock exchange is closed

This table displays the univariate statistics of the firms that announce bank loans when the stock exchange is closed, and compares them with the total sample. Parameters displayed are (1) Observations (n), (2) a *t*-statistic of a two-tailed test of the hypothesized equality of the CARs to zero, (3) the *P*-value of a binomial test for a positive (negative) sign probability equaling 0.5, and (4) the mean of CARs in percentages. \*\*\*, \*\*, \* Represents significance at 1%, 5% and 10%.

Variable	Observations (n)	t-Test	P-Value	CAR %
Stock exchange closed	143	-2.46***	(0.0076***)	-0.84
Total sample	2,603	2.94***	0.023**	0.23

However, this irrationality of investors has already been investigated by various authors throughout time and has often been described as the ‘Day of the week effect’ or the ‘Monday effect’ (e.g. Gibbons & Hess, 1981). This phenomenon prescribes seasonality and lower stock returns on Mondays and other fixed dates. The lower returns are attributed to a more depressed state of mind among investors on preceding dates like weekends. Empirical support on this has been found by several studies by comparing stock returns.

It goes without saying that this phenomenon is a crime among the believers of the efficient market hypothesis. More contemporary papers have revisited the topic and claimed that these effects have disappeared due to increases in efficiency of financial markets (Kohers et al., 2004; Apolinario, 2006). My concerns with those papers is that they simply compare stock returns of various days in order to try and observe statistical outliers, and subsequently fail to do so. It raises the possibility that they only observe the average decision rationale of investors. Bloomfield (2002) argues that while publicly disclosed information is free, it costs time and effort to extract knowledge from the given information, and these costs increase together with the complexity of the information provided. Hence, even though the analysis of average trading yields no observation of irrationality among investors, it still leaves the possibility of irrationality when this trading becomes more complex. The results of my univariate and multivariate analyses incline me to argue that perhaps more complicated corporate proceedings –such as multimillion dollar loan packages – will prompt investors into giving in to the underlying behaviour that embodies the day-of-the-week effect.

#### **6.4. Long term effects of bank loan announcements**

Having now gained a deeper understanding of bank loan announcement effects surrounding the announcement date, it would be a relevant addition to observe long-term effects in order to appropriately value bank loan announcement effects on the long run. Bank loan announcement effects are real and measurable, but it is also worthwhile to critically scrutinize this effect and make sure if hype-behaviour among investors is (also) driving these results, regardless of all the theoretical justifications for the existence of this effect. An effective way to do this is to conduct additional event studies on the disclosure dates prior and after the bank loan announcement. Possible unjustified equity effects should then be corrected upon the first disclosure after the bank loan announcement due to the publication of (financial) results and information of the firm. If bank loan announcement effects are really independent value adding phenomena, then the *cumulative abnormal returns* upon disclosures after bank

loan announcements should remain consistent with macro-economic conditions. Hence I would hypothesize positive *cumulative abnormal returns* for succeeding disclosures as the U.S. economy grows on average during my sample period.

Table 6 provides the results of these event studies for the quarterly disclosure dates surrounding the bank loan announcements made by firms in my sample. As can be seen from the results, firms produce positive *cumulative abnormal returns* upon the disclosure of the quarterly results preceding the bank loan announcement, as well as upon the bank loan announcement itself. More interestingly though, table 6 indicates that the succeeding three quarterly disclosures of firms that announce bank loans yield negative *cumulative abnormal returns*. This would strongly suggest that when firms announce bank loans, they do not create value for themselves on the long run. They only induce an increase in equity momentarily, which gets corrected at the first following public disclosure. Current literature correctly establishes that bank loan announcements add value to the borrower directly after the announcement, regardless of how small the economic effect might be. My findings on the long run however, add serious caveats to the literature and to bank loan announcement effect.

**Table 6**

*Cumulative abnormal returns before and after bank loan announcements (t<sub>0</sub>) made by total sample*

This table lists the results of event studies performed on the quarterly disclosure dates surrounding firms' bank loan announcements. Coefficients of CAR's are listed in percentages. t<sub>-1</sub>, t<sub>0</sub>, t<sub>+1</sub>, t<sub>+2</sub>, t<sub>+3</sub>, respectfully represent quarterly disclosures preceding the bank loan announcements, the bank loan announcement itself, and the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> succeeding quarterly disclosures after the bank loan announcements. The results are clustered by the different event windows over the five intervals. [-1;0], [-1;1], [-2;2], [-3;3], and [-5;5] indicate the five different event windows employed in this study. The observations (n) for t<sub>-1</sub>, t<sub>0</sub>, t<sub>+1</sub>, t<sub>+2</sub>, t<sub>+3</sub> are 2,596; 2,603; 2,593; 2,492; and 2,428 respectfully. the P-value of a binomial test for a hypothesized mean of zero is displayed in asterisks. \*\*\*, \*\*, \* Represents significance at 1%, 5% and 10%.

	Preceding Quarterly disclosures (t <sub>-1</sub> )	Bank loan announcement date (t <sub>0</sub> )	Succeeding Quarterly disclosures (t <sub>+1</sub> )	2nd succeeding Quarterly disclosures (t <sub>+2</sub> )	3rd succeeding Quarterly disclosures (t <sub>+3</sub> )
[-1;0]	0,057	0,231***	-0,273***	-0,265***	-0,094
[-1;1]	0,191**	0,346***	-0,261***	-0,262***	-0,156*
[-2;2]	0,366***	0,624***	-0,238***	-0,205***	-0,261***
[-3;3]	0,561***	0,750***	-0,250***	-0,230***	-0,422***
[-5;5]	0,875***	0,848***	-0,227***	0,018	-0,306***

The results of table 6 raise the question of how the size of bank loan announcement effects influences the negative *cumulative abnormal returns* that follow after the announcement. I examine a second sample that induces higher bank loan announcement effects in order to observe how the negative consequences after the bank loan announcement behave. This sample consists of the smallest 5% of firms from my original sample based on log assets, resulting in 131 observations. Table 7 provides the results of event studies conducted for this sample for the quarterly disclosure dates surrounding the bank loan announcements made by the smallest 5% of firms.

Similar to the total sample, small firms produce positive *cumulative abnormal returns* upon the disclosure of the quarterly results preceding the bank loan announcement, as well as upon the bank loan announcement itself. However, I also found that small firms with bigger bank loan announcement effects also experience negative downward corrections in the subsequent quarterly disclosure. Moreover, these negative *cumulative abnormal returns* also turn out to be significantly bigger compared to the total sample. This would suggest that bigger bank loan announcement effects get followed by bigger downward corrections. Column charts of table 6 and 7 are provided in appendix G.

