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Declaration and list of papers published

I declare that this thesis is my own account of my research and contains as its main content work which has not previously been submitted for a degree at any tertiary education institution.

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The following journal and conference papers have been published from this thesis:


ABSTRACT

This thesis examines the impact of announcements of syndicated loans on the share prices of borrowing firms. I use a sample of 5,465 loan observations reported in the International Financing Review Platinum database to study this impact. Event study methodology is used. My overall results show significantly positive wealth effects on the borrowing firms. However, when I partition my data set into revolving credit agreements, term loans and hybrid loans, I find that the results are driven primarily by revolving credit agreements. I also observe that the size of the event window plays an important role in identifying the wealth effects for the borrowers. A five-day event window (-2, +2) shows share price response to revolving credit announcements to be significantly positive. A three-day event window (-1, +1) reveals that announcements are statistically positive for revolving credit agreements and statistically negative for term loan announcements. My results are consistent with previous studies in this area. I also distinguish between financial press announcements and information provider (IFR) announcements to cater for the potential for reporting bias. I find that both the IFR and financial press announcements are significant for the five-day window, but only the financial press results are significant for the three-day window. My study is unique in that I differentiate the impact of different sources of information on the market reaction to borrower share price.
In addition to the examination of the wealth effect, I also use the structure of the loans to examine the uniqueness of bank loans and their ability to provide financial slack. Specifically, I examine whether revolving credit loans or term loans or hybrid loans make bank loans unique and their ability to provide financial slack. I observe that out of the three structures of bank loan, only revolving credit loans allow the borrower to more precisely match the funds acquired with the firm’s investment needs and to market time by borrowing at times when financing costs are attractive. Revolving credit loans are positively valued by the market both initially and over the longer term. Bank loans reduce information asymmetry, but the renegotiation characteristics of revolving credit loans allow borrowers to exploit changes in the interest rate environment, thus providing support for the market timing theory of capital structure. In contrast to puzzling results of previous studies, I present evidence of long-term positive performance following bank loans.
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CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND

It is reported that the international market for syndicated loans has been growing strongly since the early 1990s and totaled almost USD 1 trillion in 1999 alone. This figure climbed to USD 2.26 trillion in 2004.\(^1\) According to Altunbas et al. (2006), signings of international syndicated loan facilities account for no less than a third of all international financing, including bond, commercial paper and equity issues. As shown in Chart 1.1 below, the volume of syndicated loans between 1981 and 1992 was not significant. Between 1993 and 1997, however, the volume of syndicated loans increased steadily and subsequently fell in 1998 with the Asian financial and Russian crises, then increased significantly in the following two years and then decreased slightly in 2002 and 2003. The highest syndication level was achieved in 2004 in the reported period.

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1 Altunbas et al. (2006).
Altunbas et al. (2006) also note that the growth of the market was attributed to both the increase in average facility size and the rising number of facilities. They report that the average size had increased from $100 million in 1993 to $250 million in 2004 and the total number of loans had increased from 5,500 loans to 9,100 loans over the same period.

Since the US syndicated loan market is the driving force for the world market and it is the focus of this thesis, I provide below some market statistics. As can be seen from Chart 1.2 below, the US syndicated loan market grew strongly between 1992 and 1997 with the volume traded almost quadrupling over the period. The market then slowed


Source: Loan Pricing Corporation (cited in Armstrong, 2003) and Altunbas et al. (2006).
down because of the effect of the Asian and Russian financial crises in the following two years and then rebounded in 2000 but shrank to a much lower level in 2003. Sufi (2007) reports in the US almost 90% of the largest 500 non-financial firms in the Compustat universe in 2002 obtained a syndicated loan between 1994 and 2002.

It can be seen from the comparison of Charts 1.1 and 1.2 above that the US market is undoubtedly the most important segment of the international market for syndicated loans over the last two and a half decades. Its movement is almost in tandem with that of the international market as a whole.

The main purposes of this thesis are firstly to examine the wealth effects of announcements of syndicated loans and secondly to study the long-term performance of borrowing firms. In addition, I review existing literature on capital structure issues to search for possible insight into the uniqueness of bank loans.

I note from existing literature that since the studies of pioneer researchers like Leland and Pyle (1977), Fama (1985), James (1987) and Diamond (1984), there has been abundant research on the role of banks and financial intermediation. For example, in this thesis, I reference a number of important papers, among others, such as Lummer and McConnell (1989); Best and Zhang (1993); Bhattacharya and Thakor (1993); Allen and Santomero (1998); James and Smith (2000); Allen and Santomero (2001); and Chakraborty and Hu (2006).
Only recently have researchers paid attention to the syndicated loan market. Previous studies of syndication indicate that the market reacts favourably to announcements of syndicated loans from both the borrower and lender perspectives. These studies involve three main issues. The first issue is the ease of renegotiation associated with syndicated loans. The second issue is the impact of the source of announcement information on market reaction. Finally, the third issue is the subsequent performance of borrowing firms in the long term.

Simons (1993) was one of the first researchers to study syndicated loans. Her study was then followed by Armitage (1995) who looks at the stock market response to banks’ stock prices on syndicated loan announcements in the United Kingdom. Megginson, Poulsen and Sinkey (1995) also look at the impact of syndicated loan announcements on the market value of banking firms. On the borrower side, Preece and Mullineaux (1996) study the role of lending syndicates in the context of monitoring, loan re-negotiability, and firm value and Dennis and Mullineaux (1994, 2000) examine agency costs and syndicated loan sales.

Following the above studies, Allen, Guo and Weintrop (2004) study the information content of quarterly earnings in syndicated bank loan prices. Billett, Flannery and Garfinkel (2006) examine long-term performance of borrowing firms and claim to have provided robust evidence against the “specialness” of bank loans.
The interesting issue raised in existing literature is whether banks “are special” as addressed in James’ (1987) pioneering work. In view of this specialness, the market tends to view announcements of bank loans favourably. Other researchers more or less agree with James (1987). Kashyap, Rajan and Stein (1999) point out the comparative advantage of banks in providing loans and argue that this advantage arises from the dual role of banks as deposit takers and providers of highly liquid loans. James and Smith (2000, 63) revisited this issue and ask “Are banks still special?” by presenting “New evidence on their role.” They find that banks still play “a special role in providing commitment-based financing to corporations.” The flexibility offered by this type of financing is “particularly valuable” when a firm has an immediate need for funds and when the interest rates in public debt markets are “prohibitively high.” However, in a recent study, Billett, Flannery and Garfinkel (2006, 744) arrive at a fairly stunning conclusion that “loan announcements are misinterpreted by the market, both in the magnitude of their effect on firm value and, in some cases, the direction of it.” And that “bank loans do not appear to be nearly so “special” as previously thought.”

Intertwined with banking issues are those related to the theory of capital structure. A number of researchers have examined these issues. For example, Hadlock and James (2002) examine whether banks do provide financial slack and hence influence the capital structure decision of the firm. In this thesis, I hope to shed further light on the above issues by including these questions in my study.
1.2 RESEARCH QUESTIONS

This thesis consists of two essays. In the first essay, I examine the stock market reaction to announcements of syndicated loans. In particular I examine this announcement effect by partitioning loans according to their structures. I ask the question whether the structure of loan\(^2\) (i.e. revolving credit, term loans and hybrid loans) has any influence on the stock market reaction to syndication announcements. In this essay, I also examine the potential for reporting bias by lenders and borrowers. It is argued that loan reporting may be biased toward higher quality loans because both borrower and lender are more likely to announce positive rather than negative information. For example, Lummer and McConnell (1989) found that favourably revised loans are more likely to be reported in the financial press than unfavourably revised loans or loans that are allowed to expire. To overcome the potential for reporting bias, I distinguish between announcements in the financial press and those by an information provider (International Financing Review (IFR)).

In the first essay of the thesis I will address the following three main research questions:

**Research question 1:** Does the stock market view announcements of syndicated loans favourably?

**Research question 2:** Do loan structures have different impacts on stock market reaction to announcement of syndicated loans?

\(^2\) In this thesis, we use the terms structure of loan and loan type interchangeably.
Research question 3: Does the market react differently to different information sources on announcements of syndicated loans?

In addition to above research questions, I also ask other secondary research questions. These include:

Research question 4: Is there any difference in share price reaction due to the number of syndication announcements?

Research question 5: Is there any evidence of information leakage prior to announcements of syndicated loans?

In the second essay of the thesis, I look at the performance of borrowers from the long-term perspective. I examine whether there is any association between long-term performance of borrowing firms with their cumulative abnormal returns upon announcements of syndicated loans. In addition, I also look at the capital structure issues in this essay. The reason being that bank loans are considered to be an inside debt. I look at the issue whether banks can reduce information asymmetry and provide financial slack to borrowing firms. I also examine whether borrowing firms exercise market timing when they announce syndicated loans. Specifically, I look at three aspects. Firstly, I look at the pre-loan and post-loan performance of firms and their association with stock returns. Secondly, I examine the impact of earnings announcements on the borrower’s share price
prior to the announcement of the loan as well as the impact after the loan announcement. Finally, I also examine whether there is any association between financial performance and market returns for borrowers. It should be stressed, however, that I examine all these issues in the context of the overarching issue of whether loan structure will make any difference in all aforementioned issues. In the second essay, I ask the following research questions:

Research question 6: Are borrowing firms’ performance in the long run associated with a short-term wealth effect due to announcements of syndicated loans?

Research question 7: Does the market view earnings announcements of borrowing firms favourably regardless of whether they are positive or less negative than expected?

Research question 8: Is stock market reaction on earnings announcements related to the degree of financial flexibility provided by different types of loans.

Research question 9: Is the market reaction to the stock of bank borrowers related to accounting measures of performance in pre- and post-announcement periods?

Research question 10: Does loan structure provide financial slack and enhance market timing?
Figure 1.1 below summarises the sources of external financing and the structure of this thesis, which is described under the ‘syndicated loans’ box. The top panel shows the possible sources of funds used by firms. These include equity issues, straight and convertible debts, private placements and bank loans. For bank loans, firms can use single bank loans or syndicated loans. It is apparent that large corporations with significant funding needs are likely to seek a large amount of funds and this can be easily done using syndicated loans. In this thesis, I examine both the announcement effects and long-term effects of syndicated loans. I focus on the impact that loan structures have on announcements of syndicated loans. In addition, I examine whether the source of information influences these announcements.

As for long-term effects, the diagram shows four aspects considered in this thesis: (1) The association between long-term effect and announcement effect; (2) The relation between accounting return and market return; (3) the association between earnings announcements and market returns; and (4) the issues related to the theory of capital structure that might provide further insight into long-term performance of firms following the granting of syndicated loans; namely, the market timing issue, the pecking order theory and the trade-off theory.
FIGURE 1.1: EXTERNAL FINANCING

- EQUITY ISSUES
- STRAIGHT DEBT AND CONVERTIBLE DEBT
- BANK LOANS
- PRIVATE PLACEMENTS
  - SYNDICATED LOANS
  - SINGLE BANK LOANS

ANNOUNCEMENT EFFECTS
- STRUCTURE OF LOANS (To be tested)
- INFORMATION SOURCE (To be tested)

LONG-TERM EFFECTS
- ACCOUNTING RETURN AND MARKET RETURN (To be tested)
- CAPITAL STRUCTURE ISSUES (Possible insights)
- EARNINGS ANNOUNCEMENTS AND MARKET RETURN (To be tested)
  - MARKET TIMING ISSUE
  - PECKING ORDER THEORY
  - TRADE-OFF THEORY
1.3 OUTLINE OF METHODOLOGY

This thesis employs the standard event study methodology. In the first part of the thesis, when I examine the announcement effect on borrower share price, I use the market model with equal weighting to obtain the abnormal return which results from the announcement of syndicated loans. In addition to the common parametric test (Patell test), I also use a non-parametric test (the generalized sign test) to test the significance of the aforementioned abnormal return.

In the second part of the thesis, when I look at long-term performance of the borrower I use the GARCH (1,1) (Generalized Autoregressive Conditional Heteroskedasticity) model to overcome common problems (e.g., time-varying systematic risk parameter (β) and time-varying conditional variance)\(^3\) in measuring performance of borrowers. In addition, I examine the market reaction to earnings announcements of borrowing firms using the same methodology. Finally, in the second essay, I run regressions of borrowing firms’ cumulative abnormal returns on financial ratios to see whether there is any association between firm performance and market returns.

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\(^3\) There are a number of papers discussing the event study methodology in further detail. For example, see Coutts, J.A., Mills, T.C. and Roberts, J. (1994) and Barber, B., Lyon, J. and C-L. Tsai, (1999).
1.4 SUMMARY OF RESULTS

In the first essay of the thesis, when I examine the impact of announcements of syndicated loans on borrower wealth, I observe significant effects over the five day window with a cumulative abnormal return of 0.39% and this result is highly positively significant at the 1% level. When I partition the data into different loan structures, I find that the results are driven primarily by revolving credit agreements. Specifically, revolving credit loans exhibit a cumulative abnormal return of 0.47% which is also significant at the 1% level. In this essay I also find that the size of the event window plays an important role in identifying the wealth effects for the borrowers. A five-day event window (-2, +2) shows share price response to revolving credit announcements to be significantly positive whereas a three-day event window (-1, +1) reveals that announcements are statistically positive for revolving credit agreements and statistically negative for term loan announcements. I find that revolving credit agreements drive the statistically positive borrower share price reaction and, thus, find support for the re-negotiability argument.

In addition, I find that both the IFR and financial press announcements are significant for the five-day window, but only the financial press results are significant for the three-day window. Furthermore, when the financial press announcements are used I find that revolving credit agreements are viewed positively and the term loans negatively. I conclude that this finding supports the view that financial press announcements are not
redundant signals and should be used in conjunction with dedicated financial information providers.

In the second essay, when I examine the pre-loan and post-loan performance of borrowers, I find that cumulative average abnormal returns (CAARs) for all holding periods are statistically significantly positive when all loans are included. Positive CAARs are observed for the very short periods of three- and five-days around the announcement and, surprisingly, for the very long holding periods of up to three years following the announcement. When I partition the loans according to their types, I also find that revolving credit loans are driving the overall results. The market reacts positively in the short run and the positive CAARs persist over the following three years. I find that the cumulative abnormal returns range between 2.86% to 3.39% and they are significant at either the 1% or 5% levels. This implies that the market values this type of loan from the perspective of maximization of shareholder wealth. The initial positive responses suggest that the market values the screening and monitoring signals provided by the lender. In addition, this response indicates the financial flexibility provided by the loans is valued. The persistence of positive CAARs over time suggests that the borrowers are creating value by investing in positive NPV projects above what the market originally anticipated and facilitated by the flexibility of the loan structure.

For term loans, a different story emerges. The initial reaction of the market is indifference. This is shown by the insignificant positive CAARs for the days around the announcement. However, over the following three years, the CAARs become strongly
negative, consistent with the inflexibility of term loans and/or poorly performing investment choices. The hybrid loans exhibit results that vary over time. A positive reaction is observed immediately but there is no abnormal return in the first year in the post-announcement period. The market reaction, however, becomes increasingly positive over the last two years after the announcement. I speculate that the hybrid nature of the loan allows increased flexibility to match the financing with the investment needs.

In the second essay of the thesis, I also observe substantial differences in market responses to the earnings announcements before and after the loan. Prior to the loan being approved, the market views the earnings announcements positively and all are statistically significant. This is more likely the result of these earnings being more positive or less negative than expected by the market. Subsequent to the loan announcements, however, I find that the market recognizes the differences among the firms and the reactions are dependent on the type of loan provided by the lenders. I find that for firms that received revolving credit loans, earnings announcements are statistically significant for all periods. This result again supports the view that the greater degree of flexibility inherent in revolving credit loans is viewed favourably by the market. Apparently, this feature of revolving credit loans allows firms to better match their investment opportunity schedules and to renegotiate existing loans in more favourable terms. In contrast to revolving credit loans, I find that earnings announcements for firms with term loans are not viewed favourably by the market because borrowers cannot react as easily to changing circumstances. I reason that management believes future performance may deteriorate, reducing their credit worthiness. Thus, they prefer to avoid revolving credit renegotiation.
Finally, in this thesis I also examine the relations between cumulative abnormal returns (CARs) and accounting measures of firm performance one year prior to the loan announcement, the year of the announcement (contemporaneous), and one year after the announcement. In addition to classifying loans into different types, I also partition CARs based on whether they are positive or negative for each loan announcement.

I find that some financial ratios are positively related to both negative CARs and positive CARS whereas other ratios are negatively correlated with both positive CARs and negative CARs. These results also apply when I partition my sample into different types of loan. However, I also find that revolving credit loans again are driving the results of the entire sample. Hence, I can neither reject nor accept the hypothesis that favourable or unfavourable stock market reaction is related to performance of borrowers in the one year prior to or post-loan announcement. This conclusion can also be applied to the contemporaneous relation between firm performance and market returns, albeit the relation between the two is much stronger.
1.5 RESEARCH CONTRIBUTIONS, IMPLICATIONS AND LIMITATIONS

Although finance researchers have made some effort to provide more insights into the study of syndicated loans, my understanding is that current research in this area is still in its infancy. Previous studies did not differentiate information sources or consider the structure of loans in much detail. The main contribution of this thesis is that I specifically focus on the structure of syndicated loans (i.e., whether it is a term loan or a revolving credit facility or a hybrid loan) and examine its influence on stock market reaction to announcements of syndicated loans and on earnings announcements. My results provide support for prior studies which emphasise the importance of flexibility and negotiability of debt securities as well as the financial slack argument. A further contribution is that in this thesis I compare the impacts of two sources of information on stock market reaction to loan announcements.

Overall, my study confirms that different loan structures, that exhibit different degrees of flexibility, do affect the market’s view about borrowing firms both on the announcement date of the loan and over the long term. It also confirms that there is an association between the short-term announcement effect and the long-term performance of borrowing firms, and again the loan structure appears to be the main explanation for this association.
The main implication of this study is that bank loans and loan structure affect the reaction of the stock market upon loan announcements, and this affects the corporate financial decisions and hence its capital structure. My results have implications for both the capital structure and the role of banks in firm financing.

In addition, if revolving credit loans are what makes bank loans special then it also has implications for bank regulatory policy. James and Smith (2000, 52) argue that “if bank loans are special, then disruptions to the banking sector can reduce corporate investment and general macroeconomic activity.” It follows that differentiating loan types is crucial as far as policy making is concerned.

I note a number of limitations in this thesis. The main limitation is that I did not use the matched-firm technique as commonly used in the literature (Barber and Lyon, 1997; and Barber, Lyon and Tsai, 1999) to measure long-term performance of borrowing firms. However, as pointed out by a number of researchers (e.g. Eckbo, Masulis and Norli, 2006; and Kothari and Warner, 2006) the matched-firm technique is not without problems and I will discuss these issues in the concluding chapter of this thesis.

The second limitation is that since most of the borrowing firms in my sample are large firms, there may be a bias in my results. However, I see this as unavoidable since most firms receiving syndicated loans are large firms.
The final limitation relates to information leakage. If there is information leakage then usefulness of my results might be reduced. This is one of the weaknesses of the event methodology. That is, pinpointing the exact announcement date of syndicated loans.

1.6 OUTLINE OF THESIS

This thesis consists of two essays. In the first essay I seek to answer the research questions related to the wealth effect of announcements of syndicated loans. In this essay, I review existing literature on bank loans in general and on syndicated loans in particular. I also describe my dataset for the whole thesis in this essay. The second essay looks at long-term performance of borrowing firms and capital structure issues. I integrate the two lines of financial research by merging capital structure issues with the role of banks in reducing information asymmetry and providing financial slack. I review existing literature on long-term performance as well as the three primary capital structure theories, namely, the tradeoff theory, the pecking order theory and the market timing theory. In each essay, I present the methodology used, the hypotheses tested, as well as the research results for the questions raised in each essay. The two essays are presented in Chapters 2 and 3, respectively. Chapter 4 concludes this thesis and outlines research limitations as well as future research directions. Finally, Appendix 1 discusses event study methodology.
CHAPTER TWO: STOCK MARKET REACTION TO ANNOUNCEMENTS OF SYNDICATED LOANS

2.1. INTRODUCTION

The international market for syndicated loans has been growing strongly since the early 1990s and totaled almost USD 1 trillion in 1999 alone. As reported in the introductory chapter, this figure climbed to USD 2.26 trillion in 2004.⁴ Surprisingly, very little research has been conducted in this area of finance. Although what follows in this review is a chronological presentation of the previous research in the area of bank loans, it should be pointed out that in this thesis I will focus on the wealth effects of announcements of bank loans (this chapter) and the long-term performance of borrowers (next chapter).

The chapter is structured as follows. In section two I review the literature on bank loans in general and syndicated loans in particular. The third section presents the hypotheses. The data description and methodology follow in the fourth section. In the fifth section I present the empirical results. The final section concludes the chapter.

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⁴ It should be pointed out that there are differences in the volume of syndicated loans given by different data sources. These include those from Loan Pricing Corporation, Euromoney, Shared National Credit Program, Bank for International Settlement and Altunbas, Ganadecz and Kara (2006). In this chapter, to maintain consistency, we mainly draw our information from Bank for International Settlement and only resort to other sources of statistics when necessary.
2.2. LITERATURE REVIEW

In the first part of this section, I first review existing literature related to bank loan and financial intermediaries in general. Specifically, I look at why bank loans are considered to be special compared with other forms of debt. I also review other issues such as adverse selection and moral hazard. In the second part of this section I look at the literature on syndication. Finally, I summarise the issues considered in existing literature and present the issues considered in this thesis.

2.2.1. BANK LOANS

According to Leland and Pyle (1977), most modern theories of bank lending assume that banks’ relations with borrowers enable them to obtain information not available to other providers of funds. They note that all modern theories of financial intermediation are “information-based paradigms.”

As with any other business relation, a banking relation between a lender and a borrower involves information asymmetry: the borrower is privately informed about its own credit risk. In this regard, credit analysis helps the bank to reduce its informational disadvantage vis-à-vis the borrower. A banking relation also involves a moral hazard problem. Leland and Pyle (1977) note that when the borrower takes out a loan from the bank, it becomes an agent of the bank. This agency problem arises when the borrower takes on additional risk to the bank’s detriment. Loan contracts are therefore designed to control the borrower’s risk-taking propensity. For this reason, most banks require collateral for a
loan, and a borrower’s willingness to offer collateral is inversely related to its default risk on the loan. As such, collateral helps resolve a variety of moral hazard problems.

Leland and Pyle (1977) argue that banks may provide unique information if transaction services and other banking services complement information production. According to Leland and Pyle (1977) informational asymmetries are particularly pronounced in financial markets. Borrowers know their own information better than their lenders and entrepreneurs possess inside information about their own projects for which they seek financing. Consequently, market value must reflect average project qualities. Leland and Pyle (1977, 371) argue that knowing the true characteristics of the borrowers would benefit lenders but moral hazard prevents “the direct transfer of information between market participants.” They point out that “one cannot expect borrowers to be truthful about their characteristics, nor entrepreneurs about their projects, since there may be substantial rewards for exaggerating positive qualities.” In addition, verification of these characteristics by third parties may be costly to lenders or may even be impossible. Hence, Leland and Pyle (1977) reason that financing good quality projects can only take place if information can be transferred to lenders. Unfortunately, moral hazard can prevent this transfer of information. Nevertheless, if the actions of entrepreneurs can be observed then the transfer of information can still take place. The argument is that an entrepreneur’s willingness to invest in his own project is evidence of his confidence about the prospect of the project. In other words, it can be seen as a signal of his project’s quality.
Leland and Pyle (1977, 382) note that “the traditional models of financial markets have difficulties in explaining the existence of financial intermediaries.” They argue that even though transaction costs could explain intermediation, their magnitude in many cases appears to be insufficient to be the only reason. Leland and Pyle (1977, 383) suggest that “information asymmetries may be a primary reason that intermediaries exist.” These authors argue that for certain classes of assets (e.g. mortgages or insurance) one can expend resources to obtain information about them which is not publicly available. They point out that this information can benefit potential lenders and if there are economies of scale then one might expect organizations to be established to trade on this valuable information.

Leland and Pyle (1977, 383), however, cite two reasons that might prevent firms trying to sell information to investors. The first is “the appropriability of returns by the firms.” This problem refers to the case where “purchasers of information might be able to share or resell their information to others, without diminishing its usefulness to themselves.” For this reason, the firm may be able to “appropriate” only a fraction of the total amount that buyers would be willing to pay. The second problem relates to “the credibility of that information.” Users of information might not be able to distinguish good information from bad. Consequently, “the price of information will reflect its average quality.” If entry is easy then there will be firms offering poor quality information and this can lead to market failure and the well-known Akerlof’s (1970) market for lemons will result. Leland and Pyle (1977) argue that the above two problems can be overcome by an intermediary organization which is not only gathering the information but also buying and holding assets on the basis of its specialized information. Leland and Pyle (1977, 383)
reason that in this case the problem of appropriability would not arise because “the firm’s information is embodied in a private good, the returns from its portfolio.” They point out that “while information alone can be resold without diminishing its returns to the reseller, claims to the intermediary’s assets cannot be. Thus, a return to the firm’s information gathering can be captured through the increased value of its portfolio.”

Fama (1985, 36) differentiates inside debt from outside debt. He defines inside debt as “a contract where the debtholder gets access to information from an organisation’s decision process not otherwise publicly available.” He argues that bank loans are a form of inside debt. As inside debt, bank loans are a way to avoid under-investment problems due to information asymmetries. Bank loans may serve as a form of inside debt if banks have inside information about the value of the firm’s growth prospects and bank loan rates reflect this information. In contrast, outside debt is defined by Fama (1985, 36) as “publicly traded debt where the debtholder relies on publicly available information generated by the organization or information purchased by the organization (for example, independent audits and bond ratings).”

Fama (1985) reports the average yields to maturity on high-grade certificates of deposit (CDs), bankers’ acceptances, commercial paper, and Treasury bills for the period between 1967 and 1983. Fama (1985, 29) observes that “average yields on high grade CD’s and bankers’ acceptances of the same maturity are almost identical.” He also observes that “the differences between average yields on CD’s and commercial paper are trivial.” In other words, these securities are close substitutes. Fama (1985) points out that banks charge
borrowers interest which is higher than open-market interest rates because of the cost of the reserve requirement on CD’s. Fama (1985, 30) reasons that since CDs provide no apparent transaction or liquidity services and the reserve tax on CDs must be borne by bank borrowers, “there must be something special about bank loans.”

Fama (1985) suggests that banks are special because they have a comparative cost advantage over other financial intermediaries in gathering information and in monitoring loans. Fama (1985, 36) argues that “Bank signals are credible since the bank backs its opinions with resources, or by declining resources.” In addition, Fama (1985, 37) notes that “… many organizations pay periodic monitoring fees for lines of credit from banks even though they do not take the resources offered. Indeed, large corporations often purchase lines of credit from banks for the sole purpose of providing a signal about outside debt (commercial paper) to be issued publicly rather than held by the bank.”

Mikkelson and Partch (1986) examine the nature of the information that security offerings convey to market participants. They review the literature up to 1986 which offers an explanation about market reaction to security offerings. According to this explanation, investors infer that the market price exceeds managers’ assessment of share price when any offering of common stock or convertible debt security is announced. Conversely, if share prices are too low then they will be retired. According to Mikkelson and Partch (1986, 32) the basic premise of this explanation is that “information about firm’s earnings prospects, investment opportunities or assets in place is unevenly distributed between the firm’s managers and investors.”
Mikkelson and Partch (1986) use a sample of 360 industrial firms listed on the New York and American Stock Exchange and examine the price effect of different types of securities. They find a negative and statistically significant announcement effect for both common stock (-3.56%) and convertible debt offerings (-1.97%). However, the price effect for announcements of straight debt offerings is less pronounced although still negative (-0.23%). They also find that announcement effects are negative for both private placements of debt (-0.57%) and term loans (-0.15%) but not significant. Announcement of a line of credit has a small and positive valuation effect (0.89%), significant at the 1% level. They conclude that the structure of the loan agreements is the main determinant of the positive share price reaction. In fact, according to DeGennaro, Elayan and Wansley (1999), Mikkelson and Partch (1986) were the first to examine returns to borrowers around announcements of lines of credit.

Mikkelson and Partch (1986) also study share price behaviour after the announcement of common stock and convertible debt offerings which are subsequently either completed or cancelled. They report that for completed offerings there is a positive return between the announcement and issuance and a negative return at the issuance. On the other hand, for offerings that are subsequently cancelled, a negative return between the announcement and the cancellation is observed and a positive return at the cancellation is reported.
James (1987) examines the incidence of the reserve requirement tax and the stock price response to announcements of bank loans, private placements of debt, and public straight debt issues. He studies a sample of 207 financing announcements over the ten-year period, 1974-1983. His sample consists of eighty announcements of bank loans, thirty-seven announcements of private placements, and ninety announcements of public straight debt offerings.

James’ (1987) examination extends the research of Fama (1985) on the reserve requirement tax. However, James (1987, 482) points out that a problem with Fama’s (1985) study is that “the reserve requirement tax could be at least partially offset by a subsidy from the Federal Deposit Insurance Corporation in the form of deposit insurance supplied at less than actuarially fair price.” James’ (1987) overcomes this problem by examining the behaviour of CD rates around changes in reserve requirements in the absence of offsetting changes in deposit insurance prices.

James (1987, 483) reasons “without any contemporaneous change in insurance costs, an increase in reserve requirement should reduce the yield on CDs in relation to other yields if depositors pay the reserve tax.” He observes the average yield on CDs, commercial paper, and Treasury bills during the periods in which a 3% reserve requirements was effective (January 1977 - November 1978 and July 1980 - December 1984) and the period (November 1978 - July 1980) in which a 5% reserve requirement was imposed. He finds that the difference in the average spread between CDs and commercial paper or Treasury bills is not statistically significant during the two periods. Therefore, he concludes that his
On the second issue, James (1987) conducts his study based on the notion developed by previous researchers (Kane and Malkiel, 1965; Myers and Majluf, 1984; and Fama, 1985) that bank loans are a form of inside debt. James (1987, 482) reasons that “in the context of the Myers and Majluf model (1984), loans by banks (as inside debt) are similar to financial slack (internally generated funds).” Furthermore, since bank loans can avoid the information asymmetry problems associated with other forms of debt, it is expected that stock price responses associated with announcements of bank loan to be non-negative.

James (1987) finds that the stock price response to the announcement of new bank credit agreements is positive and larger than the stock price response associated with announcements of private placements or public straight debt offerings. He finds that the average prediction error for bank loan agreements is positive (1.93%) and statistically significant at the 1% level. In addition, he also finds no statistically significant difference between announcements of bank loan agreements in which immediate borrowing is indicated and those in which no immediate borrowing is indicated. In contrast to bank loan announcements, he finds negative stock price response for public straight debt (-0.11%).

James (1987) also looks at private placements acquired by insurance companies. He reasons that since these placements are also inside debt, a non-negative stock price response
is expected. Surprisingly, he observes that stock price response to these placements is negative (-0.91%) and statistically significant at the 10% level. Finally, he finds that the stock price responses are significantly negative for announcements of private placements (-2.1%) and straight debt issues (-1.6%) used to repay bank loans. Given the results above, James (1987, 483) concludes that “bank loans are unique, but they are not fully consistent with the inside-debt argument.”

Pennacchi (1988) presents a theoretical model where banks may improve the returns on loans by monitoring borrowers. He notes the increase in loan selling in the US in the 1980s, in particular, banks’ mortgage loans that are insured and pooled under the authority of the Government National Mortgage Association, securitized and then sold to secondary market investors. Pennacchi (1988) examines the incentives for banks to sell loans. He demonstrates that banks cannot profit by simply holding money-market assets if faced with “significant competition” for deposit financing as well as regulatory constraints. He shows that loan sales allow banks to finance loans cheaper than traditional deposit or equity issues. He reasons that this is because loan sales can help banks to avoid costs associated with reserves and capital requirements. Pennacchi (1988, 393) demonstrates that “a bank’s ability to sell loans depends on the buyer’s perception of the seller’s incentive to monitor.” Furthermore, he shows that by designing the loan sales contract in a way that gives the bank “a disproportionate share of the gains to monitoring.” a bank can sell a greater proportion of the loan and, hence, attain a higher level of bank profits. As a corollary, if the benefits to monitoring are negligible, the bank can sell a loan in its entirety.
James and Wier (1988) base their study on James (1987) and provide further elaboration of stock market response to security announcements and explore the possibility that banks have some unique advantages in providing capital to the market. They reason that banks do more than providing transaction services by taking demand deposits. They report that financial institutions – mainly commercial banks, provided at least a third of the new debt raised by all American industrial corporations over the period from 1977 to 1986. James and Wier (1988) discuss the reasons why the market views new security issues negatively using the pecking order theory advanced by Myers and Majluf (1984). Specifically, investors reason that if management is aiming at maximizing shareholders’ wealth then it will try to issue new securities when it believes the firm is overvalued relative to its profitability prospect. For this reason firms with genuine investment opportunities prefer to use internally generated funds. If these funds are insufficient, bank loans appear to be a possible solution to this problem. They observe that for the period of their study (1977-1986), inside debt appears to be a major source of financing for smaller public corporations as well as privately held firms. On average bank loans represented some 46% of all debt financing to US non-financial corporations.