**Table 7**

*Cumulative abnormal returns before and after bank loan announcements ( $t_0$ ) made by smallest 5% of firms.*

This table lists the results of event studies performed on the quarterly disclosure dates surrounding the smallest 5% firms' bank loan announcements. Coefficients of CAR's are listed in percentages.  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ ,  $t_{+3}$ , respectfully represent the quarterly disclosures preceding the bank loan announcements, the bank loan announcements themselves, and the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> succeeding quarterly disclosures after the bank loan announcements. The results are clustered by the different event windows over the five intervals. [-1;0], [-1;1], [-2;2], [-3;3], and [-5;5] indicate the five different event windows employed in this study. The observations (n) for  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ ,  $t_{+3}$  are 131 respectfully. the *P*-value of a binomial test for a hypothesized mean of zero is displayed in asterisks. \*\*\*, \*\*, \* Represents significance at 1%, 5% and 10%.

	Preceding Quarterly disclosures ( $t_{-1}$ )	Bank loan announcement date ( $t_0$ )	Succeeding Quarterly disclosures ( $t_{+1}$ )	2nd succeeding Quarterly disclosures ( $t_{+2}$ )	3rd succeeding Quarterly disclosures ( $t_{+3}$ )
[-1;0]	0,478***	0,732***	-0,433***	-0,318***	-0,317***
[-1;1]	0,474***	0,526***	-1,043***	-1,130***	-0,186**
[-2;2]	1,250***	1,435***	-1,091***	-0,063***	-0,651***
[-3;3]	2,693***	1,861***	-2,590***	-0,657***	-1,516***
[-5;5]	2,706***	3,467***	-3,388***	-0,511***	-1,943***

In order to determine how the *cumulative abnormal returns* from my total sample (table 6) are influenced by macroeconomic conditions, I conduct a regression on the CAR's (event window [-1;0]) for the periods  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ , and  $t_{+3}$ . The results are reported in table 8.

**Table 8**

*Cross-sectional regressions on whole sample for CAR's on  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ , and  $t_{+3}$ .*

This table reports the coefficients of the cross-sectional variables from the ordinary least square regressions. Solely two macroeconomic proxies are taken into consideration in order to understand the impact of economical behaviour on the *cumulative abnormal returns* on  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ , and  $t_{+3}$ . All CAR's yield the event window [-1;0]. The projected coefficients are on the first row with the standard error in parentheses. The observations (n) for  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ ,  $t_{+3}$  are 2,596; 2,603; 2,593; 2,492; and 2,428 respectively. \*\*\*, \*\*, \* Represents significance at 1%, 5% and 10%.

	CAR $t_{-1}$	CAR $t_0$	CAR $t_{+1}$	CAR $t_{+2}$	CAR $t_{+3}$
S&P 500 EPS	0.000 (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.000*** (0.000)	0.001*** (0.000)
Log GDP	0.038* (0.020)	0.019 (0.023)	0.021 (0.017)	0.028 (0.022)	0.010 (0.024)
Intercept	-0.157 (0.082)	-0.065 (0.093)	-0.100 (0.071)	-0.125 (0.092)	-0.028 (0.098)
R squared	0.001	0.033	0.012	0.003	0.013

The results from table 8 indicate significance for macroeconomic proxy's during all periods. This would suggest that *cumulative abnormal returns* on disclosure dates surrounding bank loan announcements are stimulated by prosperous economic conditions. As mentioned before, it is in fact quite natural to see firms produce higher CAR's in better economic conditions, but it also makes the negative *cumulative abnormal returns* from table 6 also more significant in meaning.

## 7. **Conclusions and limitations**

The paper of Fields et al. (2006) argues that since James (1987) researched the effect of firms' bank loan announcements on stock prices, the effect has mostly disappeared due to the increasing efficiency of the financial system that reduces information asymmetry. A meta-analysis on my side begs to differ that *cumulative abnormal returns* have vanished and indicates that information asymmetry between firms and investors is still there, together with bank loan announcement effects.

The existence of this announcement effect is a prerequisite for my paper as it gives a foundation to my research question. I find that when firms have disclosed material weaknesses they experience higher abnormal returns when announcing bank loans. Firms that have disclosed more severe material weaknesses experience even higher abnormal returns. These reactions can be explained by the reduction of information asymmetry that follow from the screening and monitoring services provided by the lending bank. This would also in turn be empirical support for the claim of Kim et al. (2011) that ICW's are comprehensive information quality indicators.

Overall, my paper points out that both a firms' micro- and macroeconomic environment is important in generating abnormal returns from bank loan announcements. The macroeconomic aspect has been roughly ignored by literature so far. Governmental regulations and efficiency in the financial system does also seem to play a role. Information asymmetries will likely always exist due to imperfections in the financial system. An example of this is made by my analysis of abnormal returns when firms announce their bank loan packages on non-trading days. The fact that this proves to induce significantly negative abnormal returns can most likely only be allocated to the day-of-the-week effect, supporting my assumption an imperfect financial market.

However, this last statement cannot irrevocably be proven by this alone, considering the amount of research that supports both sides of the argument, making this an interesting field to further explore.

Perhaps the biggest contribution of my paper stems from my analysis on bank loan announcement effects on the long run. I find that when firms announce bank loans, the positive *cumulative abnormal return* from the announcement gets followed by negative *cumulative abnormal returns* upon the disclosure date of the subsequent following quarterly results, even when correcting for macroeconomic conditions. Moreover, bigger bank loan announcement effects get followed by bigger downward corrections. Market efficiency states that unjustified equity effects should be corrected upon the first disclosure after the bank loan announcement due to the publication of (financial) results and information of the firm. This would strongly suggest that hype-behaviour among investors is driving bank loan announcement effects, regardless of all the theoretical justifications for the existence of this effect. My findings of bank loan announcement effects on the long run add serious caveats to the current existing literature

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## Appendix A: Description of variables and sample treatment

### Variable descriptions

This table defines the variables that are used in this event study, together with the source of the data

Variables	Definition	Source
Cumulative abnormal returns (CAR)	Cumulative abnormal returns	Eventus
(1a) IC problems	Disclosed material weaknesses by firms	Audit Analytics
(1b) Severe IC problems	Severe material weaknesses disclosed by firms as labelled by the auditor	Audit Analytics
(2) Firm size	Logarithm of firm's total assets	Compustat
(3) Leverage	Total Liabilities / Total Assets	Compustat
(4) Firm growth	Growth of turnover compared to preceding year	Compustat
(5) Earnings per share (EPS)	Net income (excluding extraordinary items) - dividends on preferred stock/ average outstanding shares	Compustat
(6) Tobin's Q	Total market value of firm / total asset value	Compustat
(7) S&P 500 EPS	Earnings per share of S&P 500	Compustat
(8) Logarithm GDP	Logarithm of quarterly GDP	FRED
(9) Loan renewals	Dummy variable; 1 if loan is renewed at same bank by firm; 0 if loan is initially issued.	Thomson one
(10) Stock exchange closed	Dummy variable; 1 if the stock exchange is closed when the bank loan is announced (e.g. holiday or weekends); 0 if the stock exchange is open upon announcement of the bank loan.	Eventus

### Sample treatment

This table lists all the steps with respect to my data treatment as described by section 4. The erasure of observations is in parenthesis.

Steps	Amount of observations
Syndicated bank loans initially derived from Thomson One	76,294
Drop observations that lack unique security identification markers from Compustat	(2,839)
Drop observations that lack data on <i>Cumulative abnormal returns</i> from Eventus	(56,067)
Drop observations that lack data on (company) quarterly fundamentals from Compustat	(12,896)
Drop observations that lack data on ICW's from Audit analytics	<u>(1,892)</u>
Final sample	2,603
Total number of firms	939

## Appendix B: Literature table

This table lists the theoretical and empirical papers used in this study. The papers are ordered in chronological order, based on year of publication. The table highlights the author(s) of the papers, publication year, subject of the paper, the main research question of the paper, variables used for paper if it's an empirical setting, research method, sample period, and outcome of the paper. The rightmost column lists whether my results comply or disagree with the paper. I either note 'Agree' when my results align with the outcome of the paper, 'N/A' when my results don't apply to the outcome of the paper, or 'Disagree' when my results contradict the paper's results, in which case I elaborate on this.

Author	Year	Subject	Research Question	Variables	Method	Period	Outcome	Agree/ Disagree
Kane, E.J. & Malkiel, B.G.	1965	Portfolio theory	Can a relationship bank capture information about a borrower that an unrelated lender cannot?	N/A	Archival (theoretical)	1965	Banks have insider information and superior informational knowledge.	Agree
King, B.F.	1966	Information and stock price reactions	How can stock return variances be contributed to industry and information effects?	N/A	Archival (theoretical)	1966	stock price reactions to incoming information differ between industries and groups of familiar industries	N/A
Black, F.	1975	Bank funds managing in an efficient market	What are the general principles surrounding bank loans in an efficient market?	N/A	Archival (theoretical)	1975	Banks generate proprietary information about the borrower over the course of the relationship.	Agree
Benston, G.J. & Clifford, W.S.	1976	Financial Intermediation	What is the most productive way to analyse financial intermediaries?	N/A	Archival (theoretical)	1976	Banks can reduce transaction costs for monitoring a borrower's performance and credibility.	N/A
Leland, H.E. & Pyle, D.H.	1977	Informational asymmetries and financial intermediation	Why do financial intermediaries exist?	N/A	Archival (theoretical)	1977	Information asymmetry might be a prime reason that financial intermediaries exist.	Agree
Diamond, D.W.	1984	Financial Intermediation	What are the determinants of delegation costs?	N/A	Archival (theoretical)	1984	Due to information asymmetry, banks specialize in information production and	Agree

							loan contract design.	
Ramakrishnan, R.T.S. & Thakor, A.V.	1984	Information reliability and financial intermediation	When will it be beneficial for agents engaged in the production of information to form coalitions?	N/A	Archival (theoretical)	1984	Financial intermediation improves welfare if informational asymmetries are present.	Agree
Fama, E.F.	1985	The role of banks in financial intermediation	What is the advantage that banks hold over other financial intermediaries when issuing loans?	N/A	Archival (theoretical)	1985	Banks can signal the quality of firms to outside investors through their lending decisions.	Agree
Mikkelson, W.H. & Partch, M.M.	1986	Effects of debt issuances.	How does the market respond to changes in capital structure and debt issuance	- CAR - Market value stock - Net change capitalization - Offering size - Convertible debt - Straight debt	Survey (longitudinal)	1972 - 1982	Bank credit line announcements cause abnormal returns.	Agree
James, C.	1987	Bank loan effects and the role of banks.	How does the market respond to the issuance of debt?	- CAR - Debt amount - Firm Size - Debt amount / value stock - Maturity of debt - Commercial bank loans - Privately placed debt - Public straight debt	Archival (event study)	1974 - 1983	Significant positive returns following new bank loan agreements. Significant negative effect when issuing new straight debt to repay existing bank loans.	N/A
Slovin, M.B. et al.	1988	Commercial paper program announcements	How does the market respond to commercial paper program announcements?	- CAR - Letter of credit facilities - Note issuance facility - Credit rating	Archival (event study)	1982 - 1985	The issuance of securities through a note issuance facility or commercial paper program is regarded as very favorable by investors.	N/A
Lummer, S.L. &	1989	Bank lending process and	Are there different capital market	- CAR - New debt	Archival (event study)	1976 - 1986	Positive loan announcement effect for	Disagree: I find positive announcement

McConnell, J.J.		capital market responses.	responses for debt renewals or debt initiations?	- - - - - - - - -	Revised debt Secured debt Unsecured debt Revolving debt Term debt Guaranteed debt Unguaranteed debt Renewals			renewals but not for initiations	effects for either type of debt in different situations.
Woolridge, J.R. & Snow, C.C.	1990	Stock market reaction to investment announcements	How do markets react to announcements of corporate strategic investment decisions?	- - - - -	CAR Joint venture I. R&D I. Capital expenditure Product/market diversification	Archival (event study)	1972 - 1987	The stock market responds positively to well-conceived, long-run strategic decisions.	N/A
Diamond, D.W.	1991	Bank loan demand and reputation effects.	When will a debt contract be monitored by lenders?		N/A	Archival (theoretical)	1991	When moral hazard is sufficiently widespread, new borrowers will begin their reputation acquisition by being monitored and later switch to directly placed debt.	N/A
Slovin, M.B. et al.	1992	Firm size and information content of bank loans.	How does firm size play a role in the conventional relationship between bank loan announcements and stock returns?	- - - - -	CAR Loan initiations Loan renewals Loan size Market value of client firm Yield to Maturity	Archival (event study)	1980 - 1986	Smaller firms produce higher abnormal market returns when announcing bank loans (also for debt initiations).	Agree
Best, Z. & Zhang, H.	1993	Information content of bank loan agreements.	Do banks expend equal efforts in evaluating all borrowers?	- - - - -	CAR Loan initiations Loan renewals Bond rating Total assets Number of analysts	Archival (event study)	1977 - 1989	Banks do not apply equal efforts in evaluating all borrowers.	N/A
Billet, M.T. et al.	1995	Lender identity and the bank loan announcements	Does the lender's identity affect	- - -	CAR Firm size Renewals	Archival (event study)	1980 - 1989	High quality lenders induce higher CARs	N/A