James and Wier (1988) explain the advantages of using inside debt as follows. First, inside debt provides a possible solution to the information asymmetry problem encountered in all public security offerings. This is so because banks have better information about borrowing firms than outsiders and therefore they can price their loans accordingly to reflect this information advantage. Second, banks as inside debtholders can effectively monitor the debtor with the use of covenants after the debt is issued. James and Wier
(1990) note that renegotiation in response to unexpected developments is also easier with only one or several lenders (inside debt) than with numerous investors. In the case of bank loans, the lender also possesses the advantage of having an ongoing deposit relationship with the borrower to monitor the credit quality of the firm. The fact that management is willing to let the firm be subject to frequent, periodic reviews required by lenders is a signal of its confidence in the firm’s future. The third advantage of inside debt is that it helps firms to maintain confidentiality about their investment opportunities. Finally, inside debt help firms avoid the costly issue of new equities. This is particularly true in the case of small companies when the size of the issues is not large enough to have the benefits of economies of scale enjoyed by large corporations.

In their paper, James and Wier (1988) also raise an interesting question: why do banks specialize in shorter maturities and not longer maturities? They explain that they have no good answer to this puzzle. However, they conjecture that perhaps banks are reluctant to make long-term loans because of regulatory reasons or they do not want their assets and liabilities to be mismatched. Risk differences could also be another reason. They note that more than half of companies using bank loans and private placements did not have a bond rating. Thus, these companies could have considerable default risk.

James and Wier (1988, 54) conclude their paper by arguing that their evidence shows that bank loans are “the most effective form of inside debt” and that in some respects, “bank loans are indeed unique.”
Lummer and McConnell (1989) argue that banks play an important role as transmitters of information in capital markets. They point out that bank loans convey information about the value of the borrowing firm but new bank loans per se do not communicate information. Banks either produce or have access to information not available to others.

Lummer and McConnell (1989) distinguish two perspectives on the way in which banks gain access to information not available to other capital market participants. According to the first perspective (Benston and Smith (1976), Diamond (1984), and Campbell and Kracaw (1980)) banks invest in information gathering technology that gives them a competitive advantage in evaluating risky lending opportunities. The bank’s loan decision signals the prospective borrower’s creditworthiness. This perspective assumes that a firm will enter into a new bank loan agreement only if it currently has no bank financing in place or the terms of a new credit agreement are more favourable than its current agreement. Thus, one would expect a positive stock price response when new loans are announced.

The alternative view is that banks can also gain access to private information about their customers over time as a result of an intimate continuing business relation. This view can be traced back to Kane and Malkiel (1965) and Black (1975). Fama (1985) argues that banks play a unique role in providing funds to business. First, bank debt is classified as inside debt. Second, because bank loans typically have a low priority among fixed-payoff claims, signals from the credit renewal process are credible and, consequently, reduce the
monitoring costs incurred by the firm’s other claimants. Lummer and McConnell argue that the two perspectives on how banks transmit information are not mutually exclusive. Using a sample of 728 loan agreements for NYSE- and AMEX-listed companies in the period 1976-1986, Lummer and McConnell (1989) find an abnormal return of 0.61% for their full sample which is significant at the 1% level.

Lummer and McConnell (1989) also divide credit agreements into different categories and find that favourably revised credit agreements (259 observations) result in a positive abnormal return of 0.87% and the result is also significantly different from zero at the 1% level. For unfavourably revised credit agreements (22 observations) a negative abnormal returns of -3.86% significant at the 1% level is reported. In addition, they find no significant announcement returns for new credit agreements (371 observations). They interpret these results as evidence that banks enter new credit agreements with no information advantage relative to other outside claimholders. However, as banks continue their credit relations with their customers, they gain access to inside information which gives them a relative information advantage.

Lummer and McConnell (1989) document that the two-day announcement period excess return for bank loan announcements is significantly positive and the stock price response to new loan announcements is not significant. Therefore, the positive announcement-period return is due almost solely to announcements of revisions to existing agreements (mainly for the credit expansions or improvements).
Finally, Lummer and McConnell (1989) also show that when a line of credit is terminated, a negative signal about the borrower is sent to the market. Thus, borrowers have a strong incentive not to discontinue their lines of credit, especially when they use this facility as a signaling device.

Diamond (1991) develops a model which involves borrowers shifting from private sources to public debt markets as the quality of information about the firm is improving and the borrower “develops a reputation in the form of a successful history of debt repayments.” When firms require less monitoring, debt becomes more saleable to parties lacking idiosyncratic information. He argues that new borrowers without well-established reputations would choose to borrow from banks because they have the most to gain from bank monitoring. More reputable borrowers would choose the capital markets.

Diamond (1991) also discusses the benefits for borrowing firms of being monitored by banks. Diamond (1991, 716) uses his model to predict that “if moral hazard is sufficiently widespread then new borrowers will begin their reputation acquisition by being monitored and later switch to issuing directly placed debt.” Diamond (1991, 716) concludes that “the favourable track record acquired while being monitored will be useful in predicting future actions without monitoring. Reputation alone can eventually deal with the moral hazard because the better reputation achieved over time implied that adverse selection is then less severe.”
Calem and Rizzo (1992) study the relationship between capital structure and financial performance of 266 public hospitals and non-accredited hospitals in the US and find that reliance on bank loans is positively related to profitability. This suggests the presence of hidden factors that enhance hospital financial performance. This relation, in turn, can only exist if banks have access to special information about credit risk at public and non-accredited hospitals. Thus, Calem and Rizzo are also of the view that banks often have access to information not available to other lenders.

According to Wansley, Elayan and Collins (1992), the impact of a credit line announcement on a borrowing firm’s security returns depends on the extent to which the market already has information regarding the firm’s true value. They argue that since the level of market information should be related to tangible assets, insider holdings, and other signals of quality already in place, announcements should be redundant information for those firms with other credible market value signals already in place. They note that the credit announcement only provides information on firm value when it is difficult to estimate. Thus, for those firms whose credit quality is not readily apparent or whose value is based primarily on growth options rather than assets in place, the announcement of credit lines is a valuable indicator of firm qualities. They study a sample of 614 credit agreements in the US for the period from January 1, 1972 through December 31, 1987 and find that the excess returns for borrowing firms around the announcement of the credit agreement are related to the size of the agreement and to the level of growth options in the firm’s investment opportunity set. They also report that as the size of the credit line and the firm’s growth options increase, the difference in market announcement effects between new and
expanded agreements decreases. In addition, announcement effects for new credit agreements are not related to the firm’s bond ratings or to its level of insider holdings. However, these effects are dampened for firms with relatively large insider holdings.

Merton (1992) argues that since it is costly to establish or replace a banking relation, a bank’s ability to sell its services is enhanced if the market perceives them as being a higher quality bank. It follows that this perception is reinforced if the bank has a large number of strong, high prestige corporate clients. Accordingly, banks will tend to “cultivate” clients that add to their reputation. Therefore, large companies can use almost any bank they desire. On the part of the borrower, using a high quality bank indicates that it considers the bank an excellent signaling device due to its financial strength and reputation.

Slovin, Johnson and Glascock (1992) use a sample that includes NASDAQ small companies and study the relation between firm size and the information content of bank loan announcements. They classify a company as small if it has a market value which is less than the median value of all the listed companies in the market. They find that the stock market response to new loans is significantly positive for their whole sample. This finding is in contrast with that of Lummer and McConnell (1989). They also find that the response to renewed loans is even more positive than that to new loans. These responses, however, are confined primarily to small firms. This is because large firms are well monitored and have acquired reputation and banks have less comparative advantage in the external financing process relative to the capital markets. For small firms, however, moral hazard and adverse selection problems are more severe, because they have shorter
corporate histories, lesser reputations, and less public information is available for investors. Hence small firms receive greater benefits from a bank’s screening and monitoring services.

Best and Zhang (1993) examine the information content of bank loans by addressing two issues. First they recognize that parties other than banks also perform evaluation and monitoring roles. Consequently, if these other information sources can sufficiently resolve informational asymmetries, bank loan announcements should convey little information to the market. However, if these other sources produce “noisy signals”, or face a disadvantage relative to banks in information production, then bank loan announcements should convey useful information to market participants. Second, they examine whether banks expend equal efforts in evaluating all borrowers. They argue that banks first use indicators from other sources to screen the borrowers and then decide how to allocate investigation resources.

Best and Zhang (1993) reason that banks can create value by evaluating those borrowers perceived by the public to have poor earnings prospect. The reason is that these firms are the most likely to be undervalued by the market and, hence, unlikely to issue public securities. Borrowing from banks in this case would send a signal to the market that they are in fact undervalued. Furthermore, this creation of value is greatest when public information is noisy and the firm’s credit quality is in doubt.
Best and Zhang (1993) use a sample of 491 observations of financial analysts’ forecasts during the period 1977-1989 and find that the excess returns for their sample is positive (0.32%) and is significant at the 5% level. Best and Zhang (1993) divide their sample according to whether financial analysts’ percentage earnings prediction errors are high or low, and whether the most recent earnings forecast revisions are positive, unchanged, or negative. They find that bank loans convey more information when the analysts’ forecast errors are high. Moreover, banks produce little information when the most recent earnings forecast revision is positive. Furthermore, the information content of bank loans is most significant when both the analysts’ forecast errors are high and their most recent earnings forecast revisions are unchanged or negative. The excess return in the former case is 0.60% and is significant at the 1% level whereas that in the latter case is 0.04% and is insignificant. These results support the notion that banks rely on other information resources to determine where to best deploy their evaluation efforts. If the non-bank indicators are reliable and reflect improving expected performance, banks do little further investigation. However, if these indicators are noisy and reflect declining expected performance, banks have an incentive to thoroughly scrutinize the borrowers.

Bhattacharya and Thakor (1993) question why we have financial intermediaries. They focus on the role of financial intermediaries in providing brokerage and qualitative asset transformation services. These services are shown in Figure 2.1 below. According to these authors banks traditionally provide virtually all these services. Non-depository financial intermediaries tend to specialize more narrowly. Financial intermediaries have a cost advantage in providing brokerage services. This cost advantage arises from two
sources. First, brokers develop special skills in interpreting subtle signals. Second, brokers exploit cross-sectional and temporal reusability of information. As for the qualitative asset transformation services, financial intermediaries typically transform claims by modifying the attributes of these claims. This is also shown in Figure 2.1 below.

![Diagram](image)

**Figure 2.1: Financial Intermediary**

- **Services provided**
  - Transactions services (e.g. cheque-writing, buying/selling securities and safekeeping)
  - Financial advice
  - Screening and certification (e.g. bond ratings)
  - Origination
  - Issuance
  - Miscellaneous

- **Major Attributes Modified**
  - Term to maturity (e.g. bank financing assets with longer maturity than liabilities)
  - Divisibility (e.g. a mutual fund holding assets with larger unit size than its liabilities)
  - Liquidity (e.g. a bank funding illiquid loans with liquid liabilities)
  - Credit risk (e.g. a bank monitoring a borrower to reduce default risk)

Source: Figure 1. Bhattacharya and Thakor (1993).
Bhattacharya and Thakor (1993, 8) point out that “informational asymmetries are the most basic form of transaction costs and thus information-based theories of intermediation provide a more fundamental interpretation.” Bhattacharya and Thakor (1993, 9) argue that “a bank can communicate proprietary information about borrowers at lower cost than can the borrowers individually.”

According to Bhattacharya and Thakor (1993, 3), a number of lessons can be learned from the existence of financial intermediaries. Firstly, financial intermediaries can reduce transaction costs. Secondly, with informational asymmetries, both depository and non-depository financial intermediaries can gain from an increase in size because of lower incentive costs per agent. Thirdly, bank loans are special because “they signal quality in a way that other forms of credit do not.” Fourthly, banks enhance aggregate investment.

Waheed and Mathur (1993) examine the market reaction to announcements of both domestic and foreign lending agreements by US Bank Holding Companies using data for the period 1963-1989. Waheed and Mathur (1993, 126) find that “banks, as vehicles for information generation about their corporate clients, do not provide any information about themselves to market participants when they announce domestic lending agreements.” However, banks “do reveal information about themselves to investors when they announce their foreign lending agreements.” They also find that shareholders of US banks experience significant abnormal returns of -0.17% when banks announce foreign expansion. Abnormal returns are insignificant when the announced mode of expansion is through a representative office, are significantly positive for announcements related to branches, and are
significantly negative when the announced mode of expansion is through formation of a joint venture or a subsidiary, or through an acquisition. Abnormal returns are significantly negative when banks announce expansion into developed countries, and are significantly positive when announcements relate to risky developing countries. Post-announcement changes in the total variance of returns and in the unsystematic risk of US banks are inversely related to abnormal returns. Higher wealth effects are associated with higher levels of prior overseas experience.

McDonald (1994) differentiates lines of credit from revolving credit agreements. According to McDonald (1994, 23), a line of credit is “an understanding, informal or formal, between the bank and the firm as to the limit up to which the firms may borrow in a given period, usually one year.” And “a revolving credit agreement is a formal arrangement between a bank and a usually large firm for a renewable loan commitment. Revolving credit agreements may have long durations.”

McDonald (1994) uses a sample of 250 loan commitments announced in The Wall Street Journal during the period January 1, 1980 through September 30, 1986, to examine stock market reaction to security price of borrowing firms. He finds a positive abnormal return of 1.3% during the two-day period prior to announcements of revolving credit agreements. He also finds an abnormal return of 0.77% on the announcement date for the sample. Both results are significant at the 5% level. McDonald (1994, 27) interprets these results as evidence that “the market requires an observable signal from the bank that the implied audit of the firm has been completed.” McDonald (1994, 27) reasons that the
“formalized revolving credit agreement appears to be such a signal.” He also finds that in the case of straight lines of credit when the formalization process is absent, the effect of a loan commitment announcement is diminished. The ten-day period prior to the announcement shows a significant negative return of 1.7% and the result is significant at the 5% level. The abnormal return on the announcement date is 0.5%, but insignificant. He argues that this is because straight lines of credit are less observable to investors. McDonald (1994) also finds that for his full sample positive abnormal returns of 0.64% and 0.36% are observed during the two-day period prior to, and on the announcement date, respectively. Again, both results are statistically significant at the 5% level. It appears that the revolving credit agreements drive the overall results of McDonald’s (1994) study.

Chemmanur and Fulghieri (1994) develop a theoretical model that explains firms’ choice between bank loans and publicly traded debt. They argue that banks with greater reputation are able to convey more information than less reputable banks. They reason that the entrepreneur has private information about their probability of financial distress, and if this problem is serious then firms would choose to borrow from banks rather than issuing publicly traded debt. This is because firms, especially small firms, know that reputable banks can provide them with financial flexibility to renegotiate the loan in the event of financial distress. They Chemmanur and Fulghieri (1994, 475) demonstrate that “banks’ desire to acquire a reputation for making the “right” renegotiation versus liquidation decision provides them an endogenous incentive to devote a larger amount of resources than bondholders toward such evaluations.”
Chemmanur and Fulghieri (1994, 497) also reason that “firms using bank loans will, on average, have a greater probability of being in financial distress compared to those issuing publicly traded debt.” Using firm size as a proxy for the probability of financial distress, they infer that smaller firms are likely to use bank loans to fund their projects while larger firms issue publicly traded debt. They also infer from their model that in equilibrium “the yield on bank loans will be higher than that on publicly traded debt of equivalent maturity.” Nonetheless, firms are happy to pay higher interest rates on loans from reputable banks in exchange for financial flexibility in the case of financial distress. Furthermore, they argue that bank loans will be renegotiated more often than publicly traded debt. They reason that banks are prepared to devote more resources to evaluate firms in financial distress than holders of publicly traded debts. Finally, Chemmanur and Fulghieri’s (1994, 498) model also predicts that “renewals of bank loans will convey more favourable information compared to those of other kinds of debt.”

Using data from the Federal Reserve Board’s 1987 National Survey of Small Business Finances, Petersen and Rajan (1994) examine the effect of firm-lender relationships on the availability of credit. They do not find that the loan rate is related to the duration of the firm-lender relationship nor with whether the firm obtains deposit accounts or informational services from its lender. However, they find that the loan rate increases with the number of banks from which the firm borrows and decreases with firm age. They also find that the availability of credit, as proxied by the percentage of a firm’s trade credits paid late, is negatively related to both the length of the firm’s longest relationship and firm age.
Berger and Udell (1995) also use the 1988-89 National Survey of Small Business Finances (NSSBF) to examine the role of relationship lending in small firm finance. They examine price and non-price terms of bank lines of credit extended to small firms. Berger and Udell (1995, 351) claim that “the focus on lines of credit allows the examination of a type of loan contract in which the bank-borrower relationship is likely to be an important mechanism for solving the asymmetric information problems associated with financing small enterprises.” Berger and Udell (1995, 353) argue that “the line of credit itself represents a formalization of this relationship.” Furthermore, “The bank line of credit (L/C) is a particularly important part of relationship lending because it represents a forward commitment to provide working capital financing under pre-specified terms” (p.355). They also argue that relationships are less important for “transaction-driven” loans (e.g. mortgages and motor-vehicle loans). They focus on “relationship-driven” loans and find that the loan-rate premium over the lending bank’s prime rate is negatively related to the duration of the firm-lender relationship. Berger and Udell (1995, 378) also claim that “the use of a continuous measure of the strength of the bank-borrower relationship” (i.e. the duration) dominates the “simple binomial proxy of whether the line of credit was a renewal versus a new issue as a measure of the relationship’s strength.” Consistent with the literature on financial intermediation they argue that their results are evidence of bank’s accumulating private information increasingly over the duration of the relationship and use this information to refine the terms of the loan contract.
Berger and Udell (1995) also find that small firms which have longer banking relationships borrow at lower rates and are less likely to pledge collateral than other small firms. They differentiate firm age from length of relationship. Berger and Udell (1995, 360) argue that firm age reflects “information that becomes revealed to the market as a whole” (that is, a firm’s public reputation) while the bank-borrower relationship reflects “private information revealed through the intermediation process only to the lender through the bank-borrower relationship.” They also point out that firm age is highly correlated with the length of firm-lender relationship.

In a study on the effect of the prestige of the investment banker on stock return after the issue of seasoned equity, Ellis and Dunkelberg (1995) find that the prestige of the investment banker is not an important variable in determining how the market perceives an equity issue announcement. However, they find that market’s perception is conditional upon whether the announcement transmits a positive- or negative-information signal. They argue that if the equity issue is used to finance profitable investment opportunities for the firm, then the issue signals positive information. On the other hand if the issue is a management’s attempt to reduce the cost of equity when they perceive the stock is being temporarily overvalued, then the equity issue announcement signals negative information. Using this distinction, they find that for negative announcements the results were similar for both prestigious and less prestigious investment bankers. The Cumulative Average Abnormal Returns (CAARs) for the event window (t=-40,-1) were –1.67% and –2.28%, respectively, neither of which are significant. The CAARs for the event period (t=0, +1) were −4.15% for negative announcements associated with prestigious bankers versus –
3.99% for announcements associated with less prestigious bankers. These results are significant at the 1% level for both groups. However, the post-announcement period results are significant for both groups with CAARs being –3.25% and –2.88%, respectively. Based on these results, Ellis and Dunkelberg argue that the prestige of investment banker did not impact market perceptions when the announcement was perceived as negative information.

However, Ellis and Dunkelberg find that the prestige of the investment banker had greater impact on market perception if the equity issue is perceived as positive. For both groups, positive announcements were associated with positive but insignificant CAARs in the pre-announcement period \((t=-40,-1)\), but the CAARs for positive announcements associated with prestigious investment bankers are larger than the CAARs associated with less prestigious investment bankers, 2.57% versus 1.57%. However, for the event period \((t=0, +1)\), they were 2.63% and 1.92%, respectively. These results are significant at the 1% level for both groups. The authors also find that firms that had announcements associated with prestigious investment bankers were able to maintain their pre-announcement and event period gains, but firms that had announcements associated with less prestigious underwriters were not. During the post-announcement period \((t=+2, +40)\), for announcements associated with the prestigious group, the CAARs remained unchanged with a slight gain of 0.10% (from 5.20% to 5.30%), but the CAARs for the announcements associated with the less prestigious group fell 3.63% (from 3.49% to –0.14%).

Billett, Flannery and Garfinkel (1995) examine whether the lender’s identity influences the market’s reaction to loan announcements. Billett, Flannery and Garfinkel
(1995, 699) make the point that “difference in market reaction indicates that private and public securities are not perfect substitutes for the average firms.” For this reason they argue that lender identity must have impacted significantly the borrower’s abnormal return. They distinguish lenders according to both institutional status and by their credit rating. Billett, Flannery and Garfinkel (1995, 700) reason that “this latter designation permits lenders to be categorized according to market perceived differences in their quality.” They cite three reasons why a bank’s reputation is important. First, lender credit quality may affect borrower returns because both share benefits from their longstanding bank-borrower relationship. Second, borrowers should be able to enjoy higher equity revaluations when their bank loan is announced if their banks are effective monitors. Finally, Billett, Flannery and Garfinkel (1995, 704) reason that “higher quality agents more accurately inform the capital markets about their customer’s risk and/or value.” Therefore, “those firms seeking a credible signal of positive private information will use higher quality lenders.”

Billett, Flannery and Garfinkel (1995) use a sample of 626 loan announcements for the period 1980-1989 to conduct their study. They find an average one-day abnormal return of 0.68% for their whole sample and the result is statistically significant at the 1% level. For bank loans, they report an average abnormal return of 0.63% and the result is also significant at the 1% level. On the other hand, for non-bank loans they report a mixed result depending on the test used. They find an average abnormal return of 1.08% which is insignificant when the t-test is used, but is significant when the sign test is used. Billett, Flannery and Garfinkel (1995, 713) also find that “lender identity is a significant determinant of the market’s reaction to a loan announcement, even controlling for
borrower-specific characteristics.” They report a highly significant positive coefficient for lender’s credit rating in their regressions. More specifically, they find that given similar characteristics of borrowers, the average AAA lender in their sample causes “a 1.9 percent greater market revaluation for its borrower than a BAA or lower rated lender would generate.”

From the above results, Billett, Flannery and Garfinkel (1995, 700) conclude that “the borrower returns associated with non-bank loans are positive and statistically significant just as the borrower returns associated with bank loans. However, the borrower’s abnormal returns increases with the lender’s credit quality.” Thus, “outside investors reflect lender identity in their reaction to the announced loan.”

According to Diamond (1996, 65), banks can “centralize costly monitoring and avoid the duplication of effort of the monitoring of borrowers by small investors.” He argues that “banks monitor debt contracts, and issue unmonitored debt (deposit) contracts.” Furthermore, he reasons that “diversification is the financial-engineering technology that makes monitoring of deposit contracts unnecessary when monitoring of debt contracts is necessary.” For this reason, banks can deliver delegated monitoring. Diamond also emphasizes that “debt monitoring, and diversification are the keys to understanding the link between financial intermediation and delegated monitoring”.

As with Bhattacharya and Thakor (1993), Allen and Santomero (1998, 1461) acknowledge that “traditional theories of intermediation are based on transaction costs and
asymmetric information.” Financial institutions exist to take deposits or issue insurance policies and channel funds to firms. Citing the fact that although transaction costs and asymmetric information have declined, intermediation has increased, they argue that “current theories of intermediation (at the time of their writing, explanation added) are too heavily focused on functions of institutions that are no longer crucial in many developed financial markets.” Allen and Santomero (1998, 1462) also argue that traditional theories “focus on products and services that are of decreasing importance to the intermediaries.” They suggest that “the literature’s emphasis on the role of intermediaries as reducing the frictions of transaction costs and asymmetric information is too strong.”

Allen and Santomero (1998, 1461) offer a theory of intermediaries that centres on two different roles that these firms currently play. Firstly, they can play “the role of facilitators of risk transfer and deal with the increasingly complex maze of financial instruments and markets.” According to these authors, “risk management has become a key area of intermediary activity,” and the current theories offer little explanation for this function. Secondly, these firms can facilitate the participation of investors in the financial sector. Allen and Santomero (1998, 1462) suggest that “reducing participation costs, which are the costs of learning about effectively using markets as well as participating in them on a day to day basis, play an important role in understanding the changes that have taken place.”

DeGennaro, Elayan and Wansley (1999) use a sample of 327 credit agreements from Wall Street Journal Index for the period January 1972–December 1987 to study the
impact of line-of-credit announcements on the lending institutions. They find that lenders’
equity suffers significantly negative abnormal returns upon these announcements. The
average two-day prediction error is -0.186% with a z-value of -2.013 and the proportion of
negative returns in their sample is 54%. They point out that the results of their study are in
contrast with the positive results found in James (1987), Lummer and McConnell (1989),
and Slovin, Johnson and Glascock (1992). They also find that their results apply to both
bank and non-bank lenders. DeGennaro, Elayan and Wansley (1999, 66) argue that “given
that the average lender loses when credit agreements are announced, some or all of the
borrowers’ gain could be at the expense of the lender.” They reason that if the finding of
Lummer and McConnell (1989) in relation to favourable revisions of existing credit lines is
valid across all samples then in this case one would expect abnormal returns around
expanded credit agreements to be significantly negative while new agreements should show
no effect. They find that neither prediction holds in their study. Furthermore, they only find
that the wealth transfer hypothesis is only applied to infrequent lenders who made relatively
few deals during their sample period and relatively few deals per unit of time.

DeGennaro, Elayan and Wansley (1999) also find that loans made by the frequent
lenders are associated with higher abnormal returns to the borrowers. DeGennaro, Elayan
and Wansley (1999, 66) conclude that “firms that keep in constant touch with the market
for these agreements either have or develop a comparative advantage in engineering them.”
They also signal the need for richer explanations of stock return behaviour around these
credit announcements. These authors stress that a complete resolution must explain not
only the borrowers’ abnormal returns, but also the lenders’ abnormal returns.
DeGennaro, Elayan and Wansley (1999) use the market value of equity to distinguish whether lenders made loans to larger or smaller borrowers. They find that lenders who made loans to smaller borrowers suffer average losses of 0.354% which is significantly differently from zero ($z = -2.24$). They also find that lenders making loans to larger borrower also lose (-0.111%) but the results are not statistically significant ($z = -0.76$). However, they do not accept these results as evidence of wealth transfers between lenders and borrowers. They cite two reasons for this view. First, there is no significant difference between excess returns to lenders making loans to large borrowers and returns to lenders making loans to small borrowers. Second, the Pearson correlation coefficient between lender excess returns and borrower excess returns in their sample is insignificant.

DeGennaro, Elayan and Wansley (1999) note media announcements are more likely for large agreements and hence smaller loans are probably under-represented in their sample. For this reason, these authors caution their conclusions do not necessarily apply to all banks. Rather they apply to lines of credit that are large enough and newsworthy enough to merit media attention.

DeGennaro, Elayan and Wansley (1999, 72) also study the abnormal returns to lenders based on the number of lenders in the consortium. They argue that “if there are many members of the lending group, the announcement in Wall Street Journal is more likely to have been anticipated and is less likely to release much information about any single lender.” In addition, lenders may reduce default risk by transferring part of the
commitment to other lenders in the consortium. This makes it difficult to detect abnormal returns. For these reasons DeGennaro, Elayan and Wansley (1999, 72) suggest that “agreements with many lenders should generate insignificant abnormal returns.” They find that on average single lenders in their sample lose 0.362% and the results are significant at the 5% level whereas multiple lenders’ losses are insignificant. In short, DeGennaro, Elayan and Wansley (1999) find that lenders suffer statistically significant, negative abnormal returns upon announcements of bank lines of credit. However, they reject the wealth transfer from lenders to borrowers.

Finally, DeGennaro, Elayan and Wansley (1999) also examine the borrower returns in their study. Using the sample of 215 observations for which borrower returns are available, they find abnormal returns are positive (0.53%) and the results are significant at the 5% level.

Athavale and Edmister (1999) used a sample of 2,358 pairs of loans from an anonymous bank in the United States to study the influence of borrowing relationships on the loan rates. They find that the average difference between the predicted loan rate and the actual loan rate in the subsequent period to be significantly different from zero, by at least 12 basis points. They confirm this result by using a dummy variable to identify the subsequent-period loans and testing the coefficient of the dummy variable and find the results to be significant at the 1% level. They also compare the loan rates for their sample with peer group loan rates for both prior- and subsequent period loans. All their tests consistently indicate that subsequent-period loans are priced lower than prior-period loans.
They conclude that bank-borrower relationships are important and influence the price of bank credit.

James and Smith (2000) examine the characteristics of a sample of loans based on Loan Pricing Corporation’s Dealscan data for the period 1987-1997 and find that 84% of the loans involve some form of a line of credit, 37% involve term loan and 21% include both line of credit and term loans, that is, hybrid loans. They explain a number of characteristics that distinguish bank loans from privately placed debt. First, bank loans are secured with collateral. Second, bank loans typically carry stringent covenants that require borrowers to maintain the financial ratios at certain minimum levels. Third, bank loans tend to be short term.\(^5\) James and Smith (2000, 62) point out the main advantage of obtaining revolving lines of credit is that they “allow companies to raise private financing quickly when they view themselves to be undervalued by the market or, alternatively, when credit risk spreads look unattractive in public markets.”

James and Smith (2000) report that existing literature provides robust evidence of a favourable impact of bank loan announcements on borrowers’ stock returns. This is in contrast to the insignificant or negative response of investors to the announcement of most other forms of securities offerings, such as private placements of debt, straight public debt, preferred stock and common stock. James and Smith (2000) review the reasons why the identity of a firm’s lender might affect the value of the corporate borrowers. One of these

\(^5\) James and Smith (2000) cite the work of Strahan (1999) and report the average maturity of credit lines to be 42 months and that for term loans to be 69 months.
reasons is that “private lenders may be better informed about the future prospects of the borrowing firms than investors in public debt or equity markets” (54). Given that banks are one type of private lender, banks can thus play the role of an information transmitter to the market.

James and Smith (2000, 60) also raise an interesting question: “Are the bank loans announced in the financial press typical of most firms borrowing from banks?” In other words, they argue, “Are the bank loans announced in financial press those that are most likely to result in a positive share price reaction?” They offer two explanations as to the relevancy of this question. First, unlike public securities offerings, only material bank loan agreements need be announced. This is in accordance with guidelines provided by the Securities and Exchange Commission (in US). Second, bank loans announced in financial press tend to be large in dollar term as well as relative to the size of the firm.

Aintablian and Roberts (2000) study a sample of 137 firms in Canada and divide bank loans into three main categories: new loans, renewals, and restructurings. They further classify new loans into three types: new loans with new banks, new loans with the same bank, and new loans with unknown banks. Renewals were also subdivided into three categories: favourable, unfavourable, and mixed. Following Lummer and McConnell (1989), they assessed each renewal based on changes in loan maturity, interest rate, dollar value, and protective covenants. A renewal is considered to be favourable if the maturity is extended, the interest rate reduced, the loan amount increased or the protective covenants are made less restrictive. If these loan terms move in the opposite direction, then the
renewal is rated as unfavourable. Finally, a renewal is considered mixed if some loan terms are favourable and others are unfavourable. Aintablian and Roberts also classify restructurings into two categories: loans with prior negative news about the borrowing firm, and those with no prior negative news.

Aintablian and Roberts (2000) find that announcements of bank loans are associated with positive abnormal returns and that these returns are significantly higher than those found for announcements of private placements. Specifically, they find that the average abnormal return for all bank loans is 1.22% and the result is significant at the 1% level. However, syndication weakens the announcement effect because it diminishes a key advantage of bank borrowing: the flexibility to renegotiate loan terms. They also find that the more intense the monitoring is, the more pronounced will be the announcement effects for bank loans. The market will also react favourably when the loans terms of renewals and new loans are favourable.

Detragiache, Garella and Guiso (2000) develop a theory of the optimal number of banking relationships which posits that internal problems might prevent relationship banks from continuing to fund profitable projects and a firm may thus have to refinance from non-relationship banks. However, the latter may refuse to lend due to adverse selection problem. That is, non-relationship banks may not know the quality of the project presented to them. Detragiache, Garella and Guiso (2000) argue that in these circumstances, the probability of an early liquidation of the project is reduced owing to multiple banking relationships. They tested their theory by using matched bank-firm data for a sample of
4,421 Italian firms. The empirical evidence appears to support the predictions of their model. However, they find that the use of multiple banking relationships appears to be non-uniform across countries. In the US, a single banking relationship appears to be quite prevalent (44.5% of firms) whereas in Italy only 11% of firms have a single banking relationship.

According to Detragiache, Garella and Guiso (2000), a number of reasons can make multiple banking more costly. First, dealing with more than one bank may involve significant transaction costs for a borrowing firm. Second, screening and monitoring costs may be duplicated, or, if banks free ride on others’ efforts, too little screening or monitoring may result. Finally, debt renegotiation is likely to be more complex when many creditors are involved. There must be some benefits/reasons for firms to choose multiple banking relationships. From the lender’s perspective, banks might want to diversify firm-specific credit risk.