		ment return effects.	the market's reaction to a loan announcement.	- - - - -	SD returns BETA Tobin's Q EBITDA Leverage				
Preece, D. & Mullineaux, D.J.	1996	Monitoring, loan renegotiability, and firm value.	Does the capacity to renegotiate private loans complements monitoring as a source of value to borrowers?	- - - - -	CAR Loan amount Amount of lenders Total assets Maturity Loan syndication	Archival (event study)	1980 - 1987	Loan size does not influence the borrower's market reaction. Contractual flexibility complements monitoring as a source of the market's positive reaction to bank loans.	
Johnson, S.A.	1997	Bank reputation and the value of bank loan agreements	What are the effects of bank characteristics on changes in client firm value occasioned by bank loan announcements.	- - - - - - -	CAR Bank deposit size Share price Bank capital ratio AAA bank rated dummy Firm size Tobin's Q Leverage	Archival (event study)	1980 - 1986	Relationships with high quality banks sustain higher increases in firm value. Bigger and reputable banks spark higher excess returns after a bank loan announcement	N/A
Byers, S.S. et al.	1998	Lender demographics and borrower's returns	How does lender identity play a role when a firm announces a bank loan?	- - - - - - - - -	CAR Firm size Market to book ratio Runup SD of predicted error Lender size Lender rating Loan size Maturity	Archival (event study)	1989 - 1990	In line with Billet et al. (1995) loans issued by foreign lenders spark a greater market reaction. Higher lender quality also seems to spark higher market reactions.	N/A
Datta, S. et al.	1999	Bank monitoring and pricing of corporate public debt	Does the existence of a bank/firm relationship lower the cost of public debt financing?		N/A	Archival (difference in difference regression)	1971 - 1994	The bank/firm relationship has no effect on loan characteristics	N/A
Aintablian, S. & Roberts, G.S.	2000	Market responses to corporate loan announcements	Do key results of prior studies also hold for the Canadian market?	- - - -	CAR Bank loan type Renewals History with bank Firm size	Archival (event study)	1988 - 1995	Bank loan announcements are associated with positive returns in the Canadian market. Syndicated	N/A



				- Firm credit rating			loans have lower announcement effects.	
Andre, P. et al.	2001	Disclosures of credit agreements in a Canadian setting	How do markets react to credit agreement disclosures in Canada?	- CAR - Renewals - Firm size - Amount of banks - Foreign bank - Dummy before or after 1988 - Line of credit - Term loans	Archival (event study)	1982 - 1995	After the 1988- capital adequacy requirements, markets perceive that banks reduced their level of commitment.	N/A
Hadlock, C.J. & James, C.M.	2002	Financial slack	When do firms choose bank debt or public securities, given a marginal financial choice?	- CAR - Firm size - Age - Leverage - Stock return vol. - Market/book - Bank dependent - Public debt - Firm's past 12 month returns	Archival (event study)	1980 - 1993	Firms with high stock volatility are more likely to announce bank loans, possibly because they know their firm is undervalued.	N/A
Bloomfield, R.	2002	Efficient market hypothesis	Are markets really as efficient as the EMH claims they are?	N/A	Archival (theoretical)	2002	The incomplete revelation hypothesis (IRH) assumes that the costs of extracting useful knowledge from data keep markets from fully revealing the meaning of that data.	Agree
Fery, J. et al.	2003	Market reactions to published and non-published loan announcements in Australia	How do published and non-published announcement market reactions differ?	- CAR - Lender relation - Loan type - Single bank - Foreign bank	Archival (event study)	1983 - 1999	Markets react positively to bank loan announcements when published in financial press.	N/A
Marsh, I.W.	2006	The effect of lenders' credit risk transfer activities on borrowing firm's stock returns	Do known activities of the lender in credit risk transfer markets affect the market's response to a new loan?	- CAR - Quality lender - Loan size - Renewal - Syndicated	Archival (event study)	1999 - 2005	The bank certification effect is greatly reduced if the lender has past sold off portfolio credit risk through	N/A

				- SD of residuals - regression - BETA - Runup - Log of lender's rating - Size lender				issuing a collateralized loan obligation. Bigger loans spark bigger returns.	
Fields, L. P. et al.	2006	The effect of bank loan announcements on equity prices	Do bank loan relationships still matter?	- CAR - Assets - ROA - SD returns - Tobin's Q - Leverage - Spread	Archival (event study)	1980 - 2000	Strong evidence has been found that bank loan announcements returns have become insignificant following James (1987) and Lummer & McConnell (1989)	Disagree: I find evidence that bank loan announcements are still positive both in a literature review as in my own study.	
Ongena, S. et al.	2008	The impact of a bank loan announcement on bond and equity prices.	How do bank loan announcements affect stock returns and how do firm characteristics play a role in this?	- CAR - Credit spread - Firm Size - Loan amount - Outstanding debt amount - B/M ratio - Leverage - Stock vol. - YTM - Risk free rate	Archival (event study)	1997 - 2003	Small firms and big loan sizes induce a larger CAR. Risky and levered firms may lose net value following a bank loan announcement.	Agree	
Lee, K.W. & Sharpe, I.G.	2008	Loan screening and monitoring by banks	Does a bank's loan screening and monitoring matter?	- CAR - Term loan - Syndicate - Working capital - Refinancing purpose - Log equity - ROA - Runup	Archival (event study)	1995 - 1999	There's a significant positive abnormal market return following a bank loan announcement using a new proxy for loan screening.	N/A	
Ross, D.G.	2010	Bank reputation and the informativeness of bank loans and terms.	How does the dominance and reputation affect the stock price response after a bank loan announcement	- CAR - Big 3 bank - Syndicated loan - Run up - BETA - Log firm equity - Leverage - Renewal - Rating	Archival (event study)	2000 - 2003	More reputable firms borrow from more reputable banks, increasing the loan announcement effect	N/A	

Bailey, W. et al.	2011	Bank loans in China	What conditions affect the stock market reaction after a bank loan announcement in a transitional economy	- - - - - - -	CAR Log equity RPT ROA State owned E. Distress dummy Big 4 bank Political	Archival (event study)	1999 - 2004	Poorly performing firms are more likely to receive loans. Poor performance, or high state-ownership leads to negative stock returns. The Chinese stock market understands corporate performance.	N/A
Matemilola, B.T. & Bany-Ariffin, A.N.	2011	Pecking order theory	What's the relation between profit and (long term) debt?	-	N/A	Archival (theoretical)	2011	The pecking order theory is real and signifies the presence of asymmetric information between firm and financier	Agree
Maskara, P.K. & Mullineaux, D.J.	2011	Self-selection and information asymmetry during a bank loan announcement	Does self-selection bias lead to firms with more information asymmetry being more likely to announce their debt financing?	- - - - - - - - - - -	CAR Firm size Bid-ask Forecast error Earnings volatility Firm age Insider trading Turnover Residual Volatility	Archival (event study)	1987 - 2004	Borrowers are more likely to announce loans when they present sizable information asymmetries or when loans in question appear material.	N/A
Hammer-sley, J.S. et al.	2012	Failing to remediate disclosed material weaknesses in internal controls.	When will companies be less likely to remediate disclosed material weaknesses and when are the effects when they fail to do so?	- - - - - - - - - - - -	Entity level MW amount Segments M&A Growth Size Loss Inventory Big 4 CEO-change CFO-change	Archival (event study)	2006	When weaknesses are more pervasive companies are less likely to remediate them. Investor confidence drops when MW's are present.	N/A
Huang, W.H. et al.	2012	Bad news bank loan announcements	Can inefficient bank loans reduce the value of borrowing firms?	- - - - - -	CAR RPT ratio State owned E. Stock vol. Firm size ROA	Archival (event study)	2001 - 2006	In China, only firms that are less vulnerable to expropriation experience stock return	N/A

				- Tobin's Q - Leverage - Loan size - Maturity				benefits when issuing debt.
Malkonen, V. & Vesala, T.	2012	Adverse selection	How does adverse selection play a role in an imperfect competitive banking system?	N/A	Archival (theoretical)	2012	Low-risk borrowers are more sensitive to interest rates and more likely to approach a less preferred bank.	N/A
Ongena, S. Roscovan, V.	2013	Bank origin and bank loan announcement effects	Does bank origin matter when announcing bank loans?	- CAR - Firm size - Leverage - ROA - Tobin's Q - Asset change - Foreign activity - SD stock - Bank in same state - Close bank's HQ	Archival (event study)	1980 - 2003	High quality, competitive foreign banks are preferred by investors, as well as close, local banks with easier access to private corporate information.	N/A
Haas De, R. & Horen Van, N.	2013	Bank lending during the financial crisis	How did large international banks reduce their cross-border lending after the collapse of Lehman Brothers.	- Sudden stop - Volume - Number - Exit - Distance - Experience - Subsidiary - Domestic banks - Exposure	Archival (cross-sectional study)	2000 - 2009	Banks extended less loans to markets that are geographically close, there where they were more experienced; where they operated a subsidiary; and where they were integrated into a network of domestic co-lenders.	N/A
Li, C. & Ongena, S.	2015	Stock returns from a bank loan announcement before, during, and after the financial crisis.	How do stock returns from bank loan announcements behave over time during the financial crisis?	- Car - Crisis - Loan amount - Maturity - Arrangers (N) - Term loan - Assets - Turnover - Leverage - ROA - Stock vol.	Archival (event study)	2005 - 2009	Near zero Bps prior to crisis, august 2007. After crisis, bps rises to 200 bps again. Excess returns are especially high for smaller and less profitable firms.	N/A

## Appendix C: Loan announcement effects of existing literature

This table displays the market reactions to loan announcement of different studies that are reviewed in my meta-analysis. Results are presented in percentages for a two-day event window [-1;0]. \*\*\*, \*\*, \* Representing significance at 1%, 5% and 10%.

Author (year)	Country & sample period	Type of arrangement (n)	Two-day mean CAR in %
Mikkelson & Partch (1986)	U.S. 1972 - 1982	Credit agreements (155)	0.89***
James (1987)	U.S. 1974 - 1982	Bank loan announcement (80)	1.93***
Slovin et al. (1988)	U.S. 1982 - 1985	Commercial paper offerings (35)	1.39**
Lummer & McConnell (1989)	U.S. 1976 – 1986	Bank credit agreement (728) Revised (357) /new (371)	0.61*** 1.24***
Slovin et al. (1992)	U.S. 1980 - 1986	Bank credit agreement (273) Renewals (124) /initiations (149) Small firms (156) /large firms (117)	1.30*** 1.55*** 1.09*** 1.92*** 0.48
Best & Zhang (1993)	U.S. 1977 - 1989	Bank credit agreement (491) Renewals (304) /new (187)	0.32** 1.97** 0.26
Billet et al. (1995)	U.S. 1980 - 1989	Loan (626) Renewals (187) /new banks (51)	0.68*** 1.09*** 0.64*
Preece and Mullineaux (1996)	U.S. 1980 - 1987	Bank credit agreement (446) Syndicated loan (325) Non-syndicated loan (121) 2 and 3 banks (60) 15 or more banks (38)	1.00*** 0.78*** 1.78*** 1.43*** 0.15
Johnson, S.A. (1997)	U.S. 1980 - 1986	Bank credit agreement (222) Small bank (53) Large bank (54) badly capitalized bank (55) well capitalized bank (56)	1.18*** 0.90* 1.78*** 0.59 2.17***
Aintablian & Roberts (2000)	Canada 1988 - 1995	Corporate loan announcement (137) Renewal (35) / New (69) Restructuring (18)	1.22*** 1.26*** / 0.62*** 3.45***
Andre et al.(2001)	Canada 1982 - 1995	Bank loan agreement (122) Loan before 1988 (13) / After 1988 (33)	2.27*** 4.82 0.32
Hadlock & James (2002)	U.S. 1980 - 1993	Bank loan announcements (144)	1.45

		Straight debt (156)	-0.23**
Fery (2003)	Australia 1983 - 1999	Bank loan agreement (196)	0.38*
		Published: single bank (18)	1.62**
		/ multiple banks (22)	0.89
		Non-published one B. (56)	0.02
		/ multiple banks (89)	0.25
Marsh (2006)	U.S. 1999 - 2005	Bank loan agreement (217)	1.03**
		Syndicated (140)	0.45
		Non-syndicated (77)	2.07**
Fields et al. (2006)	U.S. 1980 - 2000	Bank loan renewal (454)	0.80***
		1980–1990 (179)	1.31***
		/1991–2000 (275)	0.48
Ongena et al. (2008)	U.S. 1997 - 2003	Bank loan announcement (896)	0.26*
Lee & Sharpe (2008)	U.S. 1990 - 1999	Bank loan announcement (201)	0.31
		High bank monitoring effort (103)	0.25
		Low bank monitoring effort (98)	-0.38***
Ross (2010)	U.S. 2000 - 2003	Bank loan announcement (1,064)	1.03***
Bailey et al. (2011)	China 1999 - 2004	Bank loan announcement (285)	-0.39**
Huang et al. (2012)	China 2001 - 2006	Bank loan announcement (424)	-0.26*
Ongena & Roscovan (2013)	U.S. 1980 - 2003	Syndicated loans (985)	0.49***
		Bank in state (128)	1.05**
		Neighbor state (77)	-0.11
		Non-neighbor state (523)	0.36**
		Foreign bank (257)	0.68**
Li & Ongena (2015)	U.S. 2005 - 2009	Bank loan announcement 2005/01 – 2007/08 (195)	0.47
		2007/09 – 2009/12 (156)	1.91**
My study (2016)	U.S. 2005 - 2015	Bank loan announcement (2603)	0.23***
		Firms with IC problems (64)	1.54***

## Appendix D: Major variables affecting abnormal returns

This table shows all major conjectured effects inspired by empirical evidence categorized by *borrower characteristics*, *lender characteristics* and *loan characteristics*. The column 'Proponents' lists all the authors who advocate the predicted effect on abnormal returns. The predicted impact of the variables on abnormal returns is classified by a -, +, or 0, indicating a negative effect, positive effect, or no significant relative effect.