According to Detragiache, Garella and Guiso (2000), when relationship banks face internal problems such as liquidity risk, multiple banking relationships serves to increase the probability that a firm can refinance its project from at least one informed bank, thus reducing the likelihood of early liquidation. However, the firm will face an adverse selection problem, as non-informed banks will suspect that the project is a lemon. In their model, Detragiache, Garella and Guiso (2000) note that for some parameter values, adverse selection is so severe that the firm is unable to refinance the project outside of the relationship. On the other hand, when adverse selection is not severe and firms can expect
to be able to refinance from non-relationship banks, multiple banking offers no benefits to the borrower, and single banking prevails.

Detragiache, Garella and Guiso (2000) use two proxies to capture bank fragility which is defined as the propensity of banks to experience liquidity problems that force them to cut back their loan portfolios. The first is a proxy for idiosyncratic liquidity shocks to each bank based on observed changes in the ratio of liquid funds to assets. The second proxy is a weighted average of the ratio of non-performing loans to assets of each creditor bank. The hypothesis is that banks with higher share of non-performing loans are more prone to liquidity shocks.

Gorton and Kahn (2000) present a theoretical model of renegotiation between a borrower and a bank lender. They note that banks have the ability to mitigate moral hazard problems. Gorton and Kahn (2000, 332) argue that “Renegotiation of the contract terms is triggered by the arrival of new information that may lead the borrower to add inefficient risk to the project (i.e., asset substitution), absent changes in the terms of the loan.” On the other hand, they also point out that “There is also the potential for moral hazard on the part of the bank since the bank may “hold up” the borrower by (credibly) threatening to liquidate the borrower’s project, thereby extracting a higher interest rate.” They reason that the interaction of these two moral hazard problems could give rise to a number of different outcomes at renegotiation: “The bank may liquidate the project, raise the interest rate, forgive some debt, or stay with the status quo.” However, they show that “in renegotiation the bank is not always successful in preventing the firm from taking on additional risk.”
They argue that “The volatility of corporate securities is endogenous and variable.” Also, “the firm sometimes has an incentive to increase volatility.” For these reasons the bank only imperfectly “controls borrower risk-taking.” Hence, they reason, “In equilibrium, the variance of the value of the borrowing firm is therefore endogenously time and state dependent.”

Gorton and Kahn (2000) point out that both the firm and the creditors cannot renegotiate when bonds are issued. The reason is that the borrower is dealing with “dispersed lenders” and hence renegotiation is either not possible or very difficult. They also look at the issue whether the bank is allowed to ask for the collateral prior to maturity of the loan. That is, whether the liquidation option should be provided in the loan contract. A consideration related to the liquidation issue involves the specification of the initial contract form. They also argue that the outcome of renegotiation has efficiency considerations as well, since banks might liquidate some projects and borrowers might add more risk to others. Hence, Gorton and Kahn (2000, 333) reason that “the social gain from bank loans comes from the enhanced ability to thwart inefficient risk taking and to liquidate bad projects.” They also show how the terms of the initial contract can affect the renegotiation outcome by “allocating bargaining power between borrower and lender to minimize inefficient risk taking.” Finally, they claim that their model “identifies a unique role for bank loans that is independent of pricing default risk.”

 Andre, Mathieu and Zhang (2001) provide an interesting case of stock market reaction to bank loan announcements in the Canadian market. Andre, Mathieu and Zhang
(2001) examine information content conveyed by the disclosure of credit agreements (term loans and lines of credit) before and after the introduction of the 1988-capital adequacy requirements in Canada. They argue that the introduction of 1988-capital ratio reduces banks’ level commitment at the issuance of lines of credit to minimise issuance costs of off-balance sheet items. Andre, Mathieu and Zhang (2001, 434) provide anecdotal evidence that “Canadian banks have changed the basic conditions associated with lines of credit to avoid their inclusion in the calculation of the capital ratio” as required by the 1988 regulation. They use a sample of 122 announcements of new and revised bank credit agreements to conduct their study. Consistent with prior studies they find that prior to the introduction of the 1988 capital adequacy requirements, market reactions are significantly positive at the announcements of bank credit agreements. Andre, Mathieu and Zhang (2001, 436) also obtain evidence that “market reaction is stronger when firms obtain loans from single banks than from multiple banks.” Furthermore, market reactions are significant to announcements of new credit agreements and favourably revised agreements. Specifically, they find that the average announcement excess return is positive (2.2%) and significant at the 5% level when the credit agreement involves a term loan. The average announcement excess return when the credit agreement involves both a term loan and a line of credit is also positive (5.24%) and significant at the 1% level. The result for lines of credit in their study, however, is not statistically different from zero although it is positive (1.59%). Andre, Mathieu and Zhang (2001, 436) infer that “the market may perceive the information content of a commitment to lend differently from the actual lending.” They find that they cannot reject the null hypothesis that the market reactions to announcements
of lines of credit before and after 1988 are the same. Nor can they reject the same null hypothesis for term loans. The latter result is consistent with their prediction, however.

Andre, Mathieu and Zhang (2001) also find that for small firms before 1988, the average announcement excess returns are 6.63% for lines of credit and -0.04% for term loans but these results are not significant. After the introduction of the 1988-capital adequacy requirements, however, the average announcements are not significant albeit positive (0.06%) for lines of credit, and both positive (4.69%) and significant at the 1% level for term loans. For large firms, however, they find no significant results for market reaction to announcements of both lines of credit and term loans before 1988. Specifically, they find that the average announcement excess return is 2.70% but insignificant for lines of credit. The corresponding results for term loans are 2.32% and are also insignificant. After 1988, the market reaction to announcements of lines of credit is positive (0.54%) but insignificant while announcements of term loans is positive (1.70%) but significant at the 10% level. Andre, Mathieu and Zhang (2001, 437) conclude that the introduction of the new regulation “has significantly reduced the information content of lines of credit while the informativeness of term loans is not affected.”

Dahiya, Puri and Saunders (2003) examine the information content of the announcement of a sale of a borrower’s loans by its lending bank. They find a negative abnormal return of 4.5% for the five-day event window upon the loan sale announcement and the result is significant at the 1% level. Furthermore, this reaction is pronounced for sub-par loan (or distressed loan) sales, where the bank’s information advantage is greatest.
They report a negative abnormal return of 7.04% for the five-day window and the result is also significant at the 1% level. They note that this finding is a “mirror image” of the established finding that the announcement of new lending relations (or their continuation) has a positive effect on a borrower’s stock returns. Dahiya, Puri and Saunders (2003) also find that a large number of their sample firms (42%) file for bankruptcy within three years of the date of the first loan sale announcement.

Dahiya, Puri and Saunders (2003) also reason that when lenders sell a bank loan on the secondary market they send a signal to the market that the lenders most familiar with the borrower are not comfortable with the borrower’s situation. Traders understandably suspect that the lender knows something they do not know. This demonstrates the uniqueness of bank loans as suggested by James (1987). Also, banks as information producers and monitors are regarded as insiders to the borrowing firms (Campbell and Kracaw (1980), Diamond (1984) and Fama (1985)).

Dell’Ariccia and Marquez (2004) present a theoretical model that attempts to explain the relation between information and bank credit allocation. They observe that over the last two decades, bank activities have been progressively liberalized. Dell’Ariccia and Marquez (2004, 186) also note that “financial sector reforms have reduced legal barriers to entry and enlarged the scope of the activities of banks and other financial intermediation”. Using their theoretical framework, Dell’Ariccia and Marquez (2004) examine the response of the banking system in its allocation of credit to external shocks such as the entry of a low-cost competitor. They focus on the role that information plays in shaping bank
competition in this context. Specifically, they consider the case where a lender with an information advantage competes for borrowers with outside lender that does not have this advantage but has a cost advantage in extending loans to borrowers. Dell’Ariccia and Marquez (2004, 186) derive three main results from their model. First, in markets with larger information asymmetries, “the degree of borrower capture” and spreads on bank loans are higher. As a result, lending to less creditworthy borrowers becomes a profitable business to informed lenders. An inevitable consequence of this state of affairs is that the average quality of the borrowers obtained financing from the informed lender is inversely related to the lender informational advantage. Second, with greater competition from outside lenders, informed banks reallocate their credits “towards sectors where their competitors face greater adverse selection problems.” According to the authors, this is the so-called “a flight to captivity.” Finally, they show that if “there exist(s) a strong negative correlation between borrower quality and degree of information asymmetry” then “an increase in the competitiveness of uninformed lenders can lead to a worsening of the informed lender’s overall loan portfolio.”

Fields, Fraser, Berry and Byers (2006) review the Petersen and Rajan (2002) research. Petersen and Rajan (2002) argue that changes in the information market have provided “hard” information about borrower creditworthiness at a much cheaper cost. This change in information market significantly expands the geographical scope of the credit market for small business lending. Fields, Fraser, Berry and Byers (2006) also report evidence of the growth of complex internal credit rating systems used by large banks (Tracey and Carey, 2000). In addition, sophisticated internal risk management systems
were also developed by these banks under the proposed changes in the capital standards under the Basel II agreement (Schuermann, 2004). Fields, Fraser, Berry and Byers (2006, 1196) argue that these changes “may reduce the value of the certification provided by commercial bank loans (and, therefore, the reaction to loan announcements).”

Fields, Fraser, Berry and Byers (2006) use a sample of 1,111 loans comprising 517 new loans and 94 renewals for period 1980-2003 to examine whether the stock market’s positive response to announcements of bank loans still exists given that the banking environment and the lending relationship have changed since the early 1990s. They also classify whether each loan is a syndicated loan. They find that 66% of the announcements (733) are syndicated loans. In terms of daily returns, they find positive abnormal returns for the whole sample as well as for new loans and renewals. Specifically, they observe a positive return of 0.47% on the announcement date for the whole sample and 0.51% for loan renewals. Both results are significant at the 1% level. For new loans the corresponding figure is 0.44% and significant at the 5% level.

Fields, Fraser, Berry and Byers (2006) also observe a positive cumulative abnormal return of 0.46% for the two-day (0, +1) window for the entire 24-year sample period. The latter result is statistically significant at the 1% level. When they divide their sample into three sub-periods, namely, 1980-89, 1990-99 and 2000-03; they observe some differences in the stock market’s reaction to announcements of bank loan. For the 1980-89 period, the two-day cumulative abnormal returns for all loans, new loans and renewals are 0.60% (significant at the 1% level), 0.30% (insignificant) and 0.93% (significant at the 1% level),
respectively. For the 1990-99 period the cumulative abnormal return is positive (0.51%) and statistically significant at the 5% level. The cumulative abnormal returns for both new loans and renewals for the same two-day window although positive (0.53% and 0.50%, respectively) are insignificant. Finally, for the 2000-03 period positive cumulative abnormal returns are observed for both all loans (0.13%) and new loans (0.52%) but the results are insignificant. For loan renewals the cumulative abnormal return is negative (-0.08%) and insignificant.

When they examine the abnormal returns for 5-year intervals in their study, Fields, Fraser, Berry and Byers (2006, 1201) find that “the reaction to bank loan announcements has not been consistently positive over the entire 24-year period, nor has it been consistent across new loans and loan renewals.” Specifically, they find that “the response to new loans is highly variable in terms of mean abnormal return magnitude from one time period to the next, but no statistically significant returns are identified for any 5-year interval.” On the other hand, they find that “for renewals the only time period for which positive abnormal returns are present is the 1980s, specifically the first half of the 1980s.”

When they use multivariate analysis to explain the market reaction to bank loan announcements, however, Fields, Fraser, Berry and Byers (2006, 1207) find that “loan announcement abnormal returns are smaller for larger firms indicating that there is more value or information content for renewal announcements for small firms.” They also find that “the stock price performance in the year prior to the announcement is negative and
significant.” They interpret the latter result as “indicating that poorer performing firms’ shareholders react more positively to the firm’s ability to renew a loan.”

Fields, Fraser, Berry and Byers (2006, 1197) claim that their results are “consistent with the argument that structural changes in financial markets, including the adoption of various forms of information technology, have reduced the value of bank loan relationships.” Fields, Fraser, Berry and Byers (2006, 1201) conclude that “these results show that the reaction to bank loan announcements on average has diminished to the point of insignificance following the period of positive abnormal returns identified by James (1987) and Lummer and McConnell (1989).” However, Fields, Fraser, Berry and Byers (2006, 1208) caution that “while our evidence is strong that loan announcement returns have disappeared in recent years for publicly traded borrowers, we can only speculate as to whether the value of bank certification has changes for small privately held borrowers.”

Chakraborty and Hu (2006, 87) review existing literature on the use of collateral in loan contracts and report that “collateralisation is believed to be a useful tool in resolving problems associated with both asymmetric information and moral hazard in business and consumer lending.” They reason that “since that nature of the bank-borrower relationship can be expected to affect the severity of both moral hazard and adverse selection problems, we can also expect collateral usage to be affected by the nature of this relationship.” They also report that collateral can be used to lessen some of the moral hazard and its impact on collateral. They investigate how the duration and scope of the bank-borrower relation affect bank’s decision to secure line-of-credit versus non-line-of-credit loans. They draw a
distinction between these two types of loans. Chakraborty and Hu (2006, 88) note that “unlike non-line-of-credit loans, most line-of-credit loans have credit card like attributes that make them a more liquid and flexible form of financing.” On the other hand “Non-line–of-credit loans are usually one-time, transaction-driven loans.” Using a sample of 1,632 firms from the 1993 National Survey of Small Business Finance (NSSBF) database they partition their sample into two sub-samples (one for line-of-credit loans and one for non-line-of-credit loans), and find that the likelihood of collateralisation for a line of credit decreases with the duration of the bank-borrower relationship. The estimate of this coefficient is negative (-0.111) and is significant at the 10% level (t=1.67). For non-line-of-credit loans, the estimate for the length of the relationship, although positive (0.041) is insignificant (t=0.41). They also examine the impact of the scope of the relationship on banks’ use of collateral. Chakraborty and Hu (2006, 87) reason that “relationship scope may also affect the amount and type of credit-relevant information generated for the bank, and this information may be different to that generated by relationship duration.” This is because “duration and scope will generally lead to different amounts of “hard” and “soft” credit information being generated.” They find that for non-line-of-credit loans the incidence of collateral decreases the scope of the loan. The estimate of the coefficient is negative (-0.149) and is significant at the 5% level. However, the scope of the bank-borrower relationship has no impact on collateral usage in the case of line-of-credit loans with a positive coefficient of 0.037 although not significant. One interesting finding from this study is that the mechanism through which banks obtain private information depends on the type of the loan. They also find that pooling across loan types may dilute the impact of both the duration and scope on the terms of a loan.
Chakraborty and Hu (2006) report the results for their full sample in their study. First, the estimate for the coefficient on the number of financial services used is negative (-0.088) and is statistically significant at the 1% level. On the other hand, the estimate for the coefficient on the length of the relationship is negative (-0.087) but is not statistically significant. Chakraborty and Hu (2006, 96) offer two explanations for the latter result: “First, the duration of the relationship may not capture the lender’s ability to produce reliable private information. Second, only for certain kind of loans long business associations may be necessary to generate private information.” They also examine the effect of other variables that proxy relationship and risk in their study. When the age of the firm is incorporated into their analysis, they find that a firm’s age is inversely related to the incidence of collateral. The estimate for this coefficient is negative (-0.133) and is significant at the 5% level. They infer that older firms are less likely to pledge collateral because they have longer track records and exhibit fewer and less significant information problems than younger firms. They also find that collateral pledging is positively related to the number of borrowing sources. Specifically, they find that a firm’s probability of pledging collateral increases by 2.6% if a firm has one more source of borrowing than the sample average. They infer that firms with lower credit ratings borrow from multiple sources.

Chakraborty and Hu (2006) also look at the impact of firm size on the relation between the duration and scope of the bank-borrower relationship and the use of collateral. They find that the estimate for this coefficient is positive (0.096) and is significant at the
1% level. Likewise, the coefficient estimate on the debt-to-assets ratio is positive (0.241) and is significant. However, the return-on-assets estimate is negative (-0.024) and insignificant.

Finally, for their full sample, they find that adding the public information on a firm’s creditworthiness does not change the coefficient estimates of the relationship variables except the proxy for business delinquency which has a significantly positive coefficient.

Chakraborty and Hu (2006, 103) conclude that “Both duration of the relationship and the number of bank-provided services affect the decision to secure a loan.” Also, “Duration of bank-borrower relationships is more important to securing lines-of-credit loans because it generates “soft” information through repeated interactions that are particularly valuable to assess the risk of a line-of-credit loan.” They claim that they are the first to provide direct evidence that the duration and scope of the bank-borrower relationship affect decisions to secure line-of-credit loans differently from non-line-of-credit loans.

Sufi (2006) examines the factors that determine whether firms use bank lines of credit or cash in corporate liquidity management. He distinguishes between firms that maintain high cash flow and firms with low cash flow. Sufi (2006) examines the factors associated with corporate liquidity management. He explains that the decision of a lender to impose many debt covenants in a loan contract is based on the adequacy of cash flows. He
reports that firms with high cash flow are more likely to use bank lines of credit and hence reduce the need for a liquidity buffer. Conversely, firms with low expected cash flows will find the presence of a liquidity buffer necessary. Rationally, firms prefer to select the most flexible type of debt to cover short-term variations in funding needs, and understandably, the greater flexibility provided by revolving credit loans should be valued more highly both by firms and by the market. Sufi (2006, 31) provides evidence that “lack of access to a line of credit is a more statistically powerful measure of financial constraints than traditional measures used in the literature.”

In summary, existing literature on bank loans has, in general, shown that: (1) banks possess inside information about borrowers which is not available to other market participants; (2) borrowers generally enjoy positive abnormal returns to their securities around the announcement date of their bank loans; (3) loan structure (i.e., whether the loan is a revolving credit or term loan) has significant influence on market price reaction to announcements of bank loans; and (4) the magnitude of these abnormal returns varies according to various characteristics of the borrowers (e.g. firm size, profitability, and growth prospects), the characteristics of lender (e.g. reputation); and those of bank loans themselves (new, revised or extended loans). Explanations of the sources of gains to borrowers are many, but focus is given to the role that banks play as external monitors and the potential comparative advantage banks may have in processing and transmitting information. However, I note that some researchers (e.g. Fields, Fraser, Berry and Byers, 2006) have started to question the validity of information content conveyed by bank loans given recent changes in the financial markets.
In Table 2.1 below I report the findings in the literature regarding stock price response to announcements of different corporate events including those for bank loans. It is apparent from this table that a bank loan is the only type of security that receives significantly positive market reaction. In other words, the market views announcements of bank loans favourably compared with other types of security offerings. Notably, announcements of common stocks result in the most negative market reaction. Studies by Asquith and Mullins (1986) and Mikkleson and Partch (1986) report significant negative abnormal returns for this type of security. Ranking second is stock price response to convertible bonds. These announcements also elicit a significant negative response from the market. Dann and Mikkleson (1984) report a negative abnormal return of 2.07% whereas Mikkleson and Partch (1986) report a negative abnormal return of 1.97%. In contrast to other types of security, the stock price response to announcements of bank loans is consistently significant with considerable magnitude throughout all studies. Strongest support for this result is in studies conducted by Mikkleson and Partch (1986), James (1987) and Aintablian and Roberts (2000). Apparently, private and public debts possess different characteristics that cause market reaction to be different.
<table>
<thead>
<tr>
<th>Type of Security Offerings</th>
<th>Researcher(s)</th>
<th>Two Day Abnormal Return*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Common Stock</td>
<td>Asquith and Mullins (1986)**</td>
<td>-3.14% (155)</td>
</tr>
<tr>
<td></td>
<td>Mikkleson and Partch (1986)</td>
<td>-3.56%* (80)</td>
</tr>
<tr>
<td>Preferred Stock</td>
<td>Linn and Pinegar (1985)**</td>
<td>-0.19% (28)</td>
</tr>
<tr>
<td></td>
<td>Mikkleson and Partch (1986)</td>
<td>-0.26% (14)</td>
</tr>
<tr>
<td>Convertible Preferred Stock</td>
<td>Linn and Pinegar (1985)**</td>
<td>-1.44%* (53)</td>
</tr>
<tr>
<td>Straight Bonds</td>
<td>Dann and Mikkleson (1984)**</td>
<td>-0.26% (248)</td>
</tr>
<tr>
<td></td>
<td>Mikkleson and Partch (1986)</td>
<td>-0.23% (171)</td>
</tr>
<tr>
<td></td>
<td>James (1987)</td>
<td>-0.11% (90)</td>
</tr>
<tr>
<td>Convertible Bonds</td>
<td>Dann and Mikkleson (1984)**</td>
<td>-2.07%* (73)</td>
</tr>
<tr>
<td></td>
<td>Mikkleson and Partch (1986)</td>
<td>-1.97%* (33)</td>
</tr>
<tr>
<td>Private Placement of Debt</td>
<td>Mikkleson and Partch (1986)</td>
<td>-0.57% (80)</td>
</tr>
<tr>
<td></td>
<td>James (1987)</td>
<td>-0.91% (37)</td>
</tr>
<tr>
<td>Bank loans:</td>
<td>Mikkleson and Partch (1986)</td>
<td>0.89%* (155) (LOC)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>-0.15% (61) (TL)</td>
</tr>
<tr>
<td></td>
<td>James (1987)</td>
<td>1.93%* (80)</td>
</tr>
<tr>
<td></td>
<td>Lummer of McConnell (1989)</td>
<td>0.61%* (728)</td>
</tr>
<tr>
<td></td>
<td>Best and Zhang (1993)</td>
<td>0.32%* (491)</td>
</tr>
<tr>
<td></td>
<td>McDonald (1994)</td>
<td>0.64%* (250)</td>
</tr>
<tr>
<td></td>
<td>Billett, Flannery and Garfinkel (1995)</td>
<td>0.63%* (540)</td>
</tr>
<tr>
<td></td>
<td>DeGennaro, Elayan and Wansley (1999)</td>
<td>0.53%* (215)</td>
</tr>
<tr>
<td></td>
<td>Aintablian and Roberts (2000)</td>
<td>1.22%* (122)</td>
</tr>
<tr>
<td></td>
<td>Fields, Fraser, Berry and Byers (2006)</td>
<td>0.46%* (1,111)</td>
</tr>
</tbody>
</table>

Table 2.2 presents a tabular summary of the main papers reviewed and their key findings about bank loans. Also provided in the table are research implications of these findings.

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Theory/issue discussed</th>
<th>Main findings and/or arguments</th>
<th>Research Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leland and Pyle (1977)</td>
<td>Financial Intermediation and information asymmetry</td>
<td>Financial intermediaries exist because of information asymmetry. Financial intermediaries help reduce information asymmetry.</td>
<td>Favourable reaction to announcements made by financial institutions.</td>
</tr>
<tr>
<td>Fama (1985)</td>
<td>Types of debt</td>
<td>Bank loans are inside debts.</td>
<td>Order of financing (i.e. pecking order theory)</td>
</tr>
<tr>
<td>Fama (1985) and James (1987)</td>
<td>Uniqueness of bank loans</td>
<td>Reserve tax is borne by borrowers.</td>
<td>Bank loans must be special.</td>
</tr>
<tr>
<td>Mikkleson and Partch (1986)</td>
<td>Information Asymmetry</td>
<td>Term loans are associated with negative announcement effect while lines of credit are associated with positive and significant announcement effect.</td>
<td>Structure of loans is the main determinant of market price reaction.</td>
</tr>
<tr>
<td></td>
<td>Market timing</td>
<td>Negative reaction to security issuance.</td>
<td>Firms would prefer to use bank loans in place of security issuance.</td>
</tr>
<tr>
<td>James (1987)</td>
<td>Information asymmetry and financial slack</td>
<td>Market price action to announcements of new bank credit agreements is positive.</td>
<td>Lines of credit provide a higher degree of financial slack and convey a positive signal to the market.</td>
</tr>
<tr>
<td>James and Wier (1988)</td>
<td>Pecking order theory and market timing</td>
<td>Bank loans – an alternative to internally generated funds.</td>
<td>Firms obtain bank loans when their shares are underpriced.</td>
</tr>
<tr>
<td>Lummer and McConnell (1989)</td>
<td>Types of credit</td>
<td>Favourably revised credit agreements are associated with positive market reaction. Termination of lines of credit sends a negative signal to the market.</td>
<td>Loan structure does matter.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
<td>Research Implication</td>
</tr>
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<tr>
<td>Diamond (1991)</td>
<td>Bank’s monitoring and borrower reputation</td>
<td>New borrowers acquire reputation by being monitored by banks. Reputable borrowers choose the capital market to raise funds.</td>
<td>Borrower’s reputation can decide the source of fund.</td>
</tr>
<tr>
<td>Slovin, Johnson and Glascock (1992)</td>
<td>Firm size and information content of bank loans</td>
<td>Small firms receive greater benefits from banks’ screening and monitoring services. Response to renewed loans is more positive than that to new loans in the case of small firms.</td>
<td>Firm size is a proxy for information asymmetry</td>
</tr>
<tr>
<td>Best and Zhang (1993)</td>
<td>Information content of bank loans</td>
<td>Banks can create value for undervalued firms. Bank loans convey more information when analysts forecast errors are high.</td>
<td>Other information sources can determine the content of bank loans.</td>
</tr>
<tr>
<td>Bhattacharya and Thakor (1993)</td>
<td>The role of financial intermediaries</td>
<td>Banks provide brokerage and qualitative asset transformation services. Unknown borrowers are best served by banks. Bank loans signal quality in a way other forms of credit do not.</td>
<td>Scope of services and borrower reputation are possible reasons why firms choose bank loans.</td>
</tr>
<tr>
<td>Chemmanur and Fulghieri (1994)</td>
<td>Choices of debt</td>
<td>Reputable banks can provide financial flexibility to firms – especially small firms.</td>
<td>Lender’s reputation is associated with financial flexibility.</td>
</tr>
<tr>
<td>DeGennaro, Elayan and Wansley (1999)</td>
<td>The impact of line-of-credit announcements on lenders.</td>
<td>The wealth transfer hypothesis is only applied to infrequent lenders. Lenders who made loans to small borrowers suffer significant losses.</td>
<td>Richer explanations of stock return behaviour are needed.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
<td>Research Implication</td>
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<tr>
<td>-------------------------------</td>
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</tr>
<tr>
<td>James and Smith (2000)</td>
<td>Uniqueness of bank loans - Bank loans versus other types of debt</td>
<td>The flexibility offered by line of credit makes bank loans much more attractive to borrowers compared to other types of debt. Bank loans announced in financial press tend to be large. Bank loans have characteristics (shorter maturity, stringent covenants, and collateral) which can help banks improve their ability to monitor “informationally-intensive” loans. The stock price reaction to loan announcements is most positive when companies that normally find it advantageous to borrow in public markets instead announce a bank loan.</td>
<td>- Loan structure can provide financial flexibility. - Announcements in financial press can be biased. - Bank loans are special.</td>
</tr>
<tr>
<td>Detragiache, Garella and Guiso (2000)</td>
<td>Multiple banking relationship</td>
<td>Debt renegotiation is more complex when many creditors are involved. Multiple banking relationships can improve the chance of firms being refinanced.</td>
<td>Renegotiability can be influenced by number of banking relationships.</td>
</tr>
<tr>
<td>Cantillo and Wright (2000)</td>
<td>Investment upturns and downturns and lender selection.</td>
<td>Publicly traded and privately-held debt have advantages that dominate in different situation.</td>
<td>Distinction between investment upturns and downturns can explain how firms choose lender.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
<td>Research Implication</td>
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<tr>
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<td>----------------------------------------------------------------</td>
</tr>
<tr>
<td>Gorton and Kahn (2000)</td>
<td>Renegotiation of bank loans</td>
<td>Renegotiation of the contract terms is triggered by the arrival of new information. Borrowers might engage in asset substitution and banks might hold up the borrower by threatening to liquidate the firm.</td>
<td>Renegotiability depends on the nature of new information.</td>
</tr>
<tr>
<td>Aintablian and Roberts (2000)</td>
<td>Categories of loans and market response to loan announcements.</td>
<td>Renewals of loans and new loans to existing customers trigger more positive announcement effects than do new loans in general.</td>
<td>The capability to restructure loans can be important.</td>
</tr>
<tr>
<td>Dahiya, Puri and Saunders (2003)</td>
<td>Information content of bank loan sales</td>
<td>Market price reaction to stock of borrower upon the loan sale announcement is negative. This is evidence of uniqueness of bank loans.</td>
<td>Bank loan sale can be a compounding factor.</td>
</tr>
<tr>
<td>Fields, Fraser, Berry and Byers (2006)</td>
<td>Bank loan relationships</td>
<td>Bank loan relationships matter less in recent years.</td>
<td>Longitudinal studies should be conducted</td>
</tr>
<tr>
<td>Sufi (2006)</td>
<td>Bank lines of credit and corporate liquidity management</td>
<td>Lack of access to a line of credit is a more statistically powerful measure of financial constraints than traditional measures used in the literature.</td>
<td>Loan structure is important.</td>
</tr>
</tbody>
</table>
2.2.2. SYNDICATED LOANS

Simons (1993) distinguishes between loan syndications and loan sales. The latter is the case where a single bank makes the loan and subsequently sells portions of it to other banks. Loan sales could be either in the form of “participations” or “assignments.” In the case of participations, there exists a contract between the original lender and the loan buyer. This contract has nothing to do with the contract between the original lender and the borrower. The latter might not even be aware of its existence. In the case of assignments, however, the contract between the borrower and the loan purchaser will replace that between the original lender and the buyer. In contrast to both types of loan sales, loan syndication is a contract between the borrower and every member of the syndicate. Simons (1993) labels syndications and loan sales as “secondary intermediation” in the sense that they add an extra step to simple financial intermediation between the borrower and other financial institutions. According to Simons (1993), secondary intermediation allows banks to reduce their exposure to any one borrower as well as reducing undesirable concentration. That is, banks diversify geographically and industrially. Notwithstanding, secondary intermediation also results in additional risk for participating banks. This is because buyers of loans rely on the loan documentation provided by the sellers to conduct credit evaluation. In other words they might not be fully informed. Simons (1993) points out that this risk is highest in the case of participations because the buyer relies exclusively on the information provided by the seller.
Simons (1993) uses a sample of 4,332 credits from the 1991 Shared National Credit data set to test the relative importance of various factors in determining syndication and the proportion of loans that is syndicated. She examines the motives for syndications and the exploitation of syndicate members by the agent bank. She points out that “to the extent that lead banks may behave opportunistically and withhold unfavourable information from participating banks, the latter may be misled into making loans that are riskier than they had thought.” Simons (1993) uses examiner loan classifications as a proxy for the riskiness of loans and finds little evidence in support of opportunistic behaviour of agent banks. In fact, the largest proportion (47%) retained by lead banks was of “Loss” loans. This could be the result of competition and the tendency for participating banks to join in high-quality syndicated loans only, which leaves the agent bank holding the lower quality loans. Bank regulation, in the form of capital requirements (as measured by the capital-to-asset ratio) and lending limits\(^6\) (as measured by the loan-to-capital ratio), however, was found to play a significant role in syndication. She finds that the capital position of the agent bank is a major factor affecting syndication activity and suggests that diversification is the primary motive for syndication. Specifically, Simons (1993) finds that the coefficient for the capital-to-asset ratio is positive and highly significant in all regressions of her study. Thus, the higher the agent bank’s capital the greater the proportion of the loan the bank will retain. On the other hand, agent banks that are more capital-constrained are more likely to retain smaller loan shares. The loan-to-capital ratio, however, shows an ambiguous effect. Overall, Simons (1993) reports that on average, the agent bank holds just a little over one-

\(^6\) US Federal law prohibited banks from lending to any one borrower an amount exceeding 15 percent of the bank’s capital during the period of Simons’ (1993) study.
third of each loan it syndicates. Finally, Simons (1993) finds that agent banks prefer to hold
greater shares of real estate loans, which were typically more risky than other types of
loans. The coefficient for the real estate variable is positive and significant at 1 percent
level for all regressions.

In a study that contains information on 12,000 facilities involving some 1,700
lenders, Dennis and Mullineaux (1994) examine the influence of a number of loan
attributes on the probability of loan syndication. These attributes include loan’s size, its
maturity, the borrower’s credit standing, the reputation of the lead bank, and the status of
the loan with respect to collateral. Dennis and Mullineaux report the results for these
attributes as follows: (1) loan size has positive impact on both the probability of
syndication and on the proportion sold; (2) maturity is insignificant in explaining loan
syndication behaviour; (3) the borrower’s credit rating is positively related to the
probability of syndication; (4) the reputation of the lead bank can affect the extent to which
a particular loan can be syndicated, but not the likelihood of syndication; (5) collateral
influences the probability, but does not affect the amount syndicated.

Dennis and Mullineaux (1994) also contend that the market for syndicated loans
involves both adverse selection and moral hazard. In the former case, the lead bank may
possess information unavailable to other syndicate participants. It might formulate and
manipulate information beyond financial statement data to serve its own interests. This
information asymmetry complicates transactions and can cause market failure. Loan
syndications might also suffer from moral hazard. The lead bank might have little incentive
to monitor the loan after it “participates out” a portion of the original loan amount, especially in the event of a whole loan sale. It is interesting to note that the syndicate participants have no recourse against the lead bank if the borrower defaults.