Proponents (year)	Variable	Predicted impact on abnormal returns (CAR)
Bank characteristics		
Billet et al. (1995) Johnson (1997) Byers (1998) Marsh (2006) Ongena et al. (2013)	• Quality of lender (bank)	+
Bailey et al. (2011) Huang et al. (2012) Preece et al. (1996) Aintablian et al. (2000)	• State owned bank (dummy) • Syndicate size	- -
Loan characteristics		
Lummer et al. (1989) Slovin et al. (1992) Best et al. (1993) Billet et al. (1995) Aintablian et al. (2000) Fields et al. (2006) Marsh (2006) Ross (2010)	• Renewal	+
Preece et al. (1996) Aintablian et al. (2000) Marsh (2006) Ross (2010) Ongena et al. (2013)	• Syndicated loan (contractual inflexibility)	-
Borrower characteristics		
Aintablian et al. (2000) Li et al. (2015) Slovin et al. (1992) Billet et al. (1995) Johnson (1997) Byers et al. (1998) Aintablian et al. (2000) Andre et al. (2001) Hadlock (2002) Ongena et al. (2008) Maskara et al. (2011) Huang et al. (2012) Ongena et al. (2013) My study (2016)	• Quality • Firm size • Firm is coping with IC problems (dummy)	- - +

## Appendix E: Predictive Validity Framework (Libby Boxes)

Below you can find the Libby boxes that apply to both following hypotheses:

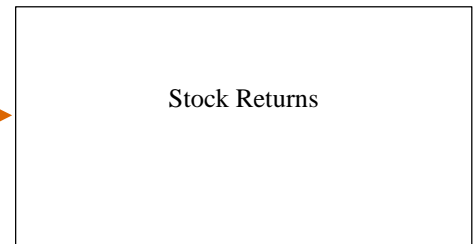
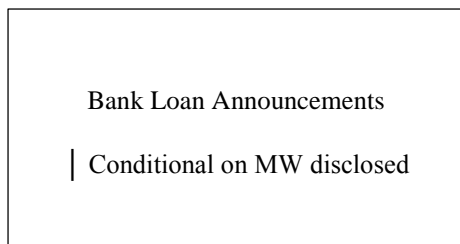
*H1: Bank loan announcements will induce a higher market reaction for firms with reported material weaknesses.*

*H2: Bank loan announcements will induce a higher market reaction for firms with more severe material weaknesses.*

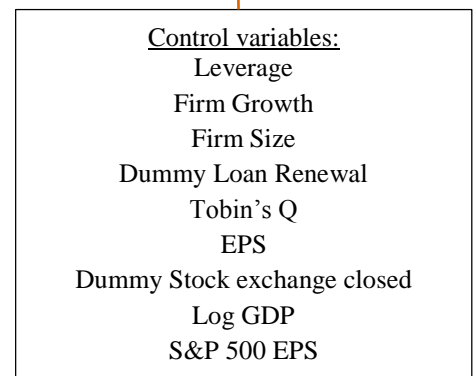
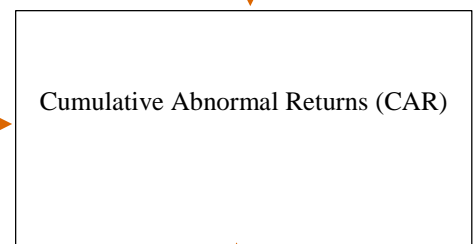
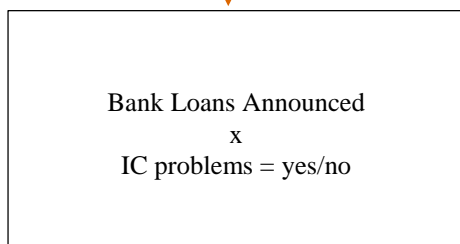
### Independent Variable (X)

### Dependent Variable (Y)

Concept



Operational





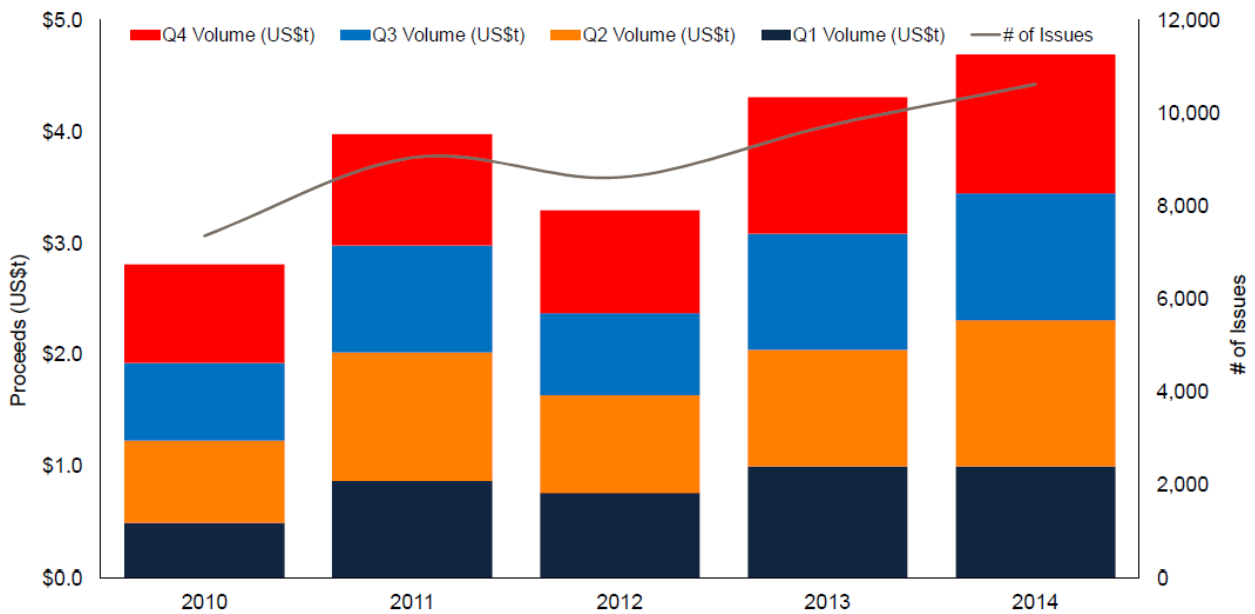
## Appendix F: Syndicated loan statistics

Syndicated loan statistics in US\$ trillions issued in the United States in 2014

All US corporate issued debt (\$trln.)	\$7.11
All US corporate issued syndicated bank loans (\$trln.)	\$2.34
Percentage syndicated corporate bank loans of total US debt	32.9%

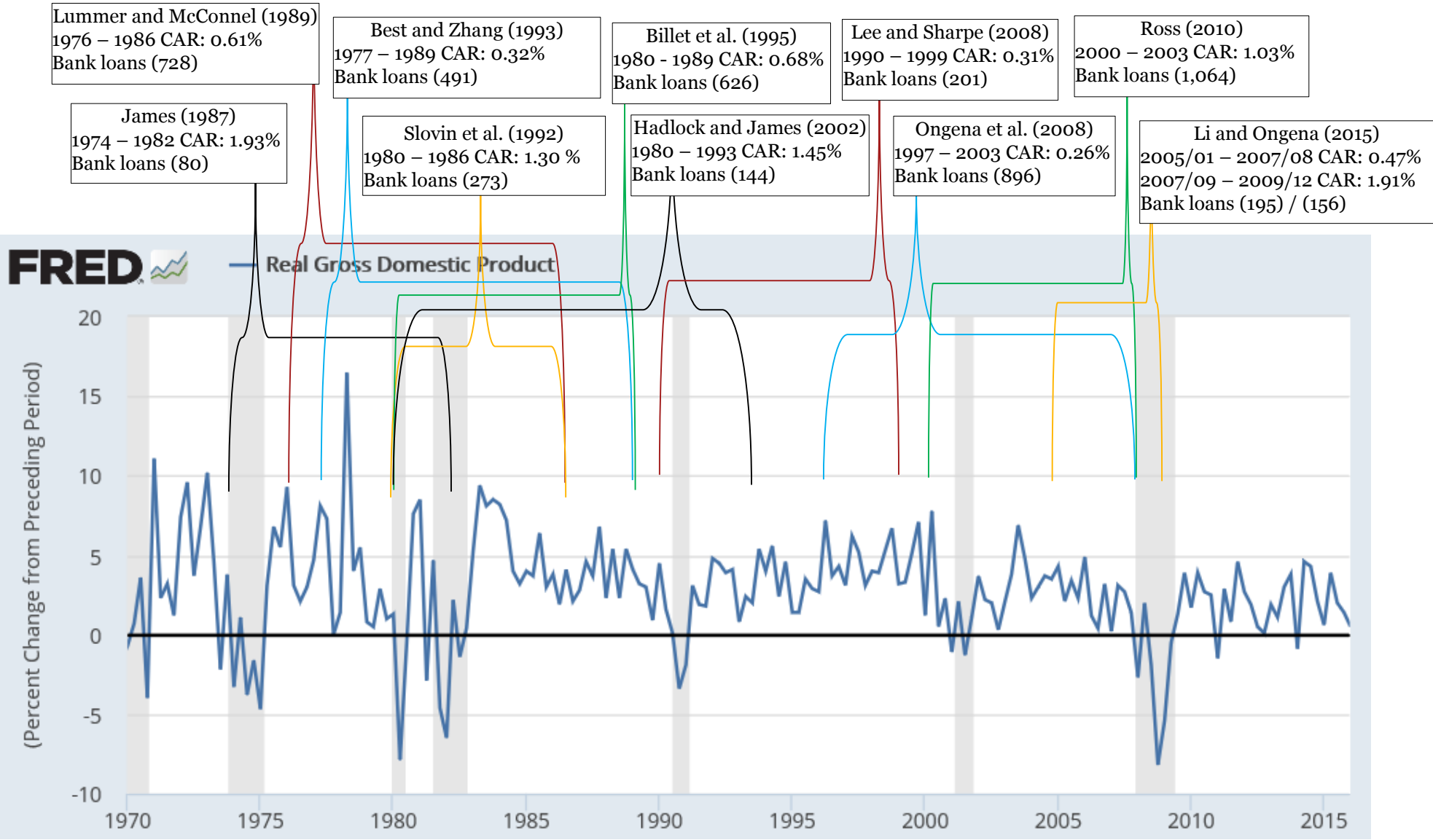
(Source: Thomson Reuters, 2015)

### Global Syndicated Loans Volume



(Source: Thomson Reuters, 2015)

**Appendix G: Loan announcement studies in economical context**



(Source: Federal reserve bank of St. Louis, 2016)

## Appendix H: Descriptive statistics sample and Correlation table for cross-sectional variables

### Descriptive statistics

This table presents the descriptive statistics of variables employed in my regression models. The demographics below are commonly presented in accounting literature. Respectfully they are the ‘mean’ of the variable, ‘median’, ‘total number of observations’ (which is equal to the total number of observations in my sample: 2,603), ‘lowest observation’, ‘highest observation’, and standard deviation of the variable.

Variable	Mean	Median	Nr. Obs.	Min	Max	SD
IC problems (dummy)	0.0246	0	2,603	0	1	0.1549
Severe IC problems (dummy)	0.0103	0	2,603	0	1	0.1013
Firm size (log assets)	3.5468	3.4949	2,603	1.3936	5.8639	0.7183
Leverage	0.5923	0.5887	2,603	0	1.7104	0.2069
Firm growth	1.1443	1.0785	2,603	-1.0797	8.2981	0.4325
Tobin’s Q	1.1787	1.0058	2,603	0.0231	12.847	1.0153
Renewals (dummy)	0.1148	0	2,603	0	1	0.3185
EPS	1.7398	1.29	2,603	-43.560	144.15	4.6387
Stock exchange closed (dummy)	0.0550	0	2,603	0	1	0.2279
S&P 500 EPS	20.167	21.440	2,603	-23.250	27.470	6.9225
Logarithm GDP	4.1931	4.1928	2,603	4.1077	4.2608	0.0394