Armitage (1995) studies the stock market response to syndicated loan announcements during the period 1988-1991 in the UK. He uses a sample of 574 announcements reported in International Financing Review (IFR), Euroweek and the Financial Times. He divides these announcements into three categories. The first category includes loans for general purpose and refinance. The second category is loans for acquisitions. Finally, the third category is to fund management buy-outs or buy-ins. He also classifies loan announcements as positive news, negative news, mixed news or increased facilities. Positive news include oversubscription, increase in amount or term, and reduction in pricing. Negative news includes reduction in amount or term, an unexpectedly large increase in pricing, a requirement for stricter covenants, poor progress in syndication, and cancellation. Mixed news is a combination of both positive news and negative news.

In his study, Armitage (1995) reasons that inside information has value in (1) firstly, reducing problems of asymmetric information and moral hazard; (2) enabling debt to be priced more accurately; and (3) facilitating negotiations with borrowers in financial distress. He argues that although banks are able to obtain a great deal of information about the small borrowers, it is much more doubtful that they can do the same in the case of large companies. Furthermore, he reasons that banks learn about their customers through time as a natural outgrowth of their business interactions and not immediately. Therefore, if there is
to be a stock price response to announcements of bank credit agreements, the effect should be observed around announcements of revisions to, not initiations of, such agreements. As with previous researchers, he reasons that a firm’s decision to commit to periodic evaluations can provide a positive signal of management’s assessment of the firm’s earnings prospects.

Armitage (1995) finds that for the shortest event window of his study (-1,0), the cumulative average abnormal returns (CAARs) are negative (-0.34%) but insignificant for all categories of loan announcements combined. CAARs are also negative (-0.39%) but insignificant for all categories excluding negative announcements and those relating to management buy-outs and buy-ins. He also finds that increased facilities and positive news elicit positive response from the market. The CAARs for increased facilities are 0.73% and is significant at the 5% level. For negative and mixed news, he finds that the responses are negative and insignificant.

When he examines the five day event window (-2,+2), he finds that the CAARs for the combined categories are positive (0.09%) but still insignificant. The refinance category elicits a more negative response (-0.42%) and is significant at the 5% level. The increased facilities has a smaller CAAR (0.64%) and becomes insignificant but the CAAR for positive news is now larger and is significant at the 5% level. The result for negative news, however, switches from negative to positive. Armitage (1995) offers no explanation for this change. He also reports that for the longer event window (0, +9) the response to positive news is much larger (1.32%) and is significant at the 1% level. Armitage (1995,
455) notes that “while the results for refinance and positive news are sensitive to the slightly wider event window, most CAARs remain insignificantly different from zero.”

Overall, he finds much less response to announcements of syndicated loans in the UK than in the US, especially for smaller companies. Armitage (1995, 459) concludes that his evidence suggests that in the UK “banks are not perceived as having inside information about quoted borrowers which affects their valuation.” Using anecdotal evidence he also concludes that their results “cast doubt on explanations for the continued presence of banks in large scale corporate lending which rest on information advantage.”

Megginson, Poulsen and Sinkey (1995) examine the stock market reaction to syndicated loan announcements on the market value of lending banks. They study a sample of 774 syndicated loan announcements for the period between 1966 and 1999. They examine whether the type of borrower, the use of funds and the time period in which the loan is made influence the stock market reaction to syndicated loan announcements. For the type of borrower, they divide their sample into three groups: the less-developed countries (LDCs), the non-US OECD countries and US corporations. As for the use of funds, they distinguish between loans for leveraged acquisitions and managerial buyouts (LBOs) and loans to LDCs. Finally they divide the period of their study into three sub-periods: the first period is from 1966 to October 1979; the second period from October 1979 to August 1982; and the final period from August 1982 to 1989.
Megginson, Poulsen and Sinkey (1995) hypothesise that significant (negative or positive) market reactions to announcements of syndicated loans can result due to the following reasons: (1) the loans were mispriced; (2) the positive reaction is a return to liquidity; (3) the loans reveal information about growth opportunities for borrowers; and (4) managerial goals are inconsistent with shareholder wealth maximization.

Megginson, Poulsen and Sinkey (1995) find that overall during the period of their study (1966-1989) the stock market reaction to lender value on announcements of syndicated loans is negative (-0.026%) for the two-day window. Loans to Latin American LDC borrowers elicit considerable negative reaction (-0.29%) and are significant at the 5% level. They reason that these responses could be due to non-share-price maximization pursued by management who could be under political pressure at the time. An additional reason advanced by the authors is that there might be a lack of market control in banking. Likewise, the market reaction to announcements of syndicated loans to sovereign borrowers is also negative (-0.16%) and is significant as the 5% level. They infer these results as being consistent with their hypothesis that either loans are mispriced or growth opportunities are reduced. As Megginson, Poulsen and Sinkey (1995) expected, loans to non-US OECD borrowers elicit positive market reaction but are insignificant. Loans to US corporate borrowers gave an abnormal return of 0.08% over the two-day event window and the result is also insignificant. The results over the seven-day window for US borrowers, however, are positive (0.41%) and significant at the 10% level.
Megginson, Poulsen and Sinkey (1995) also report that the stock market reaction to Latin American LDC lending in the first sub-period of 1966 to 1979 is significantly negative (-0.40%) at the 5% level with 60.3% of the returns negative. However, loans to these countries during the period October 1979-August 1982 result in a negative response and are insignificant.

As for the purposes of loans, Megginson, Poulsen and Sinkey (1995) find that loans used for take-over activity result in positive (1.64%) reaction from the market over the seven-day window and are significant at the 5% level. This is also true with loans used to replace or renew existing lines of credit with a CAR of 1.94%. This is consistent with the findings of Lummer and McConnell (1989) reported earlier. Megginson, Poulsen and Sinkey (1995) also report that loans used for other purposes are insignificantly negative or positive.

Preece and Mullineaux (1996) also find a large market response to new contract terms in a troubled debt situation. They find that the estimated abnormal return is 4.64 % and is significant at the 1% level. Preece and Mullineaux (1996, 585) define a restructured agreement as one in which “the borrower is known to be in distress and the lenders agree to revive the loan agreement.” They argue that so long as new loans represent the establishment of new customer relations for banks, the market may regard them as more valuable than loan renewals to the banking firm because these loans indicate growth potential for the borrowing firms.
Preece and Mullineaux (1996) argue that loans involving ‘large’ syndicates possess less contractual flexibility than loans by single lenders because of potential hold-out problems in the event of renegotiation. They reason that if the capacity to restructure loans is a source of value to borrowing firms, the size of the market reaction to loan announcements should be a declining function of the number of lending banks in the syndicate. They also argue that due to syndicate partners having different incentives to renegotiate, the larger the number of lenders in a syndicate, the more costly are efforts to renegotiate the loan. The difference in incentives of lenders to renegotiate are based on factors such as: the value of their overall relation to the borrower; their lending policies; the relative size of their exposure; their equity capital or loan-loss reserve position, and their perceptions of the regulator’s response to altering loan contract terms. Hence, to the extent that the market’s positive reaction to bank loan announcements is driven strictly by monitoring considerations, they anticipate a positive relation between the size of the observed abnormal return and the number of banks in the lending syndicate. Preece and Mullineaux (1996) also argue that the size of a lending syndicate is a proxy for the availability of public information about the firm.

According to Preece and Mullineaux (1996, 586), since a syndicated loan is “shopped to potential participants, news of the impending loan may become available to the market prior to the announcement date.” This implies that abnormal returns might occur before the announcement date. They investigate the prospect of information leakage by examining abnormal returns (cumulative and single day) over the prior period –11 to –2 (–11,–2 window) for each syndicate group. They find that all cumulative abnormal returns
(CARs) are insignificant over this period. However, they find two instances of positive single day abnormal returns for extra-large syndicates on days –7 and –3.

Mosebach (1999) studies a sample of 239 announcements of lines of credit in the US during the period 1993-1996 and finds that there is a positive and significant market reaction to borrower’s stock when the market becomes aware a line of credit is granted. The abnormal return is 0.4% and is significant at the 5% level. In addition, Mosebach shows that the announcement of a line of credit can potentially produce two signals to the market. The first signal is sent from the borrower that they are using the bank because they consider it strong and reliable. The second signal is about the bank’s future financial position. This is indicated in several ways, all of which lead to a positive reaction. These include: (1) a positive departure from competitive equilibrium in the area of lines of credit; (2) potential increased future lending activity due to the bank’s ability to maintain its competitiveness and influential position in the allocation of credit; and (3) it signals the bank’s confidence in their ability to fund any future obligations resulting from the exercise of lines of credit.

Mosebach (1999, 1709) defines a line of credit as “a commitment by a bank to loan money at some time in the future.” When a bank grants a line of credit, it is contractually obligated to lend funds upon demand. Mosebach lists three main reasons why companies use lines of credit. First, they use lines of credit for operational reasons. Second, lines of credit are a good faith gesture to show ability to pay for some specific transactions. Finally, companies obtain lines of credit to signal to the market. These signals can be used to reduce
information asymmetries between company management and the market about the company’s financial condition.

Mosebach (1999) uses the reaction of the borrower’s stock to identify the exact date the market becomes aware a line of credit is granted. He uses this date as a one-day event window in his study and argues that this will further increase the power of the market reaction tests. Mosebach argues that a strong borrower uses the best signaling device available. Large companies that use large lines of credit as signals, therefore, use the most reputable banks available. The market interprets the use of the bank by a strong, high prestige borrower as an indication of the bank’s strength. Bankers consider it a positive signal when a large borrower uses their bank to obtain a line of credit. In addition to this signal, Mosebach argues that granting a line of credit sends a primary signal to the market about the financial condition of the bank.

In an efficient market, the market will only react when a line of credit is issued if new information is conveyed. A change in the market’s expectations of future cash flows is a necessary condition for an identifiable market reaction to any event. Mosebach (1999, 1712) argues that “granting lines of credit is an ongoing function of banks and is anticipated by the market.” These expectations are reflected in the price of the bank’s stock and no market reaction should be expected. However, there is no a priori reason to believe the market is able to anticipate a new and very large line of credit. Therefore, large lines of credit are capable of changing the market’s expectation and providing new information.
Mosebach (1999) maintains that a bank’s ability to arrange large lines of credit, especially for large, high prestige clients, shows the market that not only is the bank maintaining its competitiveness, but also, it is currently, and will be in the future, a significant participant in the allocation of credit. Additionally, it signals to the market that the bank is confident in its ability to honor any future financial obligation stemming from the exercise of the line of credit. All of these signals lead to positive abnormal returns for bank stocks. Large lines of credit are usually underwritten by more than one bank. One or more banks act as lead or co-lead banks and form a syndicate with other participating banks to fund the line. In most instances, the lead bank or banks have an ongoing relation with the borrower. Therefore, even though the line of credit itself may be a new transaction, a strong signal is sent to the market due to the existing relation.

Following Boot and Thakor (2000), Dennis and Mullineaux (2000) note that syndicated loans can be viewed as a mix of “relationship loans” and “transaction loans.” In a relationship loan there is information specific to the borrower and the bank while transaction loans are considered to be similar to debt sold in the capital markets. They point out that syndicated loans have elements of both kinds of financing. Specifically, in a relationship context, the lead bank screens and monitors the borrower and in a capital-market setting the agent bank sells or underwrites some or all of the loan to participating banks. Dennis and Mullineaux (200, 406) consider “a loan fully syndicated to a large number of participants is a functionally similar transaction to capital market finance.” Dennis and Mullineaux (200, 405) note that “bank loans tend to be relatively short-term, involve extensive covenants, and are frequently renegotiated.” On the other hand, “the
majority of public-debt contracts are longer-term, involve relatively loose covenants, and are almost never restructured.”

Denis and Mullineaux (2000) examine two issues in their study: First they examine the factors that influence a bank or non-bank’s decision to syndicate a loan. Second, they identify the determinants of the proportion of the loan sold in the event of syndication. Dennis and Mullineaux (2000) screen data from a private database compiled by the Loan Pricing Corporation which contains information on approximately 30,000 loan facilities involving some 2,500 lenders over the period 1987-95. They select all non-private placements, fully confirmed loan transactions where they could identify the agent bank’s share or the percentage of the loan syndicated. They obtained a final sample of 3,410 loan transactions of which 1,526 were syndicated.

Dennis and Mullineaux (2000) point out that in loan syndication, there are also potential agency problems between the borrower and participating lenders and between the agent banks and the other members of the syndicate. For example, an agent bank may possess “idiosyncratic information” not available to other participating banks such as judgments concerning management expertise and borrower’s adaptability to changing market conditions. Dennis and Mullineaux (2000, 411) argue that “as agency problems become more relevant in either context, a commercial loan should be less likely to be syndicated.” In addition, they reason that “if there is significant potential for the lead/agent bank to exploit the syndicate members, then keeping loan maturity short could serve to minimize such a prospect.” They argue that if the loan term is short, then the loan would
involve “less opportunity for the agent bank to shirk”, and furthermore the likelihood for application for renewals will be greater which in turn “triggers more frequent monitoring of both the borrower and the agent by the syndicate members.” They find that the coefficient of the loan’s maturity is positive and significant at the 1% level for all specifications in their model. They infer that longer maturity enhances the syndication prospect of a loan. On the other hand, they argue, consideration of duplicative monitoring costs or potential rent extractions suggests that “lengthening a loan’s maturity would enhance its syndication potential.” Dennis and Mullineaux (2000) also suggest that the presence of collateral could, in principle, increase or reduce a loan’s syndication potential. However, they are more inclined to the latter argument. They also find that moral hazard is not a dominant factor affecting the decision to syndicate a loan.

Dennis and Mullineaux (2000) show that the characteristics of the borrower, the managing agent, and the loan contract itself are relevant to both decisions to syndicate and the proportion of the syndicated loan to be sold. Dennis and Mullineaux (2000, 411) argue that “loans to rated companies and/or listed firms are more likely to be syndicated since these borrowers involve more transparent information.” They also report that as information about a borrower becomes more transparent (good credit ratings or listing on a stock exchange), a loan is more likely to be syndicated and in larger proportion.

Dennis and Mullineaux (2000) also find that as the syndicate managing agent becomes more “reputable,” the inherent agency problems of syndication will be attenuated. Dennis and Mullineaux (2000, 413) argue that “a bank that has established transaction-
specific assets (reputation) should have lower costs in syndicating loans than banks that have eschewed such investments.” Finally, they show that the presence of a credit rating is more economically significant than the mere fact that the borrower’s stock does trade on an exchange. Dennis and Mullineaux (2000, 417) claim that their findings are “highly significant and consistent with the hypothesis that increased transparency of information facilitates the sale of debt contracts.”

Esty and Megginson (2003) suggest that, in theory, bank loans can improve corporate governance in three ways. First, bankers monitor borrower performance and if necessary they can intervene in “an effective and timely manner” when borrowers are not performing. Second, concentrated debt ownership can lower re-contracting costs in the event of default. Finally, banks can make any attempt to pursue voluntary, or strategic, default more difficult by making it more costly to restructure loans. The latter can be done by including more participating banks in the syndicate.

Using a sample of 495 syndicated loan tranches made between 1986 and 2000 to borrowers in 61 different countries, Esty and Megginson (2003) find that there exists a significant relation between legal risk and syndicate concentration. Specifically, in countries where creditor rights are not well protected or law enforcement is weak one should see less concentrated ownership structures. They argue that banks act as monitors and providers of low cost re-contracting in environments where they have legal rights and can rely on the mechanism of law enforcement to protect their investment. Understandably,
as legal risk increases, bankers will have to focus on deterring strategic defaults and they can achieve this goal by increasing syndicate size and decreasing concentration.

Carletti (2004) formulates a model that attempts to explain why in many countries even relatively small firms borrow from more than one bank. She notes that modern theories of financial intermediation relate the benefits of multiple-bank lending to the inefficiencies affecting exclusive bank-borrower relationships, namely the hold-up and the soft-budget-constraint problems. The former problem arises when a relationship bank uses the superior private information it has about the firm to extract rents, thus distorting entrepreneurial incentives and causing inefficient investment choices. Carletti (2004) reports existing literature theory which contends that in this context, borrowing from multiple banks can restore competition among banks and, consequently, improve entrepreneurial incentives. Concerning the soft-budget-constraint problem, Carletti (2004) cites the work of Dewatripont and Maskin (1995) who argue that a relationship bank may refinance unprofitable projects and thus reduce entrepreneurial incentives to prevent default. Carletti (2004) notes that the theories mentioned above predict that firms borrowing from multiple banks should represent better risks and should pay lower loan rates than firms borrowing from a single bank.

In her model, Carletti (2004) analyses a firm’s choice between borrowing from a single bank and two banks in a context where the number of banks influences both the level of monitoring and the loan rates. She shows that the number of banks affects monitoring and loan rates in various ways. Specifically, a bank monitors more when it is the sole lender
than when it jointly finances the firm with another bank. Nevertheless, borrowing from two banks does not necessarily imply a higher cost of financing for the borrowing firm. Carletti (2004, 81) also shows that if there are diseconomies of scale in monitoring, two bank lending is cheaper than single-bank lending whenever “the technological effect of the convex monitoring cost function dominates the duplication of effort and the sharing of monitoring benefits.” According to Carletti (2004), the firm’s choice between single-bank and two-bank lending depends on how both monitoring and loan rates differ in the two scenarios. She shows that the optimal choice is the one that balances the benefit of monitoring in terms of higher expected financial return of the project against its drawbacks in terms of lower expected private return and higher total monitoring costs. In addition, the attractiveness of two-bank lending is increasing in the cost of monitoring, the private benefit, and the firm’s expected profitability. Carletti (2004, 81) claims that the results of her model provide “a theoretical rationale for the empirical observation that increasing the number of banks tends to lower firms’ quality, while either increasing or decreasing the cost of financing.”

Lee and Mullineaux (2004) use a sample of 1,491 transactions of syndicated loans in the period 1987-1995 to analyse the factors that influence syndicate size and its composition. They reason that since in any lending syndicate the lead bank will hold a portion of the loan in its portfolio, the bank must be concerned with the post-loan monitoring efforts and resale activities of other participating banks in the syndicate. Furthermore, Lee and Mullineaux (2004, 108) argue that “the structure of a syndicate will be an issue particularly if the borrower becomes financially distressed, as any resolution
must be approved by the entire lending group.” For this reason, they argue that the “prospects for agreement will depend on the size and composition of the syndicate.”

Lee and Mullineaux (2004) model syndicate size and concentration as a function of information asymmetry, credit risk, loan characteristics, agency costs and a number of control variables. They use the number of lenders and the Hirshman-Herfindahl index as proxies for syndicate size and concentration, respectively. They examine the respective roles of aforementioned variables in determining the size and the degree of concentration of the syndicate. Lee and Mullineaux (2004, 108) reason that “syndicate participants holding large and similar loan portions have stronger incentives to monitor, while members holding small and dissimilar stakes may engage in free riding or become hold outs in the event of renegotiation.”

Lee and Mullineaux (2004) find that syndicates are significantly larger when lenders have more information about the borrower. Conversely, syndicates tend to be more concentrated when not much information about the borrower is known to lenders. They also find that syndicate size increases significantly and becomes more diffuse as the maturities of loans are longer. Lee and Mullineaux (2004, 109) infer that this results because “longer-term loans are more readily syndicated than short-term loans.” In addition, arrangers are more tolerant towards free riding as loan term lengthens. They also find that syndicates are smaller and more concentrated when the loan is collateralized. Consequently, Lee and Mullineaux (2004, 120) argue, lead banks “can motivate participating banks to monitor and negotiate in good faith in the event of financial distress.” They also find that increases in
syndicate size and declines in concentration are positively associated with covenants imposed on loan resale. They infer that participants prefer to have smaller shares of these less liquid loans. In relation to the reputation of lender, they find that reputable lead banks form larger and less concentrated syndicates. They infer that their results are inconsistent with the finding of Dennis and Mullineaux (2000) in that reputation is the primary mechanism for controlling agency problems within the lending group. Finally, they find that syndicates become more diffuse with larger loan sizes.

Sufi (2007) uses a sample of 12,672 syndicated loan deals to 4,687 US non-financial firms from 1992 to 2003 to examine how information asymmetry affects financing arrangements and what lenders can do to reduce problems associated with information asymmetry. Sufi (2007) employs a theoretical framework which is based on well-known models of agency and moral hazard (e.g. Holmstrom (1979) and Holmstrom and Tirole (1997)). According to these models “firms with limited public information require due diligence and monitoring by an informed lender before uninformed lenders invest in the firm.” Sufi’s (2007) findings are consistent with this theoretical framework. Specifically, he finds that syndicated loans to firms without publicly available SEC filings are 11% more concentrated and the proportion of the loan held by the lead bank is 10% more than would otherwise be the case. One interesting finding reported by Sufi (2007, 631) is that “borrowers with little or no credit reputation obtained syndicated loans that are similar to sole-lender bank loans,” in which case the lead arranger retains a larger share of the loan and the number of participants in the syndicate is small. On the other hand, “reputable borrowers obtain syndicated loans that are similar to public debt” in which case the lead
arranger retains only a small portion of the loan and the syndicate becomes more dispersed. He also finds information asymmetry can influence the syndicate structure among firms with publicly available SEC filings. Sufi (2007) also finds that both borrower and bank reputation can mitigate problems associated with information asymmetry. More specifically, as the borrower becomes more “known” in the market, problems of information asymmetry are reduced. The reputation of the lead bank can also reduce these problems. Interestingly, Sufi (2007) also reports that only the top 1% most reputable lead banks can completely offset the effect of information asymmetry. Finally, Sufi (2007) finds that when the borrower has no publicly available SEC filings or credit rating, participant lenders are “closer” to the borrower in terms of previous relationship and in terms of geographical proximity.

In summary, syndicated loans bear many features of the general bank loan. In particular information asymmetry problems still exist. The stock market reaction to syndicated loans also depends on the loan structure (revolving credit, term loan), the characteristics of borrowers (credit rating, types of borrower) as well as those of the syndicated loan itself (loan size, flexibility, re-negotiability). It appears that syndicated loans that convey positive signals in one form or another are highly valued by the market. Table 2.3 gives a summary of the main papers and their findings reviewed in this section.
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2.3. HYPOTHESES

In this essay, I examine five questions concerning syndicated loans. First, I look at the issue whether the stock market reacts to announcements of syndicated loans. As discussed in the literature review on bank loans (James, 1987; Lummer and McConnell, 1989; Best and Zhang, 1993; Billett, Flannery and Garfinkel, 1995; and James and Smith, 2000) the market does react to announcements of bank loans. The only question is whether those reactions are sufficiently significant to move the market for borrower shares. Hence, I formulate the following null hypothesis:

\[ H_{2.1}: \text{The stock market's reaction to borrower share prices on announcements of syndicated loans is not significant.} \]

The second issue I examine is whether the ease of renegotiation will depend on the structure of the credit agreement. It is argued in existing literature that revolving credit agreements tend to be less restrictive and, hence, easier to renegotiate than term loans. So, I expect the market to value revolving credit agreements more favourably than term loans.

Mikkelson and Partch (1986) and Lummer and McConnell (1989) examine the nature of credit agreements. Their studies report statistically significant excess returns for common stocks of firms announcing either a new or favourably revised revolving credit
agreement. Both studies arrive at the conclusion that the structure of the loan agreements is the main determinant of the positive share price reaction.

Aintablian and Roberts (2000) examine Canadian bank loans and find that announcements of bank loans are associated with positive abnormal returns. However, syndication weakens the announcement effect because it diminishes a key advantage of bank borrowing, the flexibility to renegotiate loan terms. In other words, syndication results in lower excess returns than non-syndicated loans. Preece and Mullineaux (1996) also find that single-bank loans provide more contractual flexibility than syndicated loans. These studies confirm that the market values flexibility of loan terms.

Revolving credit loans are agreements that give the borrowing firm the option as to when and how much to borrow given the firm’s assessment of its own future growth prospects. This flexibility of revolving credit, however, is offered at a cost. It is generally more expensive than short-term bank loans. Basically, the loan is similar to a put option. In this case, the price of the put guarantees access to the banks' money at a fixed spread above a benchmark rate. The borrowing firm has the right but not the obligation to exercise the put. If the firm is optimistic about its future, then it will exercise the option and pay for the cost of the option which includes the commitment fee and the interest on the loan. If not, then it just has to pay the commitment fee. Thus, revolving credit loans give the borrower increased flexibility in making financing and investment decisions. Not surprisingly, this feature has made revolving credit agreements more popular than straight term loans.
On the other hand, when a firm applies for term loans it has specific need for cash flows. Generally, term loans are structured to allow borrowers to repay the borrowed money in equal amounts over the period of the loan. At maturity, the firm should have paid off the amount owed to the bank. However, firms might opt for other payment options such as paying smaller amount periodically and then make a larger balloon payment or even a single balloon payment at maturity. Sometimes the rate of interest is fixed for the term of the loan, but in practice it is often set as a spread over a benchmark rate such as the US prime rate or LIBOR. Most term loans are collateralized with assets such as mortgages, cash accounts and patents/trademarks. It is noteworthy that the existing bank-borrower relationship also has an influence on the ability of firms to renegotiate the term and condition of the loan prior to maturity. However, this practice might be difficult in the case of syndicated loans because it takes time to renegotiate with all banks in the syndicate. It is the responsibility of the agent bank to carry out this renegotiation. Based on the above discussion, I formulate the following hypothesis:

\[ H_{2.2}: \text{The market does not value loan structures differently.} \]

The third question I examine concerns the relevance of the source of information to borrower share price response. I examine this question by comparing the share price response to syndication announcements to two different sources of information. Specifically, I compare the share price response to announcements that appear in the

\[^7\text{LIBOR: London Interbank Offer Rate.} \]
financial press (Dow Jones Interactive Index (DJII)) with those only available from a commercial information provider (IFR news).

One common source of information that has been used in existing literature is the Wall Street Journal (WSJ). Researchers use WSJ to identify the announcement date for event studies. It is well recognised by the profession that not all loans are announced in the financial press. It is more than likely that only quality loans or “material” loans are announced in the WSJ. Both borrowers and lenders would be happy to send positive signals to the market rather than negative information. Thus, using only the financial press announcement date might cause both a loan reporting bias and an information noise bias. Lummer and McConnell (1989) find that favourably revised loans are more likely to be reported in the financial press than unfavourably revised loans or loans that are allowed to expire.

One can also argue that announcements published in the financial press, such as WSJ, will be more transparent and more readily available than those associated with less well-known and/or more costly sources of information. Best and Zhang (1993) contend that banks apply differential effort in reducing information asymmetry depending on borrower characteristics and existing information. They suggest that the information banks produce is useful only if limited public information is available, or if the indicators from other sources are noisy.
Mosebach (1999) argues that it is announcements in commercial sources that drive the market, not WSJ announcements. He uses information from a commercially available service (Loan Pricing Corporation’s Gold Sheets) to identify loan announcement dates that were not reported in the WSJ. He finds support for the argument that borrower returns react to commercially available announcements. However, in his study, commercially available announcements were not compared with announcements that are published in the financial press. So, it is interesting to examine how the market responds to different sources of information. In this essay, I make this comparison. Hence, I formulate the following hypothesis:

**H 2.3: There is no difference in the share price responses to different sources of information.**

The fourth question relates to the issue of whether there is any difference in share price reaction to single or multiple announcements of syndicated loans. By definition, syndicated loans are credit agreements negotiated by a lead bank with participation by a number of other banks. Hence, syndicated loans create a multi-bank and borrower relationship. In practice, large loans are usually underwritten by more than one bank. In most instances, the lead bank or banks have an ongoing relationship with the borrower. Of course, firms can also have another form of multi-bank relationships when they acquire funding from several banks over time. However, the latter relationship is not my focus in this essay.
A banking relationship between a lender and a borrower involves information asymmetry from the bank’s perspective. The borrower has private information about its own credit risk and growth prospects. Also, a moral hazard problem exists in the form of possible asset substitution on the part of the borrower. On the other hand, a single bank relationship might create an "information monopoly" which could be detrimental to the borrower (Sharpe (1990) and Rajan (1992)). This problem results because the cost of switching banks may be greater than the payment of the monopoly loan rate. This view is also supported by Houston and James (1996) who assert that borrowing from a single bank gives that bank an information monopoly that can adversely affect the borrowers' investment incentives. Obviously, one solution to this problem is for the borrower to have multi-bank relationships. Detragiache, Garella and Guiso (2000) contend that firms maintain multiple bank relationships to diversify the risk that their bank may have insufficient funds. Syndication allows a multi-bank relationship in a single loan context. It would be much more difficult for a syndicate to extract the monopoly interest rate. It should be pointed out at this point that firms might have multiple announcements with a single bank or a single announcement with multiple banks. So, multiple announcements do not necessarily involve multiple banks. Given my discussion above, I formulate the following hypothesis:

\[H_{2.4}: \text{There is no difference in share price reactions to the number of announcements in syndications.}\]
Finally, I look at the issue of information leakage. This might be an important factor in determining share price reaction. I examine this issue by considering different event window lengths. If the shorter event window (-1, +1) results in significant CAARs and the longer event window (-2, +2) results do not, then there is little or no leakage. Conversely, if the longer event window (-2, +2) produces significant results and the shorter window does not, then I know there is information leakage.

Armitage (1995) examines syndicated loan announcements in the UK. He observes that market responses to syndicated loan announcements are not as significant as those in the US. He also observes that market responses occur over several days instead of on the announcement day. It appears that “leakage” may occur for acquisition loans and that responses to good news are spread over a number of days mostly following the announcement. I formulate the following hypothesis:

**H 2.5: There is no information leakage prior to announcements of syndicated loans.**

In the next section, I present the data and the methodology used in this study.
2.4. DATA DESCRIPTION AND RESEARCH METHODOLOGY

2.4.1. DATA DESCRIPTION

I use the following sources of information to obtain data for my study. First, I use International Financing Review (IFR) Platinum database, a commercial-based information product of Thomson Financial Publishing. The IFR database provides complete information on international and global syndicated loans since 1983. Information is updated on a daily basis and is obtained from various sources. These include information published by Reuters, proprietary surveys produced by all major investment banks, and even private discussions with banks. Secondly, I use the Dow Jones Interactive Index (DJII) to manually cross check IFR syndication announcements. DJII is an online service that offers current and historical articles published in numerous international news publications.\(^8\) I use "sold", "launched", "issued", or "priced" to designate the announcement date. I manually screen the IFR database and identify 5,465 syndication announcements in the US over the period 1995-2000. In order to be included in the sample, the borrower must have the necessary returns on the CRSP database. The CRSP requirement results in 2,061 syndication announcements made up of 1,551 revolving credit agreements, 387 term loans, and 123 hybrid loans. I test market responses to alternative information sources by differentiating loans announced in IFR and those announced in DJII. I found 379 revolving credit agreements, 94 term loans, and 48 hybrid loan agreements announced in DJII. To test

\(^8\) In order to reduce search time we confined our search to a select group of publications that consistently reported the transactions. These were: the Wall Street Journal, the Capital Markets Report (a Dow Jones Publication), Dow Jones News Service articles, and Euroweek.
whether single announcements differ in their influence on the market response vis-à-vis multiple announcements, I classify term loans and revolving credit loans according to the number of announcements. For term loans, I identify 363 single announcements and 24 multiple announcements while for revolving credit agreements there were 1,327 single and 227 multiple announcements, respectively.

Table 2.4 below shows the characteristics of the loans in my dataset. It can be seen from this table that revolving credit accounts for a large proportion of my dataset. The average loan size of revolving credit (USD 355.76 million) is largest followed by term loans (USD 268.32 million) and hybrid loans (USD 155.37 million). Nevertheless, the average loan spread of revolving credit is lower than for term loans and hybrid loans. The average number of lenders for revolving credit is the same as that for the whole sample while that for term loans is slightly higher and slightly lower for hybrid loans.

<table>
<thead>
<tr>
<th>Loan Type</th>
<th>Number of loans</th>
<th>Proportion of total loan</th>
<th>Average loan amount USD million</th>
<th>Average loan spread a (%)</th>
<th>Average number of lenders</th>
<th>Average Maturity in years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revolving credit</td>
<td>3,931</td>
<td>0.72</td>
<td>355.76</td>
<td>1.44</td>
<td>3.85</td>
<td>7.61</td>
</tr>
<tr>
<td>Term loan</td>
<td>1,181</td>
<td>0.22</td>
<td>268.32</td>
<td>2.15</td>
<td>3.94</td>
<td>9.14</td>
</tr>
<tr>
<td>Hybrid loan</td>
<td>353</td>
<td>0.06</td>
<td>155.37</td>
<td>2.06</td>
<td>3.65</td>
<td>5.07</td>
</tr>
<tr>
<td>Total</td>
<td>5,465</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: IFR Platinum Database Thomson Financial.
(a): The benchmark rate is LIBOR.
It should be noted that the average number of lenders is about four for all types of loans. It is interesting to consider why the average loan spread for revolving credit loans is lower than those for term loans and hybrid loans. One might argue that when firms enter a revolving credit contract, they may or may not use the funds committed by the lender.

2.4.2. RESEARCH METHOD

In this essay, I use Eventus (version 7). This is a specialised software designed for event studies that allows the extraction of data from CRSP and generates abnormal returns for selected event windows. I use the market model with equal weighting in this essay.

I define the event of interest in this study as the announcement of a syndicated loan. To measure the stock market reaction to announcements of syndicated loans, I use the market model to estimate abnormal returns around the announcement of a syndicated loan agreement. Day 0 is taken to be the event date. I estimate the normal performance of the securities using an estimation period of 255 days that ends 46 days before the event date (as shown by period $T_0$, $T_1$ in Figure 2.2 below). I examine three-day (-1, +1) and five-day (-2, +2) event windows ($T_1$, $T_2$). These figures denote the number of days prior to and after the event date, respectively. I consider stock market reaction over the long-term ($T_2$, $T_3$ ) in Chapter Three. The methodology assumes that the event is exogenous with respect to the change in market value of the security.
If the market reaction is favourable, I expect a positive abnormal return (AR) for the borrower’s stock. The latter is defined as the difference between the actual ex post return of the security over the event window and the normal return of the security over the estimation period. The normal return is defined as the return that would be expected if the event did not take place. In event studies, expected return is generated by applying a chosen model (e.g. market model) over the estimation period. Thus, the abnormal return over the event window can be thought of as a measure of the impact of the event on the value of the firm.

To test the significance of these abnormal returns I use both a parametric test (the Patell test) and a non-parametric test (the generalised Z-test). The details of the event study methodology used in this essay are more fully described in Appendix 1.
2.5. EMPirical RESULTS

In Panel A of Table 2.5 below, I present borrower share price responses (CAARs) for all syndication announcements for the five-day (-2, +2) and three-day (-1, +1) event windows. As can be seen from Panel A, the CAARs for all syndications are statistically significant at the 1% level for both event windows, suggesting the market views syndicated loans favourably. These results are consistent with previous studies (Preece and Mullineaux, 1996; Mosebach, 1999). My results confirm that the market reactions to borrower share price are significant. Therefore, I reject the null hypothesis that the market reactions to borrower share prices upon announcements of syndicated loans are not significant.

Prior papers, however, do not partition the data to reflect loan type. Preece and Mullineaux (1996) find that the ability to renegotiate a loan agreement is an important feature of a loan agreement. I argue that the type of loan is important because it influences whether future renegotiation is possible. Panel A also presents the announcements for the three different loan types. Revolving credit agreements drive the overall results. The decision made by the borrower as to which type of loan the firm should select is valued accordingly by the market. Term loans are not significant under either the five-day or three-day event window, while the hybrid loan results are only significant within the three-day event window. Although they do not partition bank loans into different types, Chemmanur and Fulghieri (1994) highlight the importance of financial flexibility offered by bank loans.
### Table 2.5: Share price response to syndication: excess returns for borrowers

<table>
<thead>
<tr>
<th>Type of Announcement</th>
<th>Obs</th>
<th>CAAR (%)</th>
<th>z - value</th>
<th>CAAR (%)</th>
<th>z - value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Event window [-2,+2]</td>
<td>Event window [-1,+1]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel A: All announcements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Syndications</td>
<td>2061</td>
<td>0.39</td>
<td>3.22***</td>
<td>0.28</td>
<td>2.58***</td>
</tr>
<tr>
<td>All Revolving Credit</td>
<td>1551</td>
<td>0.47</td>
<td>2.99***</td>
<td>0.29</td>
<td>2.05**</td>
</tr>
<tr>
<td>All Term Loans</td>
<td>387</td>
<td>0.02</td>
<td>0.88</td>
<td>0.00</td>
<td>0.70</td>
</tr>
<tr>
<td>All Hybrid Loans</td>
<td>123</td>
<td>0.48</td>
<td>0.98</td>
<td>1.07</td>
<td>2.04**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel B: Revolving credit agreements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFR Revolving Credit - All</td>
<td>1172</td>
<td>0.40</td>
<td>2.36***</td>
<td>0.18</td>
<td>1.16</td>
</tr>
<tr>
<td>IFR Revolving Credit - Single</td>
<td>999</td>
<td>0.34</td>
<td>2.07***</td>
<td>0.16</td>
<td>0.98</td>
</tr>
<tr>
<td>IFR Revolving Credit - Multiple</td>
<td>173</td>
<td>0.75</td>
<td>1.17</td>
<td>0.29</td>
<td>0.66</td>
</tr>
<tr>
<td>DJII Revolving Credit - All</td>
<td>379</td>
<td>0.72</td>
<td>1.71***</td>
<td>0.67</td>
<td>2.37***</td>
</tr>
<tr>
<td>DJII Revolving Credit - Single</td>
<td>325</td>
<td>0.61</td>
<td>1.13</td>
<td>0.86</td>
<td>2.37***</td>
</tr>
<tr>
<td>DJII Revolving Credit - Multiple</td>
<td>54</td>
<td>1.37</td>
<td>1.77**</td>
<td>-0.49</td>
<td>-0.45</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel C: Term loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFR Term Loans - All</td>
<td>293</td>
<td>0.19</td>
<td>0.95</td>
<td>0.16</td>
<td>0.78</td>
</tr>
<tr>
<td>IFR Term Loans - Single</td>
<td>277</td>
<td>0.15</td>
<td>0.89</td>
<td>0.10</td>
<td>0.57</td>
</tr>
<tr>
<td>IFR Term Loans - Multiple</td>
<td>16</td>
<td>1.00</td>
<td>0.38</td>
<td>1.35</td>
<td>0.97</td>
</tr>
<tr>
<td>DJII Term Loans - All</td>
<td>94</td>
<td>-0.70</td>
<td>-1.10</td>
<td>-1.05</td>
<td>-2.97***</td>
</tr>
<tr>
<td>DJII Term Loans - Single</td>
<td>86</td>
<td>-0.75</td>
<td>-1.10</td>
<td>-1.24</td>
<td>-3.17***</td>
</tr>
<tr>
<td>DJII Term Loans - Multiple</td>
<td>8</td>
<td>-0.12</td>
<td>-0.16</td>
<td>1.05</td>
<td>0.20</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel D: Hybrid Loans</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IFR Hybrid Loans - All</td>
<td>74</td>
<td>1.36</td>
<td>1.55*</td>
<td>1.68</td>
<td>2.46***</td>
</tr>
<tr>
<td>DJII Hybrid Loans - All</td>
<td>48</td>
<td>-0.81</td>
<td>-0.66</td>
<td>0.16</td>
<td>0.03</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Panel E: Single versus multiple announcements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revolving Credit Single</td>
<td>1327</td>
<td>0.41</td>
<td>2.60***</td>
<td>0.23</td>
<td>1.61*</td>
</tr>
<tr>
<td>Revolving Credit Multiple</td>
<td>227</td>
<td>0.82</td>
<td>1.55*</td>
<td>0.61</td>
<td>1.46*</td>
</tr>
<tr>
<td>Term Loan Single</td>
<td>363</td>
<td>-0.03</td>
<td>0.82</td>
<td>-0.03</td>
<td>-0.55</td>
</tr>
<tr>
<td>Term Loans Multiple</td>
<td>24</td>
<td>0.84</td>
<td>0.34</td>
<td>0.73</td>
<td>0.67</td>
</tr>
</tbody>
</table>

*, **, and *** denotes significance at 0.10, 0.05 and the 0.01 level, respectively.
Detragiache (1994) also emphasizes the importance of the renegotiation accommodated by bank loans. Preece and Mullineaux (1996) show that as the number of lenders in the syndicate increases, the market reaction is less pronounced. They argue that renegotiation flexibility is related to the number of lenders and the market values this flexibility. Given that the revolving credit agreements and hybrid loans are more flexible than term loans, the statistically significant positive CAARs associated with these loan types provide evidence that financial flexibility is valued by the market. Thus, based on these results I reject the hypothesis that loan type does not have significant impact on the ease of renegotiation and that the market does not value different loan types differently.

Panel B shows the effect of different information sources on revolving credit agreements. The five-day window reveals that the overall IFR and Dow Jones announcements are both positive and significant. For the IFR announcements, I observe a 0.40% CAAR for all revolving credit announcements and the results are significant at the 1% level. For the DJII, the abnormal returns are even higher, showing a 0.72% and these are also significant at the 5% level. The IFR results are consistent with the findings of Mosebach (1999). It is also worth noting that the IFR results are driven by the single announcement data while the Dow Jones results are driven by the multiple announcements. It is interesting to know what caused these responses to be different. One possible explanation for this difference is that the announcements made by IFR are less transparent than those made by DJII. Investors might have viewed single announcements made by IFR as much more significant than multiple announcements. On the other hand, investors might
argue that DJII announcements are more transparent and, therefore, investors would view multiple announcements differently.

The three-day event window tells a different story. Panel B shows that only the Dow Jones announcements are significant and these are driven by the single announcements. Thus, my results suggest that the source of revolving credit announcements can influence borrower share price reaction. Mosebach (1999) argues that the financial press provides redundant information and my results are not inconsistent with his findings. However, he based his argument on the results of the five-day event window only. When I use the three-day event window, I find that announcements reported by the financial press are not redundant signals and the market does react to this source of information.

The partitions presented in Panel C show market response to term loans is less pronounced compared to that for the revolving credit agreements. Furthermore, none of these responses is significant over the five-day window. In addition, the three-day event window also reveals that term loans announced in the financial press are viewed negatively. Apparently, if only IFR announcements are used, the significance would have remained unknown. Thus, the borrower’s share price does respond differently to the sources of the announcement and the width of the event window can make a difference. Here again, if I compare the market response to the Dow Jones announcements in the three-day window for term loans and those for revolving credit loans I can perceive how the market values different loan types. Thus, unlike Mosebach (1999), I can say that both dedicated
information providers and the financial press announcements influence borrower share price reaction.

Next, comparison of Panels B and C for the three-day IFR event window announcements reveals that the CAARs for both the revolving credit and the term loan announcements are not significant. It is tempting to infer that neither type of announcement is newsworthy. However, the Dow Jones announcements reveal the revolving credit announcements are viewed favourably while the term loans are viewed negatively and these results are significant at the 1% level. One would have arrived at different conclusions if DJII announcements were not examined. These results confirm that the source of the announcement information is an important factor in the market response.

Panel D also shows the importance of the information source. However, in contrast to the results of term loans and revolving credit agreements, the results of the hybrid loan show that the announcements from the dedicated information provider, IFR, are significantly positive in both event windows while the Dow Jones announcements are insignificant. The IFR results again provide support for Mosebach’s (1999) argument that financial press announcements may be redundant. In this case, the event window is not an issue. Thus, overall my evidence shows that there are differences between the share price responses to different sources of information. I therefore reject the third hypothesis.

Panel E focuses on the single and multiple announcement issue. Consistent with Panel A results, it can be seen that both single and multiple revolving credit announcements
are statistically significant while the number of announcements for term loans does not make any difference. Thus, it is the type of loan that provides information to the market, not the number of announcements. Therefore, I do not reject the hypothesis that there is no difference in share prices reaction to the number of announcements in syndications.

Finally, regarding information leakages Panel A of Table 2.5 shows that the stock market reaction to borrower share prices are significant for both three-day and five-day event windows for the whole sample and for revolving credit loans. I thus infer that leakage did not occur prior to the announcement date.\(^9\) Therefore, I do not reject the hypothesis that there is no information leakage.

Exhibits 2.1 and 2.2 present the partitioning scheme for the five-day and three-day event windows, respectively. The data set consists of 2,061 loan observations. In each partition, I present the CAARs and the level of significance along with the number of observations. The syndications are sequentially partitioned on credit agreement structure, information source, and announcement types. The credit structure shows the three types of loan structures considered in this study; revolving credit with 1,551 observations; term loans with 387 observations; and hybrid loans with 123 observations. Exhibit 1 clearly shows that revolving credit agreements provide the most significant positive share price responses. As for information source, a similar conclusion can be reached. For revolving

\(^9\) However, when the (-10, 0) event window was examined, we do find some evidence of leakage associated with the revolving credit announcements reported in the financial press.
credits, both sources of information are significant. However, in the case of term loans, neither of the sources is significant. The hybrid loans show that the commercial source is significant whereas information obtained from the financial press (DJII) exhibits a mixed result. Both of these results are confirmed in Exhibit 2 which also highlights the difference between information sources. This is particularly evident when I examine the significantly negative CAARs associated with the Dow Jones announcements of term loans for the three-day event window.
Exhibit 2.1
Share price response to syndication: Excess returns and level of significance for the (-2, +2) event window. Number of observations in parentheses.

DJ has both Dow Jones and IFR dates while IFR has no Dow Jones announcements.

*: 0.10 level of significance
**: 0.05 level of significance
***: 0.01 level of significance
Exhibit 2.2
Share price response to syndication: Excess returns and level of significance for the (-1, +1) event window. Number of observations in parentheses.

All Syndications
0.28***
(2,061)

All Term Loans (TL)
0.00 ns
(387)

Single TL
-0.03 ns
(363)
Multiple TL
0.73 ns
(24)

All Revolving Credit (RC)
0.29**
(1,551)

Single RC
0.23*
(1,327)
Multiple RC
0.61*
(227)

Hybrid Multiples
1.07 **
(123)

IFR
0.16 ns
(293)

DJ
-1.05***
(94)

IFR
0.18 ns
(1,172)

DJ
0.67***
(379)

Multiple 0.35 ns
(16)
Single 0.10 ns
(277)
Multiple 1.05 ns
(8)
Single -1.24***
(86)
Multiple 0.29 ns
(173)
Single 0.16 ns
(999)
Multiple -0.49 ns
(54)
Single 0.86***
(325)
IFR 1.68***
(74)
DJ 0.16 ns
(48)

DJ has both Dow Jones and IFR dates while IFR has no Dow Jones announcements
*, **, and *** represent the 0.10, 0.05, and 0.01 levels of significance, respectively.
2.6. SUMMARY

In this essay I reviewed the existing literature on bank loans. Banks continue to play an important role in the financial markets. They deliver “functional” services which are not available from non-bank intermediaries. The general consensus in the literature is that banks, in the process of screening and monitoring their borrowers, acquire private information not available to other market participants. While the moral hazard problem is present in any principal-agent relationship, the bank-borrower relationship mitigates the problem.

In general, the market reacts favourably to announcements of bank loans. Announcements of bank loans in general and those of syndicated loans in particular elicit positive market reaction. The characteristics of borrowers, lenders and loans impact market reaction to announcements of bank and syndicated loans. A “good” lender-borrower relationship tends to benefit both borrower and lender. Both the borrower and the lender signal their financial credentials to the market.

Syndicated loans are defined as loans extended to borrowers by more than two lenders. Despite the rapid development of this market in the 1990s, I find that syndication research is limited. According to Dennis and Mullineaux (2000), information variables, agency variables, loan characteristics and agent characteristics influence the syndication process. Finally, the bank-borrower relationship was reported to have some influence on the
availability of credit, the loan rate and the requirement for collateral (Berger and Udell (1995), Detragiache, Garella and Guiso (2000)).

Empirically, I examined the impact of syndication loan announcements and find significantly positive wealth effects for the borrowing firms. In addition, I consider a number of issues raised in existing literature. I consider whether loan type is an important determinant of market response by partitioning my dataset into revolving credit agreements, term loans and hybrid loans. I find that the overall results are driven by revolving credit agreements. In addition, I examine whether the source of syndication announcements plays an important role in establishing the wealth effects for the borrowers. I find that for the three-day event window, (-1, +1), announcements reported in the financial press are significantly positive for revolving credit announcements and significantly negative for term loan announcements. In contrast, announcements only available from IFR appear to have negligible impact on shareholder wealth. In addition, single announcements in financial press are more newsworthy than multiple announcements in the same source. For the five-day window (-2, +2), term loan announcements are not significant regardless of the source of information. In contrast, I find that single revolving credit announcements in IFR are significant and multiple revolving credit announcements in DJII are also significant. Thus, it is apparent that the market values the financial flexibility provided by revolving credit loans whether there are single or multiple announcements. The sources of information are complementary. My study is unique in that it uses two sources of information whilst previous studies use either financial press or a commercial database.
CHAPTER THREE: LONG-TERM PERFORMANCE OF BORROWING FIRMS AND CAPITAL STRUCTURE ISSUES

3.1. INTRODUCTION

In this essay I first review existing literature on long-term performance following some major corporate events and then look at long-term performance of borrowing firms following bank loans. Since I plan to integrate the two lines of financial research by merging capital structure issues with the role of banks in reducing information asymmetry and providing financial slack, I also review the three primary capital structure theories, namely, the tradeoff theory, the pecking order theory and market timing theory. The reasons for integrating these two lines of research are: (1) bank loans are considered to be one form of inside debt (Fama, 1985), (2) previous research has not considered the impact of loan types on the value of the borrowing firms; and (3) as an extension of the market timing theory, I argue that the characteristics of a particular type of debt may have embedded options that allow managers to behave opportunistically. Specifically, I argue that revolving credit loans allow more flexibility in the renegotiation of magnitude, maturity, and pricing than do term loans, and, hence, facilitate market timing by firms. Firms are economic agents that minimize the cost of production or financing. It follows that if firms are not forced to issue equity or debt because of special circumstances, then it may be rational for firms to time the market.
3.2. LITERATURE REVIEW

3.2.1. LITERATURE ON LONG-TERM PERFORMANCE OF FIRMS FOLLOWING NON-BANK CORPORATE EVENTS

It is well-documented that the market reacts to economic and corporate news. Market reaction could be in the form of announcement effects or measured by firms’ long-term performance. Billett, Flannery and Garfinkel (2006) argue that complete investigation of the wealth effects of external financing requires attention to both long-run returns as well as to announcement effects. Studies on announcement effect and long-term performance following corporate events are abundant in existing literature.

In the area of long-term performance following corporate events, there have been numerous studies with respect of seasoned equity offerings (SEOs), straight and convertible bonds, preferred stocks, private placements, acquisitions, mergers and repurchases. However, for long-term performance of borrowing firms following bank loans, Billett, Flannery and Garfinkel (2006) is the only paper in this area. In this section I will review the literature on some major corporate events.

3.2.1.1. Seasoned equity offerings.

Denis and Sarin (2001) use a sample of 1,213 seasoned equity offerings drawn from the Global Corporate Financings database of Securities Data Corporation. They examine
the stock price reaction to earnings announcements in the five years following seasoned equity offerings (SEO). They find significant negative stock price reaction to post-SEO earnings announcements with an average of -0.21%. Furthermore, they find that these abnormal stock price reactions are “reliably negative” within the smallest quartile of equity issuers. Denis and Sarin (2001, 169) reason that for small firms these findings are consistent with the market timing hypothesis; that is, “firms issue equity when the market overestimates the firm’s future earnings performance.”

According to Brous, Datar and Kini (2001, 141) the main reason for the post-issue long-run return underperformance of seasoned equity offering firms is that “investors have optimistic expectations regarding future earnings and that the underperformance is just a correction of these explanations over time.” Using a sample of 1,475 SEOs from the Security Data Corporation’s New Issues Database and Compustat for the period 1977-1990, they measure the long-run stock performance of these firms by using the matched-firm buy-and-hold abnormal returns (BHAR) technique. They subdivide their data into three sub-samples based on the benchmark used: (i) size matched; (ii) a size and the market-to-book ratio (M/B) matched; and (iii) size, standard industrial classification (SIC) and M/B matched. They report that the mean three-year raw holding period returns are 43.08%, 38.46% and 36.93% for their three sub-samples of issuing firms. The corresponding figures for the five-year period are 73.79%, 63.85% and 61.43%, respectively. However, the long-run benchmark-adjusted holding period returns tell a different story. The benchmark-adjusted three-year holding period returns for the three sub-samples are -29.14%, -9.26% and -12.36%. The corresponding figures for the five year period are -47.91%, -21.51% and
-21.36%, respectively. Both the three-year and five-year results are significant at the 1% level.

In addition to long-run stock return performance, Brous, Datar and Kini (2001, 149) also examine investors’ reaction to quarterly earnings announcements following seasoned equity offerings to test the optimistic expectations hypothesis. They reason that “earnings announcements convey a significant amount of information that is used by investors to adjust their future expectations of firm performance.” Therefore, in addition to examining the raw and benchmark-adjusted earnings announcement period returns, they also focus on testing whether “there is an “unusual” amount of negative information conveyed over the earnings announcement windows.” For each quarter they calculate the difference between “the N-day benchmark-adjusted earnings announcement period return” and “the N-day benchmark-adjusted non-earnings announcement period return.” They call this difference “the N-day performance-adjusted earnings announcement period returns.” This difference, they argue, can be attributed to the additional information conveyed through the earnings announcement.

Brous, Datar and Kini (2001) find that for all three sub-samples, the three-day raw earnings announcement period returns for the three- and five-year post-issue periods are insignificantly different from zero. Using benchmark-adjusted returns, they find that for the size and size-SIC-and-M/B benchmark sample of issuing firms, the mean and median three-day announcement period returns are insignificantly different from zero for both the three-year and five-year periods. For the size and M/B benchmark sub-sample, the mean and
median three-day benchmark-adjusted earnings announcement period returns are insignificantly different from zero. However, the mean earnings announcement period return for the five year period is -0.159% and significant at the 5% level. Nevertheless, the median figure is insignificantly different from zero. The earnings announcement period return is much lower when the size benchmark rather than the size and M/B benchmarks are used.

Finally, Brous, Datar and Kini (2001, 153) reason that “given that we had earlier documented significantly negative long run abnormal returns using our benchmarking techniques, it stands to reason that the expected benchmark-adjusted rate of return over any three-day period is also negative.” Therefore, they use performance-adjusted returns to correct for the expected negative return, thereby allowing them to test whether there is an unusual amount of information conveyed by earnings announcements. They find that for all three benchmarks, the mean and median three-day performance-adjusted returns are insignificantly different from zero for both post-issue periods. Brous, Datar and Kini (2001, 153) infer that “the quarterly earnings announcements do not, on average, convey unfavourable information, thereby suggesting that investors’ expectations about future earnings are not overly optimistic.”

Based on their results Brous, Datar and Kini (2001, 167) conclude that “unfavourable information is not conveyed by post-issue earnings announcements and, therefore, raises doubt about the existence of optimistic expectations by market participants at the time of an equity offering.”
Clarke, Dunbar and Kahle (2004) reason that by examining long-run abnormal stock returns following security sales one can test a managers’ ability to time the market. According to Clarke, Dunbar and Kahle (2004) if informed insiders attempt to profit by selling overvalued equity and the market does not know this negative information around the time the sale is announced, then post-announcement long-run abnormal stock returns should be negative. They examine the registered secondary equity offerings from 1980 to 1996 which consist of 424 pure secondary offers, and using the matched-firm BHAR technique they find that the mean 3- and 5-year abnormal returns are 5.93% and 1.99%, but not significant. However, their results change dramatically when their sample are separated into sales by insiders and non-insiders. They find that when the seller is an insider, the average 3-year abnormal buy-and-hold is – 15.66% and the 5-year abnormal return average is -33.33% and both are significant at the 5% level. They, therefore, conclude that their findings support the windows of opportunity hypothesis. They also report that for the non-insider sub-sample, long-run performance is generally positive but not significant. Thus, their findings are consistent with “non-insiders selling for non-opportunistic reasons.”

Clarke, Dunbar and Kahle (2004) also find that their results support Loughran and Ritter’s (1997) “anchoring argument.” According to this argument, if the operating and stock performance of firms prior to issuing is positive then investors might be too optimistic about the prospects of issuing firms. However, if these past trends do not continue then operating performance would revert to a mean, on average, and long-run negative abnormal returns should result because investors are disappointed.
Eckbo, Masulis and Norli (2006) use a sample of 44,986 different types of security offerings over the period 1980-2000. They match firms based on the book-to-market ratio to measure abnormal returns. They report that for industrial issuers, the five-year difference in the buy-and-hold returns of issuers and matched-firms ranges from -52.9% for preferred equity placements to -13.2% for private placements of debt. For SEOs the corresponding figure is -29.7%. The buy-and-hold abnormal return difference for straight debt issues are -17.0% while that for convertible debt is 40.4%. All these results are statistically significant at the 1% level and were obtained using the equal-weighting method. When Eckbo, Masulis and Norli (2006) use value-weighting method to measure buy-and-hold abnormal returns, however, they find that none of the buy-and-hold differences are statistically significant at the 1% level except for straight debt issues. Eckbo, Masulis and Norli (2006) note that there is no evidence of under-performance and some evidence of significant over-performance relative to the matched firms for security issuers operating in the finance industry. Furthermore, value weighting has no impact on the performance measure for these firms.

Eckbo, Masulis and Norli (2006) also use the Fama-French model to generate portfolio returns. They find that the alphas are significant and negative for private placements of equity and for private placements of straight debt. They also contend that the negative underperformance following straight debt issues is puzzling because debt has a low adverse selection problem and it also reflects management’s optimistic belief about a firm’s future growth prospects.
When extending the Fama-French model by adding a momentum factor (Carhart, 1997) and a turnover factor (Eckbo and Norli, 2005), Eckbo, Masulis and Norli (2006) find that all alpha estimates are insignificant across all security types. Assuming the added factors are indeed priced risk factors, they conclude that no evidence is found against the null hypothesis of zero post-issue abnormal performance.

3.2.1.2. Straight and convertible debt offerings.

Spiess and Affleck-Graves (1999) examine the long-term performance of stocks following both straight and convertible debt offerings. Using a sample of 392 straight debt issuers over the period from 1975 to 1989, they find that the median sample firm underperforms a matched firm of similar size and book-to-market ratio by almost 19% in the five years following the debt offering. For their sample of 400 convertible debt issuers, they also find that the median firm underperforms its matched counterpart by almost 20% in the five years following the convertible debt offering. The mean holding-period return for the sample firms is 37% less than the matched firms.

They also find that the post-issue under-performance of straight debt issuers is more pronounced with smaller, younger, and NASDAQ-listed firms. For the largest straight debt issuers, they find no evidence of under-performance. When controlling for risk differences by matching firms on the basis of size and the book-to-market ratio, Spiess and Affleck-Graves (1999, 47) note that “it is possible that size and book-to-market ratio do not adequately capture the risk difference between issuers and matched non-issuers.” They cite
the work of Fama (1998) who raises the issue of a “bad model” problem in his criticism of long-run event studies. According to Fama (1998), generally the magnitude of abnormal returns in these studies is not robust when alternative specifications of expected returns or alternative subsets of the data are used.

Spiess and Affleck-Graves (1999) address this problem using two approaches. In the first approach, they measure long-run performance using averages of short-run abnormal returns rather than long-run buy-and-hold returns. They do this in two ways – they use the ‘rolling portfolio’ approach of Fama (1998) and the three-factor regression approach recommended by Fama and French (1993). Using equally weighted portfolios, they find that both methods yield results consistent with buy-and-hold evidence that firms experience significant under-performance following both straight and convertible debt offerings. In the second approach and in the context of buy-and-hold returns, they examine two alternative benchmarks of expected returns: individual matched firms based on industry and firm size; and the reference portfolio benchmark. They find evidence of significant underperformance following both straight and convertible debt offerings. They claim that even though they are unable to disentangle the market under-reaction from the bad model problem, they do present strong evidence that their results are robust to a number of specifications and methodologies. Spiess and Affleck-Graves (1999, 46) conclude that “firms that are overvalued are likely to issue securities of any type, and those debt offerings, like equity offerings, are a signal that the firm is overvalued.”
3.2.1.3 Private placements

Hertzel, Lemmon, Linck and Rees (2002) use a sample of 619 publicly traded firms during the 1980-1996 period to examine the long-run performance following private placements. Hertzel, Lemmon, Linck and Rees (2002, 2596) seek to explain the fact that “while announcements of public issues, on average, are associated with negative stock-price effects, private issues are associated with positive stock-price effects.”

Hertzel, Lemmon, Linck and Rees (2002) find that firms that issue equity privately appear to significantly underperform relative to several benchmarks over the three-year period following the offering even though they experience a positive stock-price reaction at the announcement. They adopt two approaches to measure long-run abnormal stock-price performance following private placements of equity. First, they follow the benchmark performance approach used by Barber and Lyon (1997) and use an “appropriately selected single control firm” for each sample firm. To overcome the problem of cross-sectional dependence in returns inherent in this method as pointed out by Fama (1998), Hertzel, Lemmon, Linck and Rees (2002) also estimate abnormal returns using the calendar time portfolio approach which was introduced by Jaffe (1974) and Mandelker (1974).

Hertzel, Lemmon, Linck and Rees (2002) find stock-price performance is abnormally low following positive announcement period returns. They report that in the three-year period following private equity issue announcements the mean raw buy-and-hold abnormal return is only 0.2%. However, when compared with matched firms based on a
size and book-to-market benchmark, the mean three-year buy-and-hold abnormal return is –23.8%. They conclude that “investors are overoptimistic about the prospects of firms that issue equity, regardless of the method of issuance.”

Hertzel, Lemmon, Linck and Rees (2002) interpret their results in terms of the under-reaction hypothesis which predicts continued positive stock-price performance following the announcement. They also interpret their results in terms of “windows of opportunity” framework which reasons that investor’s over-optimism associated with the windows of opportunity predicting long-run post-announcement under-performance. Given the positive mean stock-price reaction at the announcement and their evidence of negative post-announcement abnormal stock-price performance, they interpret that their results are not consistent with the under-reaction hypothesis. Hertzel, Lemmon, Linck and Rees (2002) also test whether the announcement period return is a constant fraction of the long-run return. In other words, they test whether a firm’s announcement period abnormal return is positively correlated with its long-run abnormal return. They find that the correlations between these returns are small in absolute magnitude and most of them are negative. Hertzel, Lemmon, Linck and Rees (2002, 2607) note that there is “no behavioral theory that can explain why investors would systematically react in the wrong direction to an announcement.”

In terms of windows of opportunity theory, Hertzel, Lemmon, Linck and Rees (2002) offer a possible explanation. That is managers may be too optimistic about the firm’s prospects and investors (including the private placement investors) who are looking
for signals of inside information might not recognize this fact. They also raise related questions about the nature of private placement discounts. They argue that their evidence of post-announcement underperformance raises an alternative possibility that private placement discounts reflect “informed investors’ assessment of true (lower) firm value.” Hertzel, Lemmon, Linck and Rees (2002, 2613) argue that this possibility is “particularly troubling for the efficient market view” since in their study the discounts are known on the announcement date of the issue.

3.2.2. OTHER NON-BANK-LOAN CORPORATE EVENTS.

Kang, Kim and Stulz (1999) investigate the long-term performance of Japanese security-issuing firms using a sample comprising 888 equity offerings and 1,329 convertible bond offerings. They examine whether long-term performance following these corporate events can be explained by the underreaction hypothesis. According to this hypothesis the market impounds only part of the information content in the share price at the announcement of a corporate event. Kang, Kim and Stulz (1999) reason that if the market fails to impound information in stock prices quickly then it is not efficient, and short-window event studies provide biased estimates of the shareholder wealth effect of corporate events. They report that in the US, the evidence shows that equity and convertible debt issues are bad news for the issuing firms. Thus, if the market under-reacts to the announcement of such issues, they should be followed by poor abnormal performance. However, this is not the case in Japan where the stock price reactions are significantly positive following announcements of equity and convertible debt issues. Thus, according to
the under-reaction hypothesis, Japanese firms that issue equity and convertible debt should not under-perform firms that do not.

Kang, Kim and Stulz (1999) also examine private issues. They reason that such offerings make it possible for management to convey private information to the buyers of the newly issued securities. They cite the work of Hertzel and Smith (1993) who argue that private information explains why announcements of private equity sales have a significant positive average abnormal return in the US. Kang, Kim and Stulz (1999) report that private issues in Japan also have positive announcement returns. They reason that these announcements do not appear to occur as a response of management to a temporary overvaluation of a firm’s equity. These authors’ findings of negative long-term abnormal returns following private issues are inconsistent with the over-reaction hypothesis which states that negative long-term abnormal returns following equity issues occur because of a temporary over-valuation corrected by the market over time.

Elsas, Flannery and Garfinkel (2006) find that major investments are followed by significant equity long-run under-performance and suggest that financing decisions do affect these long-run returns. In particular, they report that the extent of underperformance is greater for internal investments compared to that for acquisitions, and for any debt-financed investment. They interpret this result as a challenge to “conventional wisdom” that debt serves as “a discipline device” or new equity issues trigger “active monitors” by outsiders.
Elsas, Flannery and Garfinkel (2006) find that internally financed projects are not associated with significant under-performance. In contrast, they find that all categories of externally-financed internal investments and most externally-financed acquisitions give rise to negative mean abnormal returns. Their results are robust for both equal-weighting and value-weighting methods.

Elsas, Flannery and Garfinkel (2006, 19) interpret their results as indicating that “financing (debt versus equity) and investment (built versus acquired) choices have important interaction effects that influence firm value.” Furthermore, “large investments per se do not generate poor performance.” They conclude that large investment outlays are followed by poor stock returns and that internally-funded projects do not elicit inferior long-run performance.

In the next section, I review long-term performance of borrowing firms following bank loans.