### Correlation table of cross-sectional variables

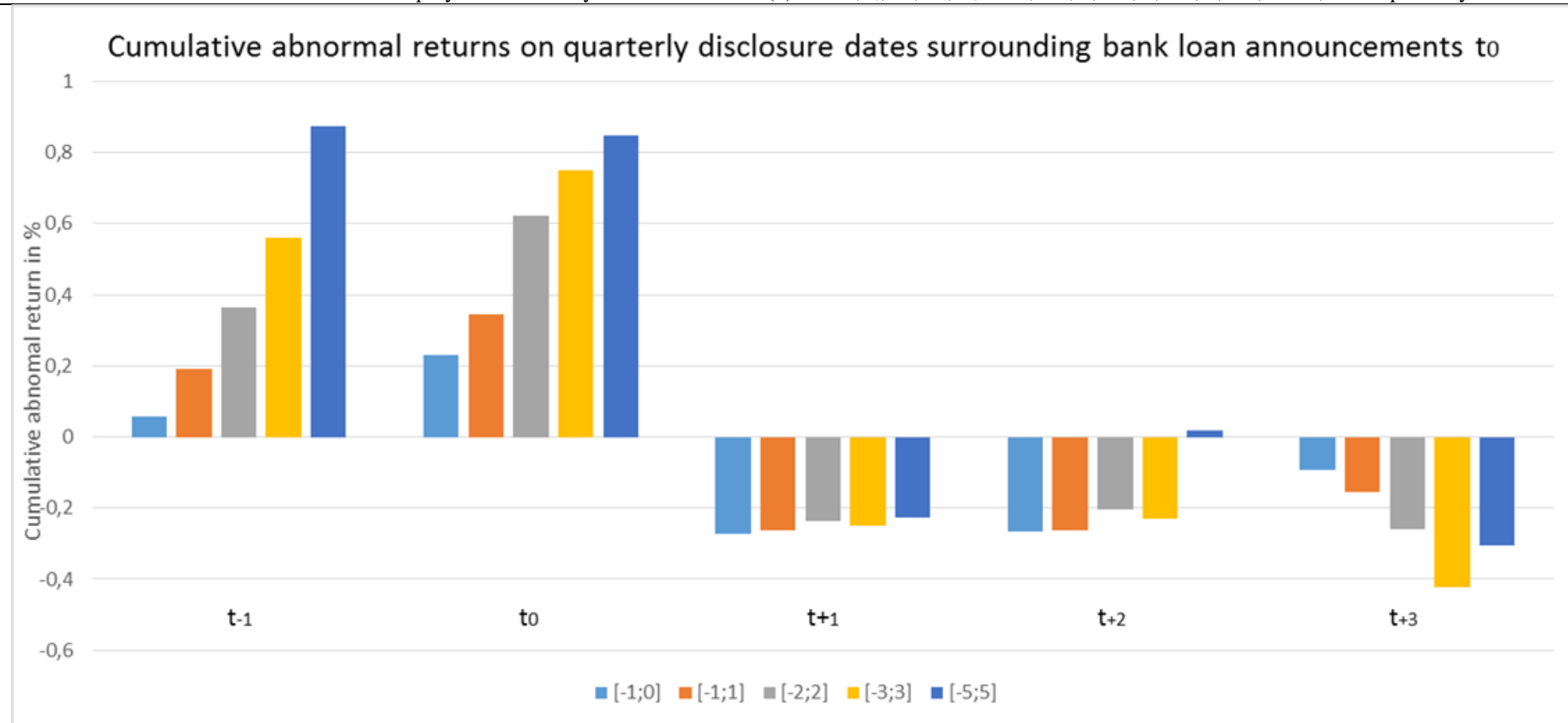
This table provides all the correlation coefficients between the cross-sectional variables as employed in the multivariate analysis in section 6.2. The variable ‘ROA’ is not incorporated in the regression, but is included to illustrate multicollinearity between the performance variables ‘ROA’ and ‘EPS’.

	CAR	IC problems	Severe IC problems	ROA	Firm EPS	Firm size	Tobin’s Q	Firm growth	Leverage	Loan renewal	Stock exchange closed	S&P500 EPS	Log GDP
CAR	1.000												
IC problems	0.054	1.000											
Severe IC problems	0.047	0.645	1.000										
ROA	-0.027	-0.065	-0.020	1.000									
EPS	-0.041	-0.077	-0.051	0.780	1.000								
Firm size	-0.009	-0.080	-0.076	-0.028	0.331	1.000							
Tobin’s Q	0.001	-0.070	-0.019	0.517	0.178	-0.176	1.000						
Firm growth	-0.014	-0.015	-0.014	0.137	0.145	-0.013	-0.020	1.000					
Leverage	0.009	0.062	0.024	-0.244	-0.006	0.311	-0.362	0.006	1.000				
Renewal	0.009	-0.042	-0.025	-0.032	0.074	0.179	0.017	-0.012	0.005	1.000			
Stock exchange closed	0.072	-0.027	-0.025	0.028	-0.015	0.040	0.019	-0.050	0.019	0.003	1.000		
S&P500 EPS	-0.055	-0.038	0.003	-0.009	0.024	0.066	0.248	-0.012	-0.003	0.016	-0.037	1.000	
Log GDP	-0.006	0.018	0.018	0.014	0.076	0.027	0.049	0.121	0.029	-0.009	-0.024	0.373	1.000

## Appendix G: Cumulative abnormal returns before and after bank loan announcements

### Cumulative abnormal returns before and after bank loan announcements ( $t_0$ ) for total sample

The column chart below projects the clustered results of event studies performed on the quarterly disclosure dates surrounding firms' bank loan announcements.  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ ,  $t_{+3}$ , respectfully represent quarterly disclosures preceding the bank loan announcements, the bank loan announcement itself, and the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> succeeding quarterly disclosures after the bank loan announcements. The results are clustered by the different event windows over the five intervals. [-1;0], [-1;1], [-2;2], [-3;3], and [-5;5] indicate the five different event windows employed in this study. The observations (n) for  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ ,  $t_{+3}$  are 2,596; 2,603; 2,593; 2,492; and 2,428 respectfully.



**Cumulative abnormal returns before and after bank loan announcements ( $t_0$ ) for the smallest 5% firms of total sample in terms of log assets**

The column chart below projects the clustered results of event studies performed on the quarterly disclosure dates surrounding the smallest 5% firms' bank loan announcements.  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ ,  $t_{+3}$ , respectfully represent the quarterly disclosures preceding the bank loan announcements, the bank loan announcements themselves, and the 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> succeeding quarterly disclosures after the bank loan announcements. The results are clustered by the different event windows over the five intervals. [-1;0], [-1;1], [-2;2], [-3;3], and [-5;5] indicate the five different event windows employed in this study. The observations (n) for  $t_{-1}$ ,  $t_0$ ,  $t_{+1}$ ,  $t_{+2}$ ,  $t_{+3}$  are 131 respectfully.