### 3.2.3. LONG-TERM PERFORMANCE OF BORROWERS FOLLOWING ANNOUNCEMENTS OF BANK LOANS

One form of debt financing is bank loans and prior research (James, 1987) indicates that bank loans are unique. Fama (1985) argues that bank loans are inside debt and suggests that small firms without access to external debt may find the contracting costs of
bank loans to be lower than external debt. Also, he suggests that a bank loan signals credit worthiness and that reduces the costs associated with other forms of financing. James (1987), Lummer and McConnell (1989), Best and Zhang (1993), and Billett, Flannery and Garfinkel (1995) focus on the share price response to the announcement of bank loans. They report that bank loan announcements favourably impact the borrowers’ equity value.

In the area of long-run performance of firms following announcements of bank loans, however, exiting literature is limited. Billett, Flannery and Garfinkel (2006) is the only paper that examines the long-run performance of firms following loan announcements.


Reviewing existing literature, Billett, Flannery and Garfinkel (2006, 734) note: “Although the short-run valuation effects of security issuances are consistent with the existing theory of asymmetrically informed outside investors, recent work on the long-run performance following security issuance has raised doubts about interpreting event study outcomes.” They report that during the subsequent three to five years, the issuing firms' share prices under-perform the relevant benchmarks by 4% to 10% per year. They argue
that this is a challenge to the notion of market efficiency: “investors initially under-react to
the implications of public security issuances.”

Billett, Flannery and Garfinkel (2006) argue that bank loan financing can be a major
event for borrowing firms. Billett, Flannery and Garfinkel (2006, 734) point out that “While
long-term performance following public security issuance has been thoroughly examined,
the long-run performance of firms following private debt agreements is relatively
unexplored. Yet private debt constitutes a very important source of credit for the economy.
Bank loans provide approximately 30% of all US non-financial corporations’ outstanding
liabilities.”

Billett, Flannery and Garfinkel (2006) examine the uniqueness of bank loans from a
long-run perspective. Specifically, they examine long-run stock returns, operating
performance, and earnings announcement abnormal returns over the three years following
the loan announcement.

Billett, Flannery and Garfinkel (2006) report the concern that major equity
financing events such as IPOs and SEOs can contaminate the sample under study and lead
researchers to infer inappropriately that loan announcements are causing long-run
underperformance. Billett, Flannery and Garfinkel (2006), however, find no evidence that
IPOs and SEOs contaminate the long-run underperformance of borrowing firms in the case
of bank loans.
Billett, Flannery and Garfinkel (2006, 734) argue that “measurement of long-run abnormal returns has been a contentious topic in the finance literature.” They use a variety of techniques to measure long-run abnormal returns, including BHARs, Fama-French “alphas”, and calendar-time abnormal returns (CTARs). Using these techniques, Billett, Flannery and Garfinkel (2006, 734) find “economically and statistically significant underperformance in the wake of bank loans.” They find that although the initial response is positive, firm performance over the subsequent three years is negative. They select peer firms on the basis of size and book-to-market ratio, size and industry, or size and momentum. They find that loan announcing firms underperformed their style-matched counterparts. Both the mean (-32.7%) and median (-10.3%) three-year BHARs are significantly negative at the 1% level. Furthermore, they find that this underperformance is not concentrated in any one of the three post-loan years. Using the Fama-French three-factor model, they show that in all three years following the loan announcement, the underperformance ranges between 3.2% and 3.5% per year with over 95% confidence. They find that firms announcing private lending agreements substantially under-perform over the long run, just as equity and public debt issuers do. In the five years following a loan announcement, the mean (median) buy-and-hold abnormal returns for their sample of loan announcing firms is –53.29% (-33.67%). This finding is in contrast with initial positive announcement effects documented in existing literature. Comparing their results with those of Spiess and Affleck-Graves (1999) who report an insignificant mean BHAR of -14.3% for straight bond issues during the five years after the issue, Billett, Flannery and Garfinkel (2006) conclude that from a peer-adjusted long-run return perspective, loan announcers are similar to SEO and public debt issuers in their future underperformance.
When Billett, Flannery and Garfinkel (2006) evaluate operating performance of borrowers in the post-loan period, they find that bank borrowers were performing poorly in the year prior to the loan announcement and this poor performance continues in the subsequent three years. Specifically, using size and book-to-market matched peers for five years surrounding the loan announcements, Billett, Flannery and Garfinkel (2006) report that borrowers exhibit significantly negative peer-adjusted operating performance (operating income before depreciation to total assets) during the interval (0, +1). They argue that this indicates that “borrowers under-perform peers on an operating basis in the year of the loan and the year following” (745). In other years (-1, +2, and +3), they report median peer-adjusted operating performance is negative but insignificant. In addition, when they measure operating performance using net income, they find more pronounced evidence of negative performance. Billett, Flannery and Garfinkel (2006, 746) document that “Peer-adjusted NI/SALES and NI/TA are negative in every year from the fiscal year preceding the loan through the third fiscal year following it.” They conclude that “Taken together, these results suggest that the negative long-term returns are due, at least in part, to poor operating performance.”

Billett, Flannery and Garfinkel (2006) also examine the market reaction to quarterly earnings announcements over the three-year post-announcement period. They reason that to the extent that the market learns from earnings news, one would expect to see evidence of the long-run performance in the short-term event window around earnings announcements. Using the standard deviation of a time series of abnormal returns to quarterly earnings
announcements to measure information asymmetry, they document two findings. First, compared to a set of control firms, bank borrowers exhibit more volatile responses to their earnings announcements. Second, they also find that earnings announcement returns are significantly more volatile post-loan than pre-loan. This is in contrast with what should be expected in existing literature. According to the literature because banks mitigate asymmetric information problems, one would expect less volatile price reactions to earnings announcement in the post-loan era. Their results show the opposite. Billett, Flannery and Garfinkel (2006, 735) conclude that “bank loans do not reduce information asymmetries.”

Billett, Flannery and Garfinkel (2006) claim their results also contribute to the general literature on the theory of market efficiency. Billett, Flannery and Garfinkel (2006, 736) argue: “Not only do bank loans exhibit positive average announcement effects followed by negative average long-run returns, but the subset of bank loans with strictly positive announcement returns is also followed by significantly negative long-run returns.” They claim this is the first robust evidence of reversal of the announcement returns in the long run.

Billett, Flannery and Garfinkel (2006) argue that if bank loans are truly special then more research is needed to ascertain the source of this “specialness.” Based on their findings, Billett, Flannery and Garfinkel (2006, 736) conclude “Apparently, the market is not only initially wrong about the magnitude of the loan’s effect on firm value, it’s wrong about the direction of the effect in many cases as well.” Billett, Flannery and Garfinkel
(2006, 744) also conclude that “bank loans do not appear to be nearly so “special” as previously thought.” These conclusions are certainly challenges to the existing literature on bank loans and market efficiency, which requires further study and testing.

3.2.4. SUMMARY OF LITERATURE REVIEW ON LONG-TERM PERFORMANCE FOLLOWING CORPORATE EVENTS.

In summary, the evidence is widespread that firms that announce corporate events tend to have abnormal performance compared to non-event-announcing firms. Eckbo, Masulis and Norli (2006) find that the long-run abnormal performance depends on the methodology and the weighting scheme used. The literature reports a negative long-run abnormal performance for SEO-issuing firms. The leading explanation is that the long-run underperformance is just a correction of optimistic expectations regarding future earnings as perceived by the investors. Brous, Datar and Kini (2001), however, find that this is not the case and that investors are not disappointed by earnings announcements following SEOs.

Firms that issue straight and convertible debt also experience long-run underperformance compared to firms matched on size and book-to-market. However, there is evidence that the post-issue underperformance of straight debt issuers is concentrated among small firms. In Japan, Kang, Kim and Stulz (1999) report evidence of overperformance following equity offerings and convertible bond offerings.
Billett, Flannery and Garfinkel (2006) find bank loan borrowers suffer negative performance in the subsequent three and five years. Eckbo, Masulis and Norli (2006) remark that it is surprising that long-term performance following security issuance is generally negative.

Table 3.1 below gives a summary of the main papers reviewed in this section and their main findings.
<table>
<thead>
<tr>
<th>Researcher</th>
<th>Theory/issue discussed</th>
<th>Main findings and/or arguments</th>
<th>Research Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spiess and Affleck-Graves (1999)</td>
<td>Long-term performance following straight debt and convertible debt issues for period 1975-1989.</td>
<td>Straight debt issuers underperformed size and book-to-market matched firms by 19% and the corresponding figure for convertible debt is 20% in the subsequent five years. Firms that are overvalued are likely to issue securities of any type.</td>
<td>Long-term performance is dependent on the type of debt. The validity of the pecking order theory is questionable.</td>
</tr>
<tr>
<td>Denis and Sarin (2001)</td>
<td>Stock price reaction to earnings announcements following SEOs.</td>
<td>Significant negative stock price reaction following SEOs (-0.21%).</td>
<td>Comparison with other security issuances is necessary.</td>
</tr>
<tr>
<td>Clarke, Dunbar and Kahle (2004)</td>
<td>Market timing and long-run performance</td>
<td>There is evidence of market timing.</td>
<td>Firms might market time over the long run.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
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<tr>
<td>Elsas, Flannery and Garfinkel (2006)</td>
<td>Major investments, firm financing and long-run performance</td>
<td>Major investments are followed by significant equity under-performance. The extent of underperformance is greater for built investments compared to that for acquisitions and for any debt-financed investment.</td>
<td>Investment size might influence the order of security issuance.</td>
</tr>
<tr>
<td>Eckbo, Masulis and Norli (2006)</td>
<td>Security offerings and long-term performance.</td>
<td>Using equal weighting, under-performance for industrial issuers in the subsequent five years are: 52.9% for preferred equity placements; 13.2% for private placements of debt; 18% for IPOs; and 29.7% for SEOs. All significant at 1% level. Value weighting has no impact on the performance measure of issuing firms.</td>
<td>Different weighting systems might lead to different results.</td>
</tr>
<tr>
<td>Billett, Flannery and Garfinkel (2006).</td>
<td>Long-term performance following announcements of bank loans</td>
<td>Loan announcing firms under-performed style-matched firms in the subsequent three years. Operating performance of borrowers was poor in the year prior to loan announcement and in the subsequent three years. Bank loans do not reduce information asymmetry. Loan announcements are misinterpreted by the market, both in the magnitude of their effect on firm value and the direction of it. Bank loans do not appear to be special.</td>
<td>If Billett, Flannery and Garfinkel’s (2006) findings are valid then the whole literature on bank loans is questionable. Are bank loans associated with negative earnings announcement? Information asymmetry (Transparency) following announcements of bank loans needs further research.</td>
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Table 3.2 below summarises stock price response to announcements of corporate events over long term.

<table>
<thead>
<tr>
<th>Study</th>
<th>Period used for calculation</th>
<th>Long-term abnormal returns</th>
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<tbody>
<tr>
<td><strong>Seasoned equity offerings</strong></td>
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<td>Loughran and Ritter (1995)</td>
<td>5</td>
<td>-8.00</td>
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<td>Spiess and Affleck-Graves (1995)</td>
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<td>Denis and Sarin (2001)</td>
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<td>-0.21</td>
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<tr>
<td>Eckbo, Masulis and Norli (2006)</td>
<td>5</td>
<td>-29.70</td>
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<tr>
<td><strong>Straight and convertible debt</strong></td>
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<tr>
<td>Spiess and Affleck-Graves (1999)</td>
<td>5</td>
<td>-19.00</td>
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<tr>
<td>Spiess and Affleck-Graves (1999)</td>
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<tr>
<td>Eckbo, Masulis and Norli (2006)</td>
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<tr>
<td>Eckbo, Masulis and Norli (2006)</td>
<td>5</td>
<td>40.40</td>
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<tr>
<td><strong>Bank loans</strong></td>
<td></td>
<td></td>
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<tr>
<td>Billett, Flannery and Garfinkel (2006)</td>
<td>3 and 5</td>
<td>-32.70 and -53.29</td>
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</tbody>
</table>

In the next section, I review the capital structure issues and discuss the relevance of these issues to my study.
3.2.5. CAPITAL STRUCTURE ISSUES

An issue that has received substantial attention in the financial literature relates to the effect of financing decisions on the value of equity. As mentioned earlier in the introduction section, in this essay I integrate the two lines of financial research by merging capital structure issues with the role of banks in reducing information asymmetry and providing financial slack. For this reason, in this section I review the three main capital structure theories.

3.2.5.1. Trade-Off Theory

Trade-off theory evolved from the original Modigliani and Miller (1958) article that was based on a number of restrictive assumptions. These include no transaction costs, no taxes or inflation, interest rates are the same for both borrowers and lenders, and there is no dependency between financing and investment decisions. According to Modigliani and Miller (1958), given these assumptions capital structure is not important. That is, a firm’s value depends on the value of its assets and cannot be changed by changing the firm’s capital structure. As the stringent assumptions were relaxed, however, firms consider whether to adjust to an optimal capital structure.10 This issue arises because certain factors such as taxes favour debt financing and others such as financial distress favour equity. Generally, researchers would retain the assumptions of symmetric information and market

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10 Huang and Ritter (2005) report evidence in literature (for example Kale, Noe, and Ramirez (1991) and Graham (2003)) that the statutory corporate tax rate may have a major influence on the financing decisions of US firms.
efficiency. The problem of asset substitution is also considered in the due process because it can disadvantage bondholders vis-à-vis shareholders. It is well-known that companies with debt outstanding can substitute higher-risk for lower-risk investments. On the other hand, too much free cash flow can lead to agency issues between managers and shareholders.

In the trade-off theory, the optimal debt-equity ratios or the optimal capital structure is determined by trading off the benefits of debt with the costs (Krauss and Litzenberger, 1973). According to this theory, debt allows firms to deduct interest expense from its tax liability. This is the primary benefit of debt. As for the costs of debt, Miller (1977) lists the primary costs of debt as those associated with financial distress and the personal tax that bondholders have to pay on the income they receive. According to Myers (1984), if firms follow the trade-off theory then they set a target leverage ratio and gradually move towards the target. Firms determine the target by balancing debt tax shields against costs of bankruptcy.

Banerjee, Heshmati and Whilborg (2000) attempt to empirically determine the factors that affect the optimal debt levels by distinguishing between the observed debt ratios and estimates of the implied optimal levels. Banerjee, Heshmati and Whilborg (2000, 1) claim that by doing so they are able to “capture the dynamics of capital structure adjustments.” They find that tangibility of assets, size of the firm, and expected growth affect optimal leverage positively, while profitability and the variability of operating profits have a negative influence on optimal leverage. They also show that firms’ observed
leverage is frequently different from their target leverage and bigger firms take longer to adjust their leverage levels.

Graham and Harvey (2001) conduct a survey of 392 CFOs of companies operating in the US and Canada. According to this survey, the corporate tax advantage is considered to be moderately important in the company’s capital structure decision. However, the tax advantage is most important for large, regulated, and dividend-paying firms. The survey also shows that out of eleven debt policy factors, financial flexibility is the most important factor. Graham and Harvey (2001), however, find no significant evidence that firms directly consider personal taxes when making their debt or equity decisions. Graham and Harvey (2001, 211) infer that “firms are unlikely to target investors in certain tax clienteles.” In relation to the optimal or target debt-equity ratio, Graham and Harvey (2001) report mixed support for the trade-off theory. In their survey, they report that large firms are more likely to have target debt ratios. Of the large firms, 55% have at least somewhat strict target ratios. The corresponding figure for small firms is only 36%. As for deviations from the target debt ratio, they also find that firms do not rebalance in response to market equity movements. They report that few firms state that changes in the price of equity affects their debt policy.

Baker and Wurgler (2002) argue that firms do not adjust their capital structure toward an optimal structure because either the adjustment costs are too large or the penalty for deviating from the optimal structure is too small to make the adjustment within a 10-year span worthwhile.
Ju, Parrino, Poteshman and Weisbach (2005, 279) develop a dynamic model of optimal capital structure which contains a number of features designed to capture “key elements of the capital structure decision.” These include “contingent claim valuation of tax shields, a bankruptcy boundary on firm value below which firms default, and a target capital structure at which the firm refinances its debt at maturity.”

Ju, Parrino, Poteshman and Weisbach’s (2005) model does not predict that firms are under-levered. Using a sample of 5,519 firms for the period 2001-2004, they find that the predicted ratio of debt to total capital in their model is 15.29% compared with 22.62% for the median firm in the Compustat database in 2000. Therefore, they conclude that firms tend not to use too little leverage in practice. They also find that the costs are relatively small for a firm whose capital structure deviates from optimal.

Huang and Ritter (2005) also examine whether firms quickly adjust towards target leverage. According to Huang and Ritter (2005, 4) “if firms adjust quickly, then market timing will have only short-lived effects on capital structure, even if it is an important motivation in securities issuance decisions.” They point out that the issue of adjustment towards target leverage is perhaps ‘the most important issue in capital structure research today.’ They find that firms only slowly adjust toward their optimal capital structure after firm fixed effects have been controlled and the short time dimension bias has been corrected. They interpret this as supporting evidence for the market timing theory. They
also find no evidence that firms with lower adjustment costs adjust faster than firms with higher adjustment costs.

Lemmon, Roberts and Zender (2006) examine the evolution of the cross-sectional distribution of leverage ratios for a sample of firms over a twenty year period (1983-2003) and find that firms tend to maintain their leverage ratios over this period. In other words, their capital structures are stable over time. Lemmon, Roberts and Zender (2006, 2) reason that “given the importance of firm specific heterogeneity in leverage, as well as other aspects of the firm (e.g. investment and production), parameter estimates ignoring firm specific effects are suspect.” They find that the cross-sectional differences in leverage ratios were explained largely (90%) by firm fixed effects whereas determinants previously identified in the literature (e.g., size, market-to-book, and industry) explain less than 10% of these differences. Lemmon, Roberts and Zender (2006, 30) find that “firms tend to maintain their leverage ratios in relatively narrow bands by rebalancing their capital structures with their debt policy and, to a lesser extent, their equity policy.” Lemmon, Roberts and Zender (2006, 30) find that “capital structure is best characterized by a dynamic tradeoff strategy with costly adjustment.” Lemmon, Roberts and Zender (2006, 30) conclude that their findings “are not consistent with the market timing, the pecking order, or equity price inertia theories as explanations for cross-section of capital structure”

Flannery and Rangan (2006) find that non-financial firms identified and pursued a target capital structure during the period 1966-2001. When they estimate the speed of adjustment toward target leverage with a partial adjustment model, Flannery and Rangan
(2006, 471) find that “the typical firm converges toward its long-run target at a rate of more than 30% per year.” They show their results are robust across size classes and time periods. They also find that although share price fluctuations can have a short-term impact on market debt ratios, these transitory effects are offset within a few years by firms’ efforts to reach a target capital structure.

Frank and Goyal (2006, 3) use the term “static trade-off theory” to refer to the hypothesis that “bankruptcy and taxes are the key factors that determine leverage within a static model.” They draw a distinction between the static trade-off theory and the target adjustment hypothesis. According to the latter hypothesis, firms adjust their leverages towards a target so that deviations from the target are gradually eliminated. Frank and Goyal (2006) report “The target adjustment hypothesis receives much clearer empirical support than does either the static trade-off theory or the pecking order theory.”

Frank and Goyal (2006, 3) point out that “In the static trade-off theory it is the desire to limit tax payments that motivates a firm to use debt financing.” More interestingly, they also indicate that “Corporate income taxes are only about a century old. Debt financing was common long before the introduction of corporate income taxes.” Furthermore, Frank and Goyal (2006, 4) argue “it is actually quite difficult to match the observed leverage ratios in particular decades with the corporate income taxes in those decades.”
Frank and Goyal (2006, 18) also note that “much of the work on dynamic trade-off models is fairly recent…” and “has already fundamentally altered our understanding of mean reversion, the role of profits, the role of retained earnings, and path dependence. As a result, the trade-off class of models now appears much more promising than it did even just a few years ago.”

Kayhan and Titman (2007) note that the existing literature on capital structure suggests that firms have a target debt ratio. The target is determined by the trade-off between the costs and benefits of debt versus equity. They examine how cash flows, investment expenditures, and stock price histories affect capital structure choices and the extent to which the effect of these history variables are subsequently reversed. Kayhan and Titman (2007) focus on a number of history variables that proxy a number of determinants of change in capital structure of firms. These include past profitability, financial deficits, past stock returns, market timing, leverage deficit and change in target. To examine long-term (five and ten year) effects of these variables on the capital structure of firms, they regress change in debt ratios on these variables. In addition, they examine how changes in capital structure caused by these variables are subsequently reversed. Kayhan and Titman (2007, 3) believe that these regressions provide “additional insights on the extent to which deviations from a firm’s target capital structure influences future financing choices and complement the partial adjustment regressions that attempt to estimate the speed with which deviations between actual and target debt ratios are subsequently closed.”
Kayhan and Titman (2007) use a sample of 54,328 firm-year observations for firms between 1960 and 2003. They use a two-step procedure to estimate the determinants of changes in the debt ratio. In the first step, they construct a proxy for the target leverage ratio as the predicted value from a regression of debt ratios on tradeoff variables used in prior cross-sectional studies (e.g., Shyam and Myers (1999) and Hovakimian, Opler, and Titman (2001)). They use this target leverage proxy to construct a leverage deficit variable which is the difference between the target leverage ratio and the leverage ratio at the beginning of the period. In the second step, they estimate a regression of changes in the debt ratio on the leverage deficit, changes in the leverage ratio, and the history variables that proxy the determinants mentioned above. Kayhan and Titman (2007, 13) find that “the financial deficit, stock returns, and the leverage deficit have important effects on changes in the debt ratios, while the effects of the other variables are relatively minor.” More specifically, they observe that “a one standard deviation increase in stock returns decreases book leverage by 3.98% and market leverage by 14.29%. In addition, a one standard deviation increase in the leverage deficit decreases book leverage by 7.26% and market leverage by 6.63%.” They find that “firms are also responsive to changes in their target debt ratios; a 1% increase in the standard deviation of the change in the target leads to a 1.85% increase in the book debt ratio and a 3.33% increase in the market debt ratio.”

In summary, firms view external funds as less desirable because of information asymmetry inherent in public markets. There exists some evidence that firms do adjust toward an optimal capital structure. However, this action depends on the costs of such an adjustment relative to the associated benefits. A number of other factors can also affect
firms’ decisions whether to make the adjustment. These include firms’ profitability, value of tax shield, tangibility of assets, firm size and expected growth. Flannery and Rangan (2006) find that non-financial firms identified and pursued a target capital structure. Lemmon, Roberts and Zender (2006, 30) find that “firms tend to maintain their leverage ratios in relatively narrow bands by rebalancing their capital structures with their debt policy and, to a lesser extent, their equity policy.” Frank and Goyal (2006) discuss static versus dynamic trade-off models. As pointed out by Huang and Ritter (2005) the issue of adjustment towards target leverage is ‘the most important issue in capital structure research today.” Table 3.3 below summarises the literature on the trade-off theory.
<table>
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<td>Myers (1984) and Myers and Majluf (1984).</td>
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<td>External funds are less desirable because they are undervalued from the perspective of information asymmetry. Firms prefer to use external funds in the following order: debt, convertible securities and equity.</td>
<td>Information asymmetry is the cause of firm’s preference in choosing security instruments.</td>
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<td>Banerjee, Heshmati and Whilborg (2000)</td>
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<td>Graham and Harvey (2001)</td>
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<td>Baker and Wurgler (2002)</td>
<td>Market timing and optimal capital structure</td>
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<td>Ju Parrino, Poteshman and Weisbach (2005)</td>
<td>Key elements of capital structure decisions</td>
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<td>The use of leverage depends on firm’s operations rather than the adjustment of leverage per se.</td>
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<tr>
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<td>Huang and Ritter (2005)</td>
<td>Market timing theory of capital structure</td>
<td>If firms adjust quickly toward a target capital structure, then market timing will have only short-lived effects on capital structure, even if it is an important motivation in securities issuance decisions.</td>
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<td>Flannery and Rangan (2006)</td>
<td>Partial adjustment and target capital structure</td>
<td>The typical firm converges toward its long-run target at a rate of more than 30% per year.</td>
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<td>Frank and Goyal (2006) and Lemmon, Roberts, and Zender (2006)</td>
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<tr>
<td>Kayhan and Titman (2007)</td>
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3.2.5.2 Pecking Order Theory

In addition to the trade-off theory, there are alternative explanations of capital structure based on asymmetric information. The most well-known alternative is the pecking-order model of financing hierarchy. According to this model, firms do not target a specific debt ratio and use external financing only when they are short of internal funds. The reason for this choice is based on the notion of information asymmetry. According to the pecking-order theory (Myers and Majluf, 1984 and Myers, 1984), external funds are less desirable because they are undervalued from the perspective of information asymmetry. Therefore, firms would prefer to use external funds in the following order: debt, convertible securities and as a last resort, equity. In their work, Myers and Majluf (1984) assume that firms try to maintain financial slack to avoid the use of external financing. Thus, if firms value financial flexibility then this is consistent with the pecking-order theory.

Reviewing the existing literature, Rajan (1992, 1367) argues that “while the benefits of bank financing are relatively well understood, the costs are not.” He argues that while informed banks can prevent firm’s projects from “going awry”, they can also take advantage of their position to gain more bargaining power over the firm’s profits and he argues this is part of the cost of this credit. In response to this undesirable situation, firms make choices of borrowing sources and the choice of priority of debt claims to “optimally circumscribe the powers of banks.”
Rajan (1992) presents a model in which the cost of bank debt is endogenous. This is in sharp contrast with much of existing literature which assumes the costs of bank debt to be exogenous. He considers an owner-managed firm with a “project idea”. In relation to bank loans, he considers a short-term and a long-term contract. Rajan (1992, 1368) defines the short-term contract as one where “the bank requires repayment of the loan after the state is realized.” The long-term contract is one where “the bank can require repayment only when the project is completed.” Rajan (1992) points out both the benefit and cost of a bank debt in the case of a short-term contract. The benefit is that since the bank is an informed lender it can prevent the owner from continuing a negative NPV venture by demanding payment. The cost is the bank can also demand repayment when continuation of the project is efficient. This means that the borrowing firm has to share its profit with the bank and consequently the owner of the firm exerts lower effort than optimal and a lower return from the project will result. On the other hand, in the case of long-term bank contracts, the bank can no longer extract part of the profit from the firm. A new problem arises in this case because the bank cannot demand repayment when continuation of the project is inefficient. Consequently, the owner has less incentive to avoid undesirable states (i.e. negative NPV states).

Rajan (1992, 1369) also argues that in contrast to banks, “arm’s length lenders have no control over the owner’s continuation decision.” Furthermore, a contract with an arm’s length investor gives the owner greater incentive to exert effort than both short-term and long-term bank contracts. He, therefore, concludes that “the welfare effect of borrowing from a bank rather than arm’s length sources is ambiguous; the benefit of being bank-
controlled has to be weighed against the costs of distortions in the owner’s incentives to exert efforts.”

Rajan (1992, 1370) also shows that “changes in priority alter the inside bank’s control and thus influence the owner’s incentives to exert effort.” In addition, the allocation of priority of the debt claims and the amount of borrowing from different sources can change the bank’s ability to extract rents as well as its ability to control the firm.

Rajan’s (1992) model predicts that firms with high-quality projects will issue public debt, while medium-quality firms will borrow from banks. In the case of low-quality firms, his model predicts that arm’s length debt would dominate bank debt because the costs of bank monitoring outweigh the benefits. Rajan (1992) also suggests that bank loans with shorter maturity would induce more positive announcement effects than bank loans with longer maturity.

Kim, Mauer and Sherman (1998) present a theory of choice of liquid assets when outside finance is costly. Kim, Mauer and Sherman (1998, 336) reason that “The existence of capital market imperfections provides a rationale for significant and predictable amounts of excess liquid asset holdings by firms. In particular, if external financing is costly, then investment in liquid assets is an optimal response to having to seek costly external financing to fund future production needs.”
They conduct a study of 915 US industrial firms over the period from 1975 through 1994 and measure liquidity by using the ratio of cash and marketable securities to the book value of assets. For their sample, this ratio is 8.1%. They use growth opportunities, cash flow volatility, debt ratio, cash flow, and bankruptcy risk explanatory variables. They find that although investing in liquidity is costly because liquid assets earn a low rate of return, firms may still hold a positive amount of liquid assets given uncertain future internal funds and costly external financing. Kim, Mauer and Sherman (1998, 355) find support for their model’s prediction that “the optimal investment in liquidity is increasing in the cost of external financing, the variance of future cash flows, and the return on future investment opportunities, while it is decreasing in the return differential between physical assets and liquid assets.”

Kim, Mauer and Sherman (1998) also note that firms may establish lines of credit with banks or commercial paper programs as an alternative to investing in liquid assets. Thus, I can infer that firms undertake revolving credit loans in anticipation of future investment opportunities.

According to James and Smith (2000) bank loans have characteristics which can help banks improve their ability to monitor “informationally-intensive” loans. First, most bank loans are collateralised. Second, bank loans typically have stringent covenants that require borrowers to maintain a set of financial ratios above a certain minimum. Another characteristic of bank loans is that they tend to be short-term. James and Smith (2000) also point out that the flexibility offered by lines of credit makes bank loans much more
attractive to borrowers compared to other types of debt. Finally, James and Smith (2000, 60) report that “the stock price reaction to loan announcements is most positive when companies that normally find it advantageous to borrow in public markets instead announce a bank loan.”

Cantillo and Wright (2000) examine how firms choose their lenders. They use two datasets obtained from Compustat, Moody’s manuals, and Compact Disclosure which result in a sample with a total of 5,845 companies. They develop a model based on a simple insight that publicly traded and privately held debts have advantages that dominate in different situations. They argue that the advantage of privately held debt is that it allows for less damaging intervention in distress. Publicly traded obligations, on the other hand, offer the security directly to arm’s length investors and hence, they argue, it is especially valuable when a firm is less likely to default and the service of an intermediary is less needed.

Cantillo and Wright (2000) show that large, profitable companies, with a high proportion of tangible assets, and high and stable cash flows tap credit markets directly. On the other hand, a firm with poorer prospects is more likely to need the intermediary’s reorganization skills. They also show that during investment downturns determinants of lender selection are much more critical and that the way firms enter and exit capital markets exhibits substantial asymmetries. An additional result is that once a firm has entered the markets for publicly traded debt, it will stay there even after their financial situations have changed (i.e., after their attributes have fallen well below the original entry level). Finally,
they claim that their results work best in a framework where intermediaries possess better “reorganisational skills” but a higher opportunity cost of capital than bondholders.

Graham and Harvey (2001) find weak evidence for the ‘underinvestment problem’ argument. However, they find that growth firms are more likely to be concerned with the underinvestment problem than the non-growth firms. Graham and Harvey (2001) report that among 38% of firms that seriously considered issuing common equity, earnings dilution is the most important factor affecting their decision. The concern is particularly pronounced among large, dividend-paying firms. Graham and Harvey (2001) also report the work of Graham (2000) who finds that firms use their financial flexibility to make future expansions and acquisitions. This is also true after expansion. However, Graham and Harvey (2001, 218) indicate that “the importance of flexibility in the survey responses is not related to informational asymmetry (size or dividend payout) or growth options in the manner suggested by the pecking-order theory.” Finally, they find that firms are reluctant to issue common stock when they perceive it is undervalued. Thus, their findings support the pecking-order theory.

Using a sample of 500 non-financial US firms with data extracted from the Compustat and CRSP files (NYSE/AMEX and NASDAQ) for the 1980-1993 period, Hadlock and James (2002) examine whether adverse selection problems influence a firm’s choice between new bank debt, public debt, or common stock. They also look at the costs and benefits of inside debt. Hadlock and James (2002, 1383) report that existing theories suggest that “a firm must consider the tradeoff between the benefits and costs of bank debt
financing relative to other potential financing choices.” They list the potential benefits of bank debt financing as including low moral hazard and adverse selection costs and in the case of financial distress, ease of renegotiation. On the other hand, bank debt financing is not without potential costs.

Hadlock and James (2002) classify potential costs of borrowing from banks into agency costs, monitoring costs, financial distress costs, information monopoly costs, and transaction costs. However, according to Hadlock and James (2002, 1384), “a firm’s financing choice will depend not on the absolute magnitude of these costs, but rather on the magnitude of these costs relative to the firm’s other potential financing choices.” They use the term “relative contracting costs” to refer to “the aggregate size of these costs relative to public securities.”

Hadlock and James (2002, 1384) reason that “firms tend to sell common stock, and, to a lesser extent, risky public debt, when their securities are overvalued by outsiders (i.e. the public).” Conversely, they argue that “firms that are undervalued by the public markets will be more likely to choose bank debt.” They point out that banks can accurately price a firm’s claims and hence alleviate adverse selection problems through “the information benefit of bank financing.”

Hadlock and James (2002, 1384) assess the empirical validity of the hypothesis that “banks have the ability to accurately price a firm’s claims, thus inducing a preference for firms that are undervalued by the market to choose bank finance.” They explain that their
analysis is motivated by the pecking order theory which suggests that firms tend to sell common stock, and to a lesser extent risky public debt, when their securities are overvalued by outsiders. If bank loans are considered as inside debt then “similar reasoning would suggest that firms that are undervalued by the public markets will be more likely to choose bank debt.”

Hadlock and James (2002) find that firms which exhibit small pre-announcement stock price runups and high stock volatility are more likely to announce new bank loans. These findings appear to be consistent with the presence of an information benefit to bank debt finance. This is because these firms are the most likely to be undervalued. On the other hand, they find that the sensitivity of the likelihood of choosing bank loans to information problems for firms that have public debt outstanding is not entirely explained by undervaluation variables. Hadlock and James (2002, 1415) argue that because the contracting costs of bank debt finance are relatively high for these firms, “it takes a high degree of undervaluation in the public securities markets for the firm to cross the threshold where the information benefits of bank debt finance outweigh the relative contracting costs.”

Hadlock and James (2002, 1415) conclude that their findings support the notion that “banks help alleviate adverse selection problems in the public capital markets” and these problems explain “the incremental financing choice to use bank debt more than they explain a firm’s overall use of bank debt at any point in time.”
Anderson (2002) reports the existing literature on real options and notes that maintaining liquid assets will be important for firms faced with growth opportunities whose expected returns fluctuate over time. Liquid asset holdings, however, has some unfavourable effects. Among these is the asset substitution problem as identified by Jensen and Meckling (1976). Anderson (2002) points out that if levered equity holders intend to engage in risky investments then they can only do so if the firm has sufficient liquid assets to allow this transformation to take place.

Fama and French (2002) indicate that the more profitable firms use less debt for given investment opportunities and that firms with greater investment opportunities will tend to borrow more for a given profitability. From a tradeoff model perspective, agency costs associated with greater free cash flow motivates firms to use more debt, while the possibility of financial distress causes firms to use more equity. Furthermore, they point out that the pecking order model assumes that debt is used to cover short-term variations in earnings, dividends and investments. An extension of their logic would be to assume that the debt used to cover the short-term variations would be the most flexible type of debt available.

Denis and Mihov (2003) use a sample of 1,560 new debt financings in period 1995-1996 to examine the choice among bank debt, non-bank private debt, and public debt. Their sample consists of 530 public debt issues, 740 bank loans and 290 private debt placements. They argue that incremental debt choices are likely to be linked with prior financing decisions. Denis and Mihov (2003, 5) find that “firms with public debt outstanding are
likely to issue public debt in their marginal financing choices. Conversely, firms that have *not established* (emphasis added) good credit reputation choose bank debt.” They report that bank debt appears to be the dominant choice for firms that have no debt or public debt outstanding. Specifically, 72% of firms that currently have no debt choose bank loans and over 50% of the firms that have no public debt outstanding choose bank debt. Conversely, firms that have public debt outstanding are more likely to choose public debt. Denis and Mihov (2003) report 63% of these firms choose public debt as their financing choice.

Using the firm’s existing mix of debt claims as the control variable, Denis and Mihov (2003) find that the main determinant of the choice of debt instrument is the credit quality of the issuing firm. They find that the quality of credit rating is highest for public debt borrowers, followed by bank debt borrowers and ranking last are non-bank private debt borrowers. They report that the median firm that issues public debt has a BBB debt rating while the median private or bank borrower is not rated. In addition, the highest rating for public debt borrowers is AAA. The corresponding ratings for bank debt borrower and non-bank private debt borrowers are AA and A, respectively. Denis and Mihov (2003, 18) also report that “54% of public issuers have an investment-grade rating, while only 5% of the bank borrowers and fewer than 2% of the non-bank private borrowers do, all significantly different at 1%.”

Denis and Mihov (2003) also discuss the differences between bank and non-bank private debt. More specifically, they look at the differences between these two types of debt in terms of regulatory requirements, maturity, placement structure, and the concentration
and identity of debt-holders. They reason that the market for non-bank private debt complements bank debt and public debt. Furthermore, non-bank private loans exhibit substantially different characteristics from bank loans. Denis and Mihov (2003, 5) argue that “non-bank private debt is particularly well suited to serving the needs of debt issuers with poor credit quality.” This finding implies that bank loans are signals that the borrowers must have possessed a minimum of credit quality.

Denis and Mihov (2003) also point out the importance of bank loan and non-bank private debt relative to public debt. They report that the median ratio of the amount borrowed to total assets is lowest for public debt (9%) and highest for bank debt (37%), with non-bank private debt (26%) in between. Denis and Mihov (2003, 6) conclude that “firms with higher levels of asymmetric information, and a higher probability of default, will issue private debt before public debt.”

Frank and Goyal (2003) test the pecking order theory by relating firms’ financing deficits with the type of financing used. They indicate that financing deficits should be financed by debt if the pecking order theory holds, but find that financing deficits are more closely related to equity issues. They also indicate that the effectiveness of the pecking order theory to explain firms’ capital structure is firm-specific. That is, they report large firms with long operating histories are more likely to follow the pecking order theory. Small high-growth firms have greater information asymmetry and would be expected to use more debt in their capital structure. However, contrary to pecking order predictions, firms use more equity. Frank and Goyal also point out that preference should be given to lower
information cost financing. This implies that firms should use short-term debt before going to the long-term public debt market. The maturity of bank debt is negotiable and bank debt can reduce adverse selection and moral hazard, thus lowering information costs.

Fama and French (2005) look at both the tradeoff theory and the pecking order theory in explaining capital structure. They show that firms issue/repurchase equity more frequently than the pecking order theory would suggest through a number of alternative processes. Methods for issuing new shares include frequent and relatively small issues to employees, and infrequent, but larger issues due to stock-financed mergers and seasoned equity offerings. They suggest information asymmetry is “modest” for issues to employees, rights issues and direct purchase plans. They report that though repurchase of shares is less frequent, approximately 20% of the firms in their sample retired equity each year. Fama and French (2005) indicate that the issue/repurchase activities are not consistent with the pecking order theory.

Elsas, Flannery and Garfinkel (2006) distinguish between built investments (i.e. capital expenditure) and investments “acquired” from outside the firm (i.e. acquisitions). They use a sample of 1,558 large investments made by 1,185 firms over the period 1989-1999 to study firm financing decisions and their long-term performance. They find that major investments are mostly funded by external finance and that new debt provides at least half the required funds in the investment year. About 15-20% of typical investment is financed by equity issues and most of the remainder by internal funds. Large firms tend to finance with debt and internal funds over equity. In addition, large investments tend to be
financed with more debt and less equity. They also find that when financing large investments firms aim at moving toward a target leverage ratio. They also report that firms use retained earnings and new equity issues to pay down debt and infer their results are consistent with the pecking order theory. However, they also find that financing proportions vary with firm size with smaller firms relying more on external equity funds. This result does not lend support for the pecking order theory of capital structure.

More recently Frank and Goyal (2006, 4) point out that “it is the financing deficit that drives debt issues. Empirically, however, other factors appear more important.” They argue that “the standard versions of both the trade-off theory and the pecking order theory appear to be inadequate.” According to Frank and Goyal (2006), enhancements of these two models have been brought forward by proponents of both theories. For the trade-off approach, the proponents focus mainly on developing dynamic structural trade-off models. Proponents of the pecking order theory focus on the development of a satisfactory notion of ‘debt capacity’ and on more complex adverse selection models. Frank and Goyal (2006, 4) note that “As a substantive matter, there is clear evidence that bankruptcy costs and direct transaction cost play at least some role and that leverage is stationary over the long run.” They argue that “There is room for reasonable differences of opinion regarding the relative importance of many factors including taxation, adverse selection, and various agency conflicts.”

Liu (2006) studies a sample of 3,399 firm-year observations of 961 US companies for the period 1996-2000 to examine the effects of different loan types of private debt on
firm cash balances, equity risk and investment. Liu (2006, 299) formulates two hypotheses. The information asymmetry hypothesis predicts that “firms with more private debt will hold less cash and invest more.” It also predicts that “firms borrowing from banks will maintain a lower cash balance and invest more than firms borrowing from nonbank financial intermediaries.” According to Liu (2006, 300) the moral hazard hypothesis predicts that “firms with more private debt will engage in less asset substitution. Firms with more private debt will have lower asset risk than firms with less private debt, ceteris paribus. Moreover, if firms with more private debt invest in fewer negative NPV projects than other firms, their investment will be less as well.”

Liu (2006) classifies private debt as bank debt, non-bank private debt, and unused lines of credit. Furthermore, bank debt includes revolving and non-revolving loans, and term loans outstanding. Non-bank private debts, on the other hand, are loans granted by non-bank financial intermediaries (e.g. insurance companies, pension funds, mutual funds, and other financing firms). Liu (2006, 295) claims his paper contributes to the finance literature in two ways. First, it examines “the implications of monitoring by financial intermediaries by analyzing the effects of private financing on firm decisions.” Second, it studies “the use of lines of credit – an important type of private debt that the finance literature has overlooked.” Liu (2006, 312) concludes that “depending on type, private borrowing mitigates either information asymmetry or asset substitution problem, or both.” And that “both outstanding bank loans and unused bank lines of credit increase investment through the reduction of information asymmetry, while non-bank private debt does not.”
Kayhan and Titman (2007, 5) note that in the pecking order hypothesis, “since debt is likely to be the marginal source of financing, firms with high financial deficits are likely to increase their debt ratios.” Kayhan and Titman (2007) find that the relation between leverage and financial deficit\(^{11}\) is relatively weak and this relation is reduced and can be reversed for firms with relatively high market-to-book ratios. They also find that the financial deficit has a stronger effect on capital structure when it is positive than when it is negative. Furthermore, they also find that firms that raised capital in years when their stocks are highly priced tend to reduce their debt ratios.

In summary, firms in the process of maximizing shareholders’ wealth have to make financing decisions that help them to achieve their ultimate goal. Whether firms use public or private debt depends on a number of factors. These include financial flexibility/slack (Myers and Majluf, 1984; Kim, Mauer and Sherman, 1998; Hadlock and James, 2002); project quality (Rajan, 1992); loan type (James and Smith, 2000); characteristics of borrowers (Denis and Mihov, 2003; and Elsas, Flannery and Garfinkel, 2006); firms’ profitability (Fama and French, 2002); investment opportunities, (Fama and French, 2002); and the degree of information asymmetry (Denis and Mihov, 2003; Liu, 2006).

In addition, within the private debt category, the loan structure and whether it is a bank or non-bank debt must be considered (Kim, Mauer and Sherman, 1998); renegotiability is another important determinant when firm make their financing decision

\(^{11}\) Kayhan and Titman (2007) define financial deficit as the net amount of debt and equity the firm issues or repurchases in a given year.
(James and Smith, 2000). I now summarise the literature on pecking order theory in Table 3.4 below.

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Theory/issue discussed</th>
<th>Main findings and/or arguments</th>
<th>Research Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Myers and Majluf (1984)</td>
<td>Pecking order theory</td>
<td>Firms maintain financial slack to avoid using external financing.</td>
<td>Any financing decision that allows firms to enhance firms’ ability to maintain financial slack is valued by firms and market.</td>
</tr>
<tr>
<td>Rajan (1992)</td>
<td>The choice between informed and arm’s length debt.</td>
<td>High-quality projects will issue public debt, while medium-quality firms will borrow from banks. Low-quality firms would choose public debt.</td>
<td>Quality of the firm can influence the firm’s financing decision.</td>
</tr>
<tr>
<td>Kim, Mauer and Sherman (1998)</td>
<td>The determinants of corporate liquidity</td>
<td>The basic motivation for holding liquid assets is the creation of financial slack which will allow firm insiders to pursue future attractive investment opportunities when they arise. Firms may establish lines of credit with banks or commercial paper programs as an alternative to investing in liquid assets.</td>
<td>Financial slack affects firm future investment and hence financing decisions. Loan structure is important in providing financial slack.</td>
</tr>
<tr>
<td>James and Smith (2000)</td>
<td>Are banks still special</td>
<td>Flexibility offered by lines of credit makes bank loans more attractive relative to other types of debt.</td>
<td>Firms prefer lines of credit to other types of debt.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
<td>Research Implication</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-------------------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Cantillo and Wright (2000)</td>
<td>Investment upturns and downturns and lender selection.</td>
<td>Publicly traded and privately-held debt have advantages that dominate in different situation.</td>
<td>Distinction between investment upturns and downturns can explain how firms choose lender.</td>
</tr>
<tr>
<td>Hadlock and James (2002)</td>
<td>Benefits and costs of bank loans</td>
<td>Market reaction to bank loans is more positive for firms that are more likely to be undervalued by the public markets. Firms that are undervalued by the public markets choose bank debt.</td>
<td>The extent of undervaluation can help explain why firms choose bank loans.</td>
</tr>
<tr>
<td>Fama and French (2002)</td>
<td>Testing trade-off and pecking order predictions.</td>
<td>The more profitable firms use less debt for given investment opportunities and firms with greater investment opportunities tend to borrow for a given profitability.</td>
<td>Investment opportunities are related to financing decisions and hence capital structure.</td>
</tr>
<tr>
<td>Frank and Goyal (2003)</td>
<td>Pecking order theory.</td>
<td>Net equity issues track the financing deficit more closely than do net debt issues.</td>
<td>Pecking order theory is not valid.</td>
</tr>
<tr>
<td>Denis and Mihov (2003)</td>
<td>Choices of debt</td>
<td>Firms with higher levels of asymmetric information, and a higher probability of default, will issue private debt before public debt</td>
<td>Risk of default and asymmetric information should be taken into account when examine pecking order theory.</td>
</tr>
<tr>
<td>Fama and French (2005)</td>
<td>Pecking order theory</td>
<td>The issue/purchase activities are not consistent with the pecking order theory.</td>
<td>More research needed to test the validity of pecking order theory.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
<td>Research Implication</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>------------------------------------------------</td>
<td>-----------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Elsas, Flannery and Garfinkel</td>
<td>Major investments, firm financing and long-run performance</td>
<td>Large firms tend to finance with debt and internal funds over equity. Large investments tend to be financed with more debt and less equity.</td>
<td>Firm size and investment size might influence the order of security issuance.</td>
</tr>
<tr>
<td>(2006)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liu (2006)</td>
<td>Sources of debt and firms’ financing decisions</td>
<td>Outstanding bank loans and unused bank lines of credit increase investment through the reduction of information asymmetry, while non-bank private debt does not</td>
<td>Bank debts are preferred by firms relative to non-bank private debt.</td>
</tr>
<tr>
<td>Kayhan and Titman (2007)</td>
<td>Effect of history variables on capital structure choices.</td>
<td>Firms with high financial deficits are likely to increase their debt ratios.</td>
<td>Relation between financial deficit and leverage should be considered in firms’ financing decision.</td>
</tr>
</tbody>
</table>

In view of the pecking order theory presented in the previous section, it would be interesting to see how firms choose their lenders in practice. In theory unknown borrowers are best served by banks that are able to screen and monitor them most effectively. On the other hand, established, profitable and reputable firms can access the capital market directly and use bank loans when their shares are undervalued or when they have substantial growth opportunities which cannot be funded by internal sources. The source of debt preferred by which firms and under what circumstances is an important empirical issue. Table 3.5 below summarises the types of borrower and their choices of debt financing.
<table>
<thead>
<tr>
<th>Bank loans</th>
<th>Capital market</th>
<th>Other non-bank private debts.</th>
</tr>
</thead>
<tbody>
<tr>
<td>High credit risk (Berlin and Mester, 1992).</td>
<td>Low credit risk (Berlin and Mester, 1992).</td>
<td></td>
</tr>
<tr>
<td>New borrowers or small firms without established credit reputation</td>
<td>Established and large firms (Chemmanur and Fulghieri, 1994).</td>
<td></td>
</tr>
<tr>
<td>(Diamond, 1991; and Slovin et al., 1992).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Financially distressed firms and small firms (Chemmanur and Fulghieri, 1994).</td>
<td>Large, profitable firms, high proportion of tangible assets. and high and stable cash flows tap credit markets directly (Cantillo and Wright, 2000).</td>
<td></td>
</tr>
<tr>
<td>Large borrowers choose more reputable banks (Billett, Flannery and Garfinkel, 1995).</td>
<td>Large and profitable firms choose public debt (Denis and Mihov, 20003).</td>
<td></td>
</tr>
<tr>
<td>Poor prospect firms (Cantillo and Wright 2000).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms which exhibit small pre-announcement stock price run-ups and high stock volatility choose bank loans (Hadlock and James, 2002).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Firms with medium credit quality (Denis and Mihov, 2003).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Large, old and reputable firms choose bank loans (Liu, 2006).</td>
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</tbody>
</table>
Table 3.6 provides a summary of choices of financing sources for borrowers. It can be seen that during the period 1970-1996, bank loans account for a significant proportion (40.2%) to total external debt incurred by these businesses which was followed by bonds (35.5%). Stocks account for a small proportion of the total external financing (9.2%) whereas non-bank loans ranked third and accounted for 15.1%. For the longer period 1970-2000, Mishkin and Eakins (2005) show that the relative importance of the sources of external funding has changed significantly with non-bank loans accounting for a much greater proportion (38%) of the total external funding for non-financial businesses whereas bank loans decreased significantly. This may be a result of the entry of more institutional investors (e.g., insurance companies, mutual funds, etc.) into the financial markets. The proportions accounted for by bond and stock remained essentially stationary.

### Table 3.6: Sources of external funding for non-financial businesses in the US.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stock</td>
<td>9.2</td>
<td>11</td>
</tr>
<tr>
<td>Bond</td>
<td>35.5</td>
<td>32</td>
</tr>
<tr>
<td>Bank loans</td>
<td>40.2</td>
<td>18</td>
</tr>
<tr>
<td>Non-bank loans</td>
<td>15.1</td>
<td>38</td>
</tr>
</tbody>
</table>

Source: *Mishkin (2006); **Mishkin and Eakins (2005)

### 3.2.5.3 Market Timing Theory

According to market timing theory, firms issue securities depending on the relative costs of equity and debt from time to time. That is, firms issue equity when its cost is low relative to debt and conversely firms issue debt otherwise. The theory also states that the
observed capital structure at any date is the outcome of previous securities issuance decisions and these decisions have a long lasting impact on the capital structure of the firm.

Graham and Harvey (2001) find that chief financial officers try to time the equity market and that a majority indicated the valuation of the stock is an essential factor in deciding when to issue common stock. Equity is issued (repurchased) when the cost of equity is “irrationally low (high)”. Accordingly, if market timing is successful, share price is enhanced and subsequent long-run stock returns will be favourable. If this scenario holds, observed capital structures reflect the success, or failure, of past market timing efforts.

Baker and Wurgler (2002) review existing literature on the market timing theory and find that this theory is supported by evidence in four kinds of studies. The first kind of study considers actual financing decisions by firms (e.g., Jung, Kim, and Stulz, 1996; Hovakimian, Opler and Titman, 2001). The second examines long-run stock returns following corporate finance decisions (e.g., Loughran and Ritter (1995), Spiess and Affleck-Graves (1995) and Fama (1998)), while the third examines earnings forecasts and realizations around equity issues (e.g., Loughran and Ritter (1997) and Denis and Sarin (2001)). Finally, there are surveys of market timing behaviour of managers. Baker and Wurgler (2002) remark that surveys are the most effective and convincing type.

Baker and Wurgler (2002) present a market timing model to explain observed capital structures. They regress leverage on an “external finance weighted-average market-to-book ratio” and find that leverage is strongly negatively related to the market-to-book
ratio. They also find that firms with low leverage are those that raised funds when their market valuations are high. Conversely, those with high leverage are those that raise funds when their equities are low. Their results support the market timing theory. Hence, Baker and Wurgler (2002, 29) conclude that “capital structure is the cumulative outcome of attempts to time the equity market.” They show firms that practice market timing in their financing decisions exhibit positive long-run returns. In addition, they indicate that financing decisions are influenced by forecast earnings that are optimistically interpreted by the market.

Schultz (2003) examines a phenomenon that he refers to as “pseudo market timing.” According to Schultz (2003, 484), the premise of the pseudo market timing hypothesis is that “the more firms can receive for their equity, the more likely they are to issue stock even if the market is efficient and managers have no timing ability.” Using simulations with parameters estimated from historical data, Schultz (2003) shows that this hypothesis can explain the poor event-time performance of stocks that have recently issued equity. He also suggests that to avoid biases from pseudo market timing and cross-sectional dependence in event-time, researchers should use calendar-time returns rather than event-time returns.

Huang and Ritter (2005) test the market timing model by examining the patterns of external financing decisions over time. They use the cost of equity and the cost of debt to determine whether firms issue securities consistent with the relative costs of the sources of funds. Consistent with the market timing theory, they find that during the period 1963-2001, US firms use external equity financing when the cost of equity relative to other
securities is lower. They also report that the magnitude of the effect is “economically and statistically significant.” Specifically, they find that an increase in the implied risk premium by 1% would result in approximately a 3% change in the financing deficit funded with net debt. Finally, Huang and Ritter (2005) use a multinomial logit model to estimate whether a firm issues securities and what security they should issue. They find that the implied equity risk premium is the most important explanatory variable in the decision to issue equity even after controlling for growth opportunities.

Using 56,259 firm-years to examine the corporate financing behaviour for the period 1983-2002 in US, Hovakimian (2006, 241) finds a number of interesting results. First, he finds “no evidence of significant equity market timing for debt issues and debt reductions.” Second, while his results are consistent with market timing of equity issues “the effects of equity transactions on capital structure are small and transitory, implying that equity transaction timing is unlikely to be responsible for significant long lasting effects of market-to-book ratios on leverage.” Third, “the patterns of changes in the market-to-book and debt ratios around a number of transactions (e.g., debt reductions) are such that these transactions may induce a positive rather than a negative relation between market-to-book ratios and leverage.” In addition, the external finance weighted average market-to-book ratio affects firms’ current financing and investment decisions. This is because the former variable contains information about future growth opportunities of those firms. Also the negative effect of market-to-book ratio on leverage is mainly a cross-sectional not a time-series phenomenon. These findings do not support the market timing theory.
Butler, Grullon and Weston (2006) test whether managers can successfully time the maturity structure of their debt issues. According to Butler, Grullon and Weston (2006, 1736), the underlying hypothesis of successful market timing is that “corporate managers strategically shift between long-term and short-term…” Therefore, Butler, Grullon and Weston (2006, 1736) argue that “if managers can successfully predict future excess long-term bond returns, then the maturity of new debt issues today should be related to future excess long-term bond returns.” According to these authors, this result provides “evidence of successful forward-looking timing.” That is, when managers predict that future excess long-term bond returns will be relatively low then they issue more long-term debt relative to short-term debt. Butler, Grullon and Weston (2006) offer an alternative explanation of this result which is consistent with the efficient markets hypothesis. They argue that “a structural shift in the time series of excess long-term bond returns can create illusion of successful forward-looking timing.” They find evidence of a structural break in 1982 around a significant change in US monetary and fiscal policy. As a result, this break can create “the false appearance of successful forward-looking timing.” Butler, Grullon and Weston (2006, 1733) conjecture “the correlation between the long-term share (the predictor) and the structural break is driven by managers’ reaction to the break.” In fact, they find that if they condition on the structural shift, “the correlation between the long-term share and future excess returns disappears.”

Butler, Grullon and Weston (2006) also examine the successful market timing hypothesis using firm-level data. They find no evidence of correlation between net long-term debt issues and future excess bond returns. In particular, they find that in any
particular year, about half of all firms that issue new debt are net long-term debt issuers while the other half are net short-term issuers, regardless of whether long-term excess bond returns are high or low.

Eckbo, Masulis and Norli (2006) discuss models of rational market pricing, non-rational agents and pseudo timing. Within the context of the first class of models, Eckbo, Masulis and Norli (2006) cite the work of Choe, Masulis and Nanda (1993) who provide an adverse selection argument where firms choose between issuing debt and equity across business cycle expansions and contractions. In this model, firms receive “non-deferrable profitable investment opportunities” and these must be financed by issuing debt or equity securities. If a firm issues debt, investors will demand protective covenants or a price discount for anticipated asset substitution risk. Choe, Masulis and Nanda (1993) argue that firms with undervalued equity will only issue equity when the dilution cost for doing so is less than or equal to the debt issuance cost. According to Choe, Masulis and Nanda (1993), corporate investment opportunities are typically more profitable during periods of economic expansions than in the contraction periods. Hence during economic expansions, dilution cost of equity issuance is low but the cost of debt issuance is relatively insensitive to the point in the business cycle when firms offer debt securities. The model predicts that the equity announcement effect will be low and there will be a rise in the relative frequency of equity offers. The model also predicts that the adverse selection effect increases as investor uncertainty concerning the value of assets in place rises. Choe, Masulis and Nanda (1993) find supporting evidence for their predictions. During economic contractions, debtholders bear greater risk and demand greater risk premiums. Hence during
contractions, equity issues would cause firms’ leverage to fall more than would otherwise be the case. Consequently, during economic contractions equity issues will be greater and less frequent and a more negative stock price reaction should be observed.

Eckbo, Masulis and Norli (2006) also examine timing theories with non-rational market pricing. They look at a number of hypotheses regarding the timing of firm-specific returns. For example, they look at the timing hypothesis which refers to the notion that investors are overly optimistic about the prospects of issuing firms and consequently their reactions do not fully incorporate managerial incentives to time equity issues. Eckbo, Masulis and Norli (2006) also discuss the overconfidence hypothesis (e.g., Daniel, Hirshleifer, and Subrahmanyam, 1998; Brous, Datar and Kini, 2001). According to Eckbo, Masulis and Norli (2006, 93) this hypothesis states that “investors are overconfident about the precision of their private information, but not about the precision of public information.” A consequence of overweighting private information is that investors will under-react to new public information. Hence, corporate events that are associated with abnormal announcement returns should be followed by long-run abnormal returns of the same sign as the announcement abnormal returns. Eckbo, Masulis and Norli (2006) also discuss the argument of Brous, Datar and Kini (2001). If managers time equity issues and investors systematically underreact to the issue announcements, then one should expect to see that investors are disappointed when firms report post-issue earnings. That is, post-issue earnings announcement on average should be associated with negative stock price reactions.
Eckbo, Masulis and Norli (2006) also review the literature on the “timing the market” issue. They look at the work of a number of researchers, including Baker and Wurgler (2000), Schultz (2004), Butler, Grullon and Weston (2005) and Baker, Ruback and Wurgler (2006). They note that the main point in the study of Butler, Grullon and Weston (2005) is that “pseudo market timing can appear as real timing ability in small samples.” Eckbo, Masulis and Norli (2006, 96) also examine Baker, Taliaferro and Wurgler (2004) and Schultz (2004) and note that “what causes the apparent ability of firms to time their equity issues to periods that are followed by low market returns is still inconclusive.”

Eckbo, Masulis and Norli (2006) also look at the evidence on long-run post-issue stock returns. They report the stylized fact that stocks surprisingly generate low returns over the holding period of 2-5 years following an equity issue. Eckbo, Masulis and Norli (2006, 96) argue that “this long run return evidence challenges the efficient market hypothesis and motivates the development of behavioral asset pricing models.” They also report the counter-evidence by a number of other authors (e.g., Brav, Geczy, and Gompers, 2000; Eckbo, Masulis, and Norli, 2000) who show that “the low post-issue return pattern is consistent with standard multi-factor pricing models, and tends to be concentrated in small growth stocks with active investment programs.” However, Eckbo, Masulis and Norli (2006, 96) note that “the proper interpretation of the low long-run returns following security issuances remains an unsettled issue.” Eckbo, Masulis and Norli (2006) argue that the long-run performance evidence has important implications for the overall question of corporate timing and market efficiency.
Kayhan and Titman (2007) find that stock price changes have a strong effect on market leverage ratios and that past stock returns do influence the ratio of debt to book value of assets. The latter finding supports the market timing theory that firms are more likely to issue equity subsequent to stock price increases. Table 3.7 below summarises the main findings about market timing.

In summary, according to the market timing theory a firm would issue its equity when it is overvalued by the market and otherwise it would repurchase its shares from the market. Existing literature appears to give support to this practice. Both Graham and Harvey’s (2001) survey and Baker and Wurgler’s (2002) study give support to the market timing theory. Huang and Ritter (2005) discuss the cost of equity issuance and find some support for the market timing theory. Kayhan and Titman (2007) find past stock returns can influence firms’ debt to asset ratio and this is evidence of market timing. However, a number of researchers have raised the question whether managers do indeed market time when issuing equities. For example, Schultz (2004) discusses the issue of pseudo-market timing. Butler, Grullon and Weston (2006) point out that a structural shift in the time series of excess long-term bond returns can create an illusion of successful forward-looking timing. Some researchers indicate other factors need to be taken into account when examining the market timing practice of firms. For example, Choe, Masulis and Nanda (1993) point out the sensitivity of dilution cost of equity issuance to different phases of the business cycle. I now present the tabular summary of existing findings about market timing theory in Table 3.7.
<table>
<thead>
<tr>
<th>Researcher</th>
<th>Theory/issue discussed</th>
<th>Main findings and/or arguments</th>
<th>Research Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Graham and Harvey (2001)</td>
<td>Capital structure theories and firm’s practices.</td>
<td>Earnings dilution is the most important factor affecting firms’ decision to issue equity. The valuation of the stock is an essential factor in deciding when to issue common stock.</td>
<td>Earnings dilution and valuation of stock should be considered in examining market timing practice.</td>
</tr>
<tr>
<td>Baker and Wurgler (2002)</td>
<td>Market timing and capital structure.</td>
<td>Capital structure is the cumulative outcome of attempts to time the equity market. Firms with low leverage raise funds when their market valuations are high. Conversely, high leverage firms raise funds when their equities are low.</td>
<td>Capital structure is influenced by market timing activities of firms. Leverage is related to timing activities of firms.</td>
</tr>
<tr>
<td>Schultz (2003)</td>
<td>Pseudo market timing.</td>
<td>The more firms can receive for their equity, the more likely they are to issue stock even if the market is efficient and managers have no timing ability.</td>
<td>Security issuance activities might not be a result of market timing.</td>
</tr>
<tr>
<td>Huang and Ritter (2005)</td>
<td>Market timing theory of capital structure.</td>
<td>Firms use external equity financing when the cost of equity relative to other securities is lower. The implied risk premium is the most important explanatory variables in the decision to issue equity. If firms adjust quickly toward a target capital structure, then market timing will have only short-lived effects on capital structure.</td>
<td>Cost of security issuance should be considered as a main reason in any context. Whether firms adjust toward a target capital structure is an important issue.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
<td>Research Implication</td>
</tr>
<tr>
<td>----------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------------------------------------------</td>
<td>-----------------------------------------------------------</td>
</tr>
<tr>
<td>Hovakimian (2006)</td>
<td>Observed capital structure and market timing?</td>
<td>Equity transactions do not have long lasting effects on capital structure.</td>
<td>Distinction of transitory and permanent effect of security issuance on capital structure is needed.</td>
</tr>
<tr>
<td>Butler, Grullon and Weston (2006)</td>
<td>Managers’ ability to time market.</td>
<td>A structural shift in time series of excess long-term returns can create illusion of successful forward-looking timing.</td>
<td>Structural breaks (shifts) should be observed when examining market timing activities of managers.</td>
</tr>
</tbody>
</table>

### 3.2.6. EARNINGS ANNOUNCEMENTS

Ball and Brown (1968) provide evidence of existence of information content in accounting earnings announcements. They find significant positive correlation between the abnormal return in the month of an earnings announcement and the earnings change over that firm’s previous year’s earnings.

Ball and Brown (1968) also test for market efficiency in relation to its reaction to good and bad news earnings announcements. That is, they test whether the market’s reaction is instantaneous and unbiased. They find evidence of post-earnings announcement drift. This suggests that the market under-reacts to the information content of earnings announcements and, hence, subsequent gradual adjustments must follow.
Barberis, Shleifer and Vishny (1998) formulate a model that explains price anomalies. In their model, they assume that “earnings follow a random walk” but that investors believe earnings alternate between two regimes, one in which earnings mean revert and one in which earnings trend. According to Barberis, Shleifer and Vishny (1998, 308), investors have “two cognitive biases” that are identified by psychological research: the “representative heuristic bias” meaning “the tendency of experimental subjects to view events as typical or representative of some specific class,” and the “conservative bias” meaning “the slow updating of models in the face of new evidence.”

Denis and Sarin (2001) use a sample of 1,213 seasoned equity offerings to examine the stock price reaction to earnings announcements in the five years following seasoned equity offerings. They report positive excess returns in the four quarterly earnings announcements prior to a seasoned equity offering, but primarily negative (though not generally significant) excess returns for the twenty quarters post-issue. They find stock price reactions to post-SEO earnings announcements are significantly negative with an average abnormal return of -0.21%. Furthermore, they find that these abnormal stock price reactions are more than likely to be negative within the smallest quartile of equity issuers. Denis and Sarin (2001, 190) conclude that “for small firms, therefore, our results are broadly consistent with the over-optimism hypothesis.”

Brous, Datar and Kini (2001) also report negative excess returns associated with earnings announcements following seasoned equity offerings, but when they adjust for non-
announcement period returns, they find that the market’s negative reaction is not due to the earnings announcement.

Baker and Wurgler (2002) examine the impact of earnings announcements on managements’ decision to issue new equity. They suggest that if earnings announcements are viewed too favourably by the markets, then managers would be encouraged to seek additional equity because they have an opportunity to sell shares at a premium.

Landsman and Maydew (2002) find no evidence of a decline in the information content of earnings announcements over the past three decades. In fact, they find an increase in the informativeness of earnings announcements over time, as measured by abnormal stock price volatility and abnormal trading volume.

Kothari, Lewellen and Warner (2004) study the market’s reaction to aggregate earnings news to examine the links between earnings, stock prices, and discount rates. Kothari, Lewellen and Warner (2004, 18) find that “market earnings are more persistent than individual firms’ earnings.” However, they do not find any relation between aggregate returns and past earnings surprises. They infer that there is no evidence of delayed reaction to aggregate earnings news. In addition, they find that aggregate returns are negatively correlated with contemporaneous earnings surprises. They report that, for the period 1970-2000, stock prices increased 6.5% in quarters with negative earnings growth and only 1.9% otherwise. They also document that concurrent earnings explain about 5%-10% of the variation in quarterly market returns and 10%-20% of the variation in annual returns.
Finally, Kothari, Lewellen and Warner (2004, 28) find that “aggregate earnings are strongly correlated with macroeconomic conditions, including measures of real activity and proxies for discount rates (T-bill rates, the term spread, and the default premium).”

Nichols and Wahlen (2004) use the three theoretical links between earnings and share prices developed by Beaver (1998) and present new evidence on the relation between earnings and returns. They replicate and extend Beaver’s study using a sample of 31,923 firm-year observations over the period 1988-2001. Specifically, Nichols and Wahlen (2004, 264) look at the link between the current period earnings and future earnings - which they argue, will “provide information to develop expectations about dividends in future periods.” They argue that the latter expectations in turn provide information for the valuation of shares that indicates the present value of expected future dividends.

Nichols and Wahlen (2004) find that the sign of annual earnings changes are significantly related to annual stock returns. Specifically, they find that the difference in the sign of the change in earnings is associated with a difference of over 35% in the average firm’s annual stock returns for their study period. They also find that the stock returns of 10% of firms with the largest earnings increases outperform 10% of firms with the largest earnings decreases by an average of over 72% per year. In addition, they show that changes in annual earnings appear to contain more “value-relevant information” than changes in annual cash flows from operations.
Nichols and Wahlen (2004, 265) also find that firms with high earnings persistence exhibit higher stock returns in response to news of earnings increases than firms with low earnings persistence. This is because, they argue: “stock returns react more strongly to changes in earnings that are likely to recur than to changes likely to be transitory.” However, they did not find any such relation between earnings persistence and stock returns for earnings decreases, presumably, because “earnings decreases are typically not persistent.”

Nichols and Wahlen (2004, 265) report that the market does not react completely to earnings news. In particular, “stock returns continue to drift up for firms with positive earnings changes and drift down for firms with negative earnings changes during the 60 trading days after the release of quarterly earnings.” They group the firms in their sample into deciles based on unexpected earnings per share and find that the lowest unexpected earnings portfolio experiences an average negative abnormal return of 2.2% whereas the highest unexpected earnings portfolio enjoys a positive average abnormal return of 3.0%.

Allen, Guo and Weintrop (2004) examine 11,034 quoted prices for syndicated loans from 196 firms for 2,127 quarterly earnings announcements over the period from the last quarter of 1998 to December 2002. They investigate whether and when the syndicated bank loan price in the secondary market reflects information in quarterly earnings. They find no evidence of any price movements in the secondary loan market at the time of the release of the quarterly earnings announcement. However, they do find significant price movements in the secondary loan market around the time of monthly covenant reports to members of
the syndicate. Allen, Guo and Weintrop (2004) also find information leakage regarding upcoming quarterly earnings to be asymmetric between good and bad news firms during the pre-announcement period. Finally, they document that the information content in syndicated bank loan prices is much more pronounced for firms with high intangible assets that experience declining earnings than firms with low intangible assets that also experience declining earnings.

Billett, Flannery and Garfinkel (2006) also test whether initiating a banking relationship will cause borrowers to become more transparent by examining the impact of earnings announcements and the return volatility associated with the announcements. They find that earnings announcements result in a negative share price reaction, suggesting that the market views managers as having imprudently timed their bank loan, acquired a relatively inflexible loan, or have not used the proceeds effectively. Furthermore, they argue that if a banking relation results in improved transparency, the volatility of the abnormal returns should be lower after a firm announces a bank loan because of reduction in information asymmetry. Surprisingly, they report that the volatility of abnormal returns around earnings announcement dates is greater subsequent to the acquisition of the loan.

In summary, the literature shows some evidence that earnings announcements appear to be related to stock returns. The pioneering work of Brown et al. (1968) reports abnormal return on earnings announcement is positively correlated to the earnings change of the firm from the previous year. Baker and Wurler (2002) find favourably viewed earnings announcements do impact equity issuance. Nichols and Wahlen (2004) find the
sign of annual earnings changes are significantly related to annual stock returns. Kothari, Lewellen and Warner (2004) find aggregate earnings are more persistent than individual firms’ earnings. However, they find no relation between aggregate returns and past earnings news. Nonetheless, Kothari, Lewellen and Warner (2004, 3) point out that “a negative reaction to aggregate earnings is entirely consistent with a positive reaction to firm earnings.”

Other researchers find mixed results for the correlation between earnings announcements and stock returns. For example, Denis and Sarin (2001) find evidence of positive excess returns in the four quarterly earnings announcements prior to a SEO, but primarily negative excess returns for the 20 quarters post-issue. Allen, Guo and Weintrop (2004) find no evidence of any price movements in the secondary loan market at the time of the release of the quarterly earnings announcement. Billett, Flannery and Garfinkel (2006) find earnings announcements result in a negative share price reaction and the volatility of abnormal returns around earnings announcement dates is greater subsequent to the acquisition of the loan. Overall, however, the consensus is that earnings announcements are correlated to stock returns of announcers. Table 3.8 below summarises the main findings of this section.
<table>
<thead>
<tr>
<th>Researcher</th>
<th>Theory/issue discussed</th>
<th>Main findings and/or arguments</th>
<th>Research Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball and Brown (1968)</td>
<td>Information content of earnings announcement.</td>
<td>The abnormal return on earnings announcement is positively correlated to the earnings change of the firm from previous year.</td>
<td>Prior performance of firm is associated with announcement effect.</td>
</tr>
<tr>
<td>Denis and Sarin (2001)</td>
<td>Stock price reaction to earnings announcements following SEOs.</td>
<td>There is evidence of positive excess returns in the four quarterly earnings announcement prior to a SEO, but primarily negative excess returns for the 20 quarters post-issue. Firms issue equity when the market overestimates the firm’s future earnings performance.</td>
<td>Market timing can be present with any security issuance.</td>
</tr>
<tr>
<td>Nichols and Wahlen (2004)</td>
<td>Relation between accounting earnings information and firms’ stock returns.</td>
<td>The sign of annual earnings changes are significantly related to annual stock returns. The stock returns of ten percent of firms with the largest earnings increases outperform ten percent of firms with the largest earnings decreases by an average of over 72 percent per year. High earnings persistence exhibit higher stock returns in response to news of earnings increases than firms with low earnings persistence.</td>
<td>Examination of stock returns following earnings announcements is necessary for any corporate event.</td>
</tr>
</tbody>
</table>
Table 3.8: Summary of literature review on earnings announcements and firms performance (contd.).

<table>
<thead>
<tr>
<th>Researcher</th>
<th>Theory/issue discussed</th>
<th>Main findings and/or arguments</th>
<th>Research Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allen, Guo and Weintrop (2004)</td>
<td>Secondary syndicated loan market and information content of earnings.</td>
<td>No evidence of any price movements in the secondary loan market at the time of the release of the quarterly earnings announcement. There are significant price movements in the secondary loan market around the time of monthly covenant reports to members of the syndicate.</td>
<td>Prior information about firms does influence stock price reaction to announcements of earnings.</td>
</tr>
<tr>
<td>Kothari, Lewellen and Warner (2004)</td>
<td>Aggregate earnings news and the links between earnings, stock prices and discount rates.</td>
<td>Aggregate earnings are more persistent than individual firms’ earnings. However, there is no relation between aggregate returns and past earnings news.</td>
<td>Aggregate earnings and firm’s earnings have different influences on stock prices.</td>
</tr>
</tbody>
</table>
3.2.7. ACCOUNTING INFORMATION AND MARKET RETURNS

Over the years, a number of studies have related accounting information to market performance. Dambolena and Khoury (1980) present a model for predicting corporate failure that uses financial ratios and discriminant analysis. They use 19 financial ratios in their study, ranging from ratios measuring profitability to those measuring indebtedness. They find that their measures of ratio stability showed remarkable differences between failed and non-failed firms. In particular the standard deviation of the profit to net worth ratio of the failed firms on the year prior to failure exceed 0.50 whereas that for non-failed firms is in the range of 0 to 0.06.

Dubofsky and Varadarajan (1987) examine the relation between diversification strategy and performance using both an accounting measure and market measures of performance. For an accounting measure, they use return on assets (ROA) to measure firm performance. They use the average ROA for each firm to reduce the probability that performance data from an unusually good or bad year would confound the analysis. They then divide each firm’s average ROA by its standard deviation for standardization purposes. Dubofsky and Varadarajan (1987) also document the common measures of economic performance based on market return: Sharpe’s (1966) measure, Treynor’s (1965) levered and unlevered measures, and Jensen’s (1968) levered and unlevered measures. They note these market-return measures are based on average returns on each firm’s stock above the risk-free rate of returns. Dubofsky and Varadarajan (1987, 606) find that “the type of performance measure used – accounting and market based – seem to lead to
conflicting inferences about the relationship between diversification strategy and a firm’s performance.” They reason that “Since market measures reflect the market’s perception of future earnings and accounting measures reflect a previous years’ earnings and a current balance sheet, there might be some discrepancy between the measures if a firm’s strategy has a lagged effect.”

Mikkelson, Partch and Shah (1997) examine the relations between ownership characteristics and operating performance up to ten years after going public for a sample of 283 IPOs of US companies for the period 1980-83. Their measure of operating performance is operating income before depreciation, interest, tax and extraordinary items divided by end-of-year assets (EBITDA/Total Assets). They find that median operating return on assets declines from the year before the offering to the end of the first year of public trading.

Kane and Meade (1998) use a set of transformed ratios to examine the association between financial ratios and stock returns. Kane and Meade (1998, 60) find that “some information is contained in scaled rank transformation of ratios that is obfuscated by either untransformed ratios or logarithmic ratio transformations.” According to Kane and Meade (1998) earnings growth has been shown to be positively correlated with stock returns (Beaver, Kettler and Scholes, 1969). Increased ex-post growth rates imply a greater likelihood of increased future earnings and sales. Kane and Meade (1998) also report substantive evidence that stock returns are negatively correlated with dividend yields (Rozell, 1984; Campbell and Shiller, 1998).
Liu and Thomas (2000) use first differences of earnings per share from both I/B/E/S$^{12}$ and Compustat databases to measure unexpected earnings. Liu and Thomas (2000, 73) reason that “earnings quality can be measured by the observed relation between current-period unexpected earnings and revisions of forecasts for future-period earnings: a stronger relation implies higher quality.” They Liu and Thomas (2000, 98) also argue that “inferences about the value relevance of accounting earnings made from simple regressions of unexpected returns on current unexpected earnings are potentially misleading.”

DeFond and Hung (2003) examine analysts’ earnings forecasts for US firms for the period from 1993 to 1999 and find that 12% of the 8,886 firms with earnings forecasts over this period also have at least one cash flow forecast. They argue that analysts have incentives to make cash flow forecasts in addition to earnings when there is a relatively greater demand for cash flow information in valuing securities. They find that analysts are more likely to forecast cash flows for firms with (1) large accruals, (2) more heterogeneous accounting choices relative to their industry peers, (3) high earnings volatility, (4) high capital intensity, and (5) poor financial health. According to DeFond and Hung (2003), research in this area typically examines the usefulness of earnings and cash flows in securities valuation by investigating analysts’ cash flow forecasts. Thus, cash flow is an important variable in valuing and predicting future firm prospects.

$^{12}$ I/B/E/S: Institutional Brokers Estimate System.
Nissim and Penman (2003) distinguish between operating liabilities and financing liabilities. They examine whether a dollar of operating liabilities on the balance sheet is priced differently from a dollar of financing liabilities. As operating and financing liabilities are components of the book value of equity, they reason that one can examine whether price-to-book ratios depend on the composition of book values. Furthermore, because the price-to-book ratio is determined by the expected rate of return on the book value, they argue, if components of book value command different price premiums, they must imply different expected rates of return on book value. Thus, Nissim and Pennan’s (2003) argument also justifies my use of accounting measures of return to examine firm performance.

However, Titman et al. (2004, 698) reason that increased investment expenditures may result in negative stock returns. They find that “firms that increase their level of capital investment the most tend to achieve lower stock returns for five subsequent years.” And that “the negative relation between abnormal investments and stock returns cannot be explained by either the risks or the characteristics of the firms and are independent of the previously documented long-term return reversal and secondary equity issue anomalies.”

Eberhart et al. (2004) examine a sample of 8,313 cases between 1951 and 2001 where firms unexpectedly increase their research and development expenditures significantly. They find that for the five-year period following these increases, firms experience significantly positive abnormal operating performance. They also find that shareholders of these firms experience significantly positive abnormal stock. However, they
point out that R&D increases are investment decisions not financing decisions and as such they are seldom announced. For this reason, Eberhart et al. (2004, 648) argue that “R&D provides an ideal test of the ability of the market to correctly incorporate the intangible information contained in a firm’s long-term investment decision.” They find that “investors systematically under-react to the benefit of an R&D increase.”

In a bank loan context, Billett, Flannery and Garfinkel (2006) use operating-income-before-depreciation-to-total-assets, the net profit margin, the net return on assets, and capital-expenditure-plus-R&D-to-total-assets as measures of operating performance and investment. They find that operating performance of borrowers was poor in the year prior to the loan announcement and in the subsequent three years.

In summary, the literature suggests that there must be a link between firm performance and their stock returns. This link is manifested directly or indirectly in many aspects of the firms’ operation. For example, stability of firms’ financial ratios is related to success or failure of firms (Dambolena and Khoury, 1980). Measures of performance appear to be important in relations between firms’ policies and firms’ performance (Dubofsky and Varadarajan, 1987).

Titman et al. (2004) find firms that significantly increase capital investments subsequently experience negative stock returns. On the other hand, Eberhart et al. (2004) find that for the five-year period following research and development expenditure increases, firms experience significantly positive abnormal operating performance. Finally,

In Table 3.9 below I summarise the findings of the main papers in relation to the association between accounting and market returns.
<table>
<thead>
<tr>
<th>Researcher</th>
<th>Theory/issue discussed</th>
<th>Main findings and/or arguments</th>
<th>Research Implication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dubofsky and Varadarajan (1987)</td>
<td>Diversification and measures of performance.</td>
<td>The type of performance measure used – accounting and market based – seem to lead to conflicting inferences about the relationship between diversification strategy and a firm’s performance.</td>
<td>Other factors might need to be considered in relation to the association between accounting return and market return.</td>
</tr>
<tr>
<td>Mikkelson, Partch and Shah (1997)</td>
<td>The relationship between ownership characteristics and operating performance (1980-1983).</td>
<td>Ownership decreases from 67% prior to IPO issue to 43.7% immediately afterward and further declined to 28.6% after five years. Operating performance, however, is not related to ownership of officers and directors.</td>
<td>Ownership can be significant explanatory variable?</td>
</tr>
<tr>
<td>Kane and Meade (1998)</td>
<td>Ratio analysis and rank transformation.</td>
<td>Increased ex-post growth rates imply a greater likelihood of increased future earnings and sales. Stock returns are negatively correlated with dividend yields.</td>
<td>If market valuation of firms is related to firms’ growth rates then stock returns should also be related to firms’ earnings.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
<td>Research Implication</td>
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<td>--------------------------</td>
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<tr>
<td>Liu and Thomas (2000)</td>
<td>Stock returns and accounting returns.</td>
<td>Earnings quality can be measured by the observed relation between current-period unexpected earnings and revisions of forecasts for future-period earnings. Inferences about the value relevance of accounting earnings made from simple regressions of unexpected returns on current unexpected earnings are potentially misleading.</td>
<td>There might be an inter-temporal relationship between earnings and expected earnings.</td>
</tr>
<tr>
<td>DeFond and Hung (2003)</td>
<td>Analysts’ earnings forecasts and demand for cash flow information in valuing securities.</td>
<td>Firms with earnings forecasts over this period also have at least one cash flow forecast. Analysts are more likely to forecast cash flows for firms with (1) large accruals, (2) more heterogeneous accounting choices relative to their industry peers, (3) high earnings volatility, (4) high capital intensity, and (5) poor financial health.</td>
<td>Analysts’ earnings forecast do have implication for market returns.</td>
</tr>
<tr>
<td>Researcher</td>
<td>Theory/issue discussed</td>
<td>Main findings and/or arguments</td>
<td>Research Implication</td>
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<tr>
<td>Eberhart et al. (2004)</td>
<td>Long-term abnormal returns and operating performance following R and D increases.</td>
<td>Firms unexpectedly increase their R and D expenditures experience significantly positive abnormal operating performance in the long term. Shareholders of these firms also experience significantly positive abnormal returns.</td>
<td>Capital efficiency appears to be a candidate for long-term performance of firms.</td>
</tr>
<tr>
<td>Billett, Flannery and Garfinkel (2006)</td>
<td>Firms’ long-term performance following bank loans.</td>
<td>Operating performance of borrowers were poor in the year prior to loan announcement and in the subsequent three years.</td>
<td>A closer examination of relation between bank loans and firms’ operating should be conducted.</td>
</tr>
</tbody>
</table>
Table 3.10 below summarises the accounting variables used in measuring performance of firms. The accounting performance measures and the authors are listed in the table below.

<table>
<thead>
<tr>
<th>Research</th>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Altman et al. (1977), Billett, Flannery and Garfinkel (2006), Mikkelson et al. (1997)</td>
<td>Operating Return of Assets</td>
<td>EBITDA/Total Assets</td>
</tr>
<tr>
<td>Kane and Meade (1998)</td>
<td>Payout ratio</td>
<td>Dividend/Net profits after tax</td>
</tr>
<tr>
<td>Kane and Meade (1998)</td>
<td>Sales growth</td>
<td>Year-to-year change in firm’s sales.</td>
</tr>
<tr>
<td>DeFond and Hung (2003)</td>
<td>Cash Flows to Total Assets</td>
<td>(Net Income+Dep)/TA</td>
</tr>
</tbody>
</table>
3.3 HYPOTHESES

3.3.1 LONG-TERM PERFORMANCE AND ANNOUNCEMENT EFFECTS

Based on the literature on information asymmetry and the “specialness” of bank loans, I argue that firms extended credit by banks must have signaled a good growth potential or good investment opportunity prior to announcements of bank loans, and they should also perform well subsequently.

I test whether firms that announce syndicated loans perform well over the long term. I test the following hypothesis:

\[ H_{3.1}: \text{There is no association between borrowers’ long-run performance and the announcement of syndicated loans.} \]

Also, as can be seen from the literature review section, an issue that has not been addressed in the capital structure debate is concerned with the impact different loan structures have on the value of equity. Hadlock and James (2002) include bank loans in a pecking order framework to assess if bank loans provide financial slack. Their results suggest that asymmetric information motivates undervalued firms to seek bank loans rather than enter the public debt or equity markets. However, bank loans involve revolving credit, term loans, and hybrid loans. A logical extension of the market timing argument is its application to the specific types of debt where the characteristics of a particular type of debt
may have embedded options allowing managers to behave opportunistically. Specifically, revolving credit loans allow more flexibility in the renegotiation of magnitude, maturity, and pricing than do term loans, and, hence, facilitates market timing by firms. Also, if bank loans parallel other forms of finance, then the flexibility in market timing should be recognized favourably by generating positive long-run returns and should be particularly evident in loan structures that allow maximum flexibility. Lummer and McConnell (1989) classify loans based on their structure and find that the renegotiation feature of revolving credit loans is positively valued by the market. Chemmanur and Fulghieri (1994) contend that banks’ ability to renegotiate debt can avoid inefficient liquidation. Since revolving credit has an embedded option to renegotiate, the increased flexibility should be valued by the market.

In addition and as pointed out by Graham and Harvey (2001) financial flexibility is the most important factor in firms’ debt decisions. I formulate the following null hypothesis:

\[ H_{3.2}: \text{Loan structures do not provide financial slack and enhance market timing.} \]

Given that firms have chosen bank loans as a financing source, I would expect that the revolving credit loan should be the most preferred type and that the market values the flexibility provided by this type of loan.
3.3.2. STOCK MARKET REACTION TO EARNINGS ANNOUNCEMENTS

According to Allen, Guo and Weintrop (2004), since both debt and equity represent claims on the firm’s assets, any change in investors’ expectations of future cash flows will influence the pricing of debt and equity securities. Since earnings announcements affect investors’ expectations of future cash flows, and syndicated loans are debts to borrowers, then investors should react to earnings announcements of borrowing firms. So, I formulate the following null hypothesis:

\[ H_{3.3} \text{: The stock market does not react to earnings announcements regardless of earnings expectations.} \]

I reason that rationality would dictate that the market should reward firms whose earnings announcements are greater than expected. Just as in the case of long-term performance, I also wish to test whether the market views loan structures differently given the differing degree of financial flexibility offered by alternative loan types. So, I formulate the following null hypothesis:

\[ H_{3.4} \text{: Stock market reaction to earnings announcements is not related to the degree of financial flexibility provided by different types of loans.} \]
3.3.3 ACCOUNTING PERFORMANCE AND MARKET RETURNS

According to Kothari (2001, 116) “an association study tests for a positive correlation between an accounting performance measure and stock returns, both measured over relatively long, contemporaneous time periods.” However, he points out that there is no causal relationship between accounting information and security price movements. Researchers test “whether and how quickly accounting measures capture changes in the information set that is reflected in security returns over a given period.” Kothari (2001, 109) reasons that “a temporal association between current financial performance and future cash flows, as well as a contemporaneous association between financial performance and security prices or price changes is expected.”

In this essay, I test whether abnormal market returns are related to annual report data. I examine whether past performance prior to the event has any influence on subsequent long-term performance of the firms. Also I examine whether there is any relation between the contemporaneous performance of borrowers and market returns. Finally, I investigate the relation between firms’ post-event performance and market return.

I formulate the following hypotheses:

**H 3.5: The market reaction to the stock of bank borrowers are not related to accounting measures of performance in pre- and post-announcement periods.**
**H 3.6: Loan structures do not have any influence on the relation between borrower performance and market returns.**

In the next section, I describe my dataset and discuss the research methodology for measuring long-term performance of borrowers as well as the association tests indicated in the above hypotheses.

### 3.4. DATA DESCRIPTION AND RESEARCH METHODOLOGY

In this section I first describe the dataset of my study and in the second section I discuss the methodologies used for examining long-term performance, stock market reaction to earnings announcements as well as the association between firm performance and market returns in existing literature.

#### 3.4.1. DATA DESCRIPTION

This study uses the 5,465 syndicated loan announcements in the US over the 1995–2000 period extracted from Thomson Financial Publishing’s International Financing Review (IFR). Center for Research in Security Prices (CRSP) are used to obtain returns data over the period 1992 – 2003. This reduces the sample to 2,061 loan announcements, comprised of 1,551 revolving credit loans, 387 term loans and 123 hybrid loans. To test the relation between accounting data and market returns, Compustat database is used to obtain
financial information. Some Compustat data are missing and after deleting these firms, 1,094 firms are available with both accounting data and market returns.

3.4.2. RESEARCH METHOD

In this essay I examine the long-term performance of syndicated loan announcers from three different perspectives. Firstly, I use the event study methodology to test whether there is an association between long-term performance of borrowers and the initial market reaction to announcements of syndicated loans. Secondly, I examine how the market reacts to pre-loan and subsequent quarterly earnings announcements of borrowing firms. Finally, I examine pre- and post-loan performance of borrowers using accounting data to see whether there is any correlation between the firms’ performance and market returns. In all cases, I focus on the affect that loan structures have on market reaction to borrowers’ stocks.

3.4.2.1. Measuring long-term performance of borrowers.

I use standard event study methods to examine the borrowers’ immediate share price response to the announcement of syndicated loans using three- and five-day event windows. In addition, I use the market adjusted buy-and-hold abnormal returns (BHARs)

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13 Note that the method we use is the market model with GARCH (1,1). In our view, this can be seen as a test of robustness of the results that we used in the first part of thesis.
approach to measure long-term performance of borrowers. Specifically, for each loan-announcing firm, three-year pre- and post-loan announcement excess returns are examined.

Following the existing literature, I conduct regressions using the GARCH (1,1) (Generalized Autoregressive Conditional Heteroskedasticity) model. It is argued that this model can be used to overcome the problem of time-varying systematic risk parameter ($\beta$) and time-varying conditional variance (Coutts et al., 1994 and Brockett et al., 1999). The details of the BHARs model as well as those for the GARCH (1, 1) model are provided in Appendix 1.

3.4.2.2. Discussion of research methodology for investors’ reaction to earnings announcements.

According to Billett, Flannery and Garfinkel (2006), to overcome the methodological concerns with measuring long-term returns, researchers use short-term event study methodology to measure returns around subsequent earnings events. The general argument is that if the negative long-run returns are due to changes in investor opinion about the companies’ prospects, then one would expect to see negative stock price reactions at the earnings announcements that follow the event. For example, Billett, Flannery and Garfinkel (2006) find that on an annual basis, borrowers experience $-1.4\%$ abnormal returns per year around earnings announcements. These negative numbers are economically and statistically significant. Their results also show that this annual negative abnormal return explains about 14% of the total annualized negative BHAR. They report
that value-weighting the borrowing firms’ subsequent returns yields an estimated monthly
abnormal return of –0.49% using Ordinary Least Squares (OLS) or –0.36% using
Weighted Least Squares (WLS) estimation. This amounts to an average underperformance
of 4.2-5.7% annually over the following three years.

Billett, Flannery and Garfinkel (2006) reason that the market learns from an
earnings announcement. Hence, one can expect to see evidence of the long-run
performance around earnings announcements. Excess returns for a five-day event window
are associated with quarterly earnings announcements from 12-quarters prior to a loan
announcement through 12-quarters subsequent to the loan announcement. For these tests,
the sample is partitioned into revolving credit loans, term loans, and hybrid loans. Also, as
evidenced in existing literature, the reason for using this association test is that it helps to
overcome common problems with measurement of long-run performance.

3.4.2.3. Discussion of research methodology for accounting return

I also test whether market returns (i.e., CARs) are related to annual report data. I
investigate whether pre- and post-announcement performances of borrowers are in any way
related to the granting of a syndicated loan. Regressions of CARs for the five-day event
window are run on several accounting performance measures of borrowing firms to test
whether there is an association between financial performance and market returns (i.e.,
cumulative abnormal returns). I investigate the relation between the loan announcement and
financial statement information, by regressing the excess returns associated with a five-day
event window on a number of financial ratios. In these tests, the sample is further partitioned into positive-excess and negative-excess return announcements, respectively.

I reason that in order for a firm to grow over time, sales must increase. Furthermore, the increase in sales can only proceed if there are assets to produce the goods or services of the firm. Asset growth is supported by internal equity in the form of retained earnings, external equity in the form of new common stock, inside debt in the form of bank loans and external debt in the form of public debt. Furthermore, the amount of retained earnings is a function of the firm’s dividend policy and profitability as measured by the net profit margin. An increase in the profitability can be used to increase dividends and/or retained earnings.

The measure of growth used is the growth in sales (SGRO). If sales grow and the margins do not decrease, more earnings are available for either distribution or reinvestment. The net profit margin (NPM) is an indication of the efficiency in the firm’s cost structure. The payout ratio (PO) describes how much of earnings are paid out as dividends. The complement of the payout ratio is the plowback ratio. Thus, the payout ratio is an indicator of how much a firm has to reinvest in their capital budget. Asset turnover (TAT) ratio indicates how effectively the firm is using its assets to generate sales. Next comes operating-return-on-assets (OROA), an indicator of how effectively the firm is using its

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14 Observations with missing Compustat data were eliminated. In addition, a number of outliers were observed and these were adjusted iteratively to three standard deviations from the mean. Our results are not significantly affected by these adjustments.
assets to generate operating profit. I use cash-flow-to-total-assets (CFTA) to assess the relation between bank loans and accounting returns to bank borrowers and show how effectively the firm is converting sales into cash flow. Another popular measure of profitability is the return on assets (ROA). This measure is net income/total assets and reflects both the operating characteristics and the financing policies of the firm. I use the total-debt-to-tangible assets (TDTG) to measure financial leverage and provide an indication of collateral in case of financial distress. That measure along with return on assets can be combined to generate the return on equity (ROE). Note that some accounting measures (e.g. OROA, TAT, TDTG) I use in this thesis are slightly different to those presented in Table 3.10 above.
3.5. **EMPIRICAL RESULTS**

In this section I present the results of my study for each of research questions raised in this chapter.

3.5.1. **ASSOCIATION OF LONG-TERM PERFORMANCE WITH ANNOUNCEMENTS OF SYNDICATED LOANS.**

Table 3.11 shows borrower share returns for alternative time intervals.\(^{15}\) It is apparent from this table that share return measured by cumulative average abnormal returns (CAARs) are highly and statistically significant for all loans three years prior to the loan announcement using the t-test. The non-parametric test also shows that the results are statistically significant. This suggests that borrowing firms of syndicated loans were viewed favourably by the market. This could be due to good performance of these firms or it might have been the case that they successfully engaged in market timing to raise funds needed for their operation. It is also apparent that the results were driven by both the revolving credit and term loans. However, for the two years prior to the loan announcement, the CAARs were negative but insignificant. This applies to both all loans and revolving credit. For term loans the one year period was positive. It might be the case

\(^{15}\) Please note that the results shown in Table 3.11 for the two event windows (three-day and five-day windows) are slightly different to those reported in Table 2.5 of the first essay. This is due to the fact that we only used the standard market model in the first essay but in this essay we augment the market model with GARCH (1,1). We view this similarity as a measure of robustness of our results.
Table 3.11: Borrower share returns for alternative time intervals (Equally-weighted)

The number of trading days relative to the loan announcements is designated by Days and N indicates the number of loans. The mean cumulative abnormal returns were obtained using a GARCH (1,1) market model with equal weighting. Positive (negative) indicates the number of announcements with positive (negative) cumulative abnormal returns. Levels of significance are indicated by the t-values and generalized sign Z. The data include loan announcements over the 1995 – 2000 period.

<table>
<thead>
<tr>
<th>Days</th>
<th>N</th>
<th>Mean Cumulative Abnormal Return</th>
<th>Positive: Negative</th>
<th>t</th>
<th>Generalized Sign Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-756,-505)</td>
<td>1693</td>
<td>4.54%</td>
<td>940:753</td>
<td>4.658***</td>
<td>7.080***</td>
</tr>
<tr>
<td>(-504,-253)</td>
<td>1817</td>
<td>-1.20%</td>
<td>885:932</td>
<td>-1.131</td>
<td>1.439</td>
</tr>
<tr>
<td>(-252,-1)</td>
<td>1949</td>
<td>-0.86%</td>
<td>970:797</td>
<td>-0.829</td>
<td>2.307*</td>
</tr>
<tr>
<td>(-2,+2)</td>
<td>2061</td>
<td>0.43%</td>
<td>1018:1043</td>
<td>2.815**</td>
<td>1.813*</td>
</tr>
<tr>
<td>(-1,+1)</td>
<td>2061</td>
<td>0.31%</td>
<td>1020:1041</td>
<td>2.603**</td>
<td>1.901*</td>
</tr>
<tr>
<td>(+1,+252)</td>
<td>2047</td>
<td>1.16%</td>
<td>1040:1007</td>
<td>1.076</td>
<td>3.087**</td>
</tr>
<tr>
<td>(+253,+504)</td>
<td>1889</td>
<td>2.07%</td>
<td>1018:871</td>
<td>1.917*</td>
<td>5.650***</td>
</tr>
<tr>
<td>(+505,+756)</td>
<td>1693</td>
<td>2.89%</td>
<td>936:757</td>
<td>2.677**</td>
<td>6.499***</td>
</tr>
</tbody>
</table>

Panel B: Revolving Credit

<table>
<thead>
<tr>
<th>Days</th>
<th>N</th>
<th>Mean Cumulative Abnormal Return</th>
<th>Positive: Negative</th>
<th>t</th>
<th>Generalized Sign Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-756,-505)</td>
<td>1298</td>
<td>3.67%</td>
<td>730:568</td>
<td>3.370***</td>
<td>6.715***</td>
</tr>
<tr>
<td>(-504,-253)</td>
<td>1384</td>
<td>-1.68%</td>
<td>661:723</td>
<td>-1.385</td>
<td>0.477</td>
</tr>
<tr>
<td>(-252,-1)</td>
<td>1470</td>
<td>-1.57%</td>
<td>719:751</td>
<td>-1.258</td>
<td>1.255</td>
</tr>
<tr>
<td>(-2,+2)</td>
<td>1551</td>
<td>0.51%</td>
<td>771:780</td>
<td>2.917**</td>
<td>1.723*</td>
</tr>
<tr>
<td>(-1,+1)</td>
<td>1551</td>
<td>0.31%</td>
<td>758:793</td>
<td>2.290*</td>
<td>1.062</td>
</tr>
<tr>
<td>(+1,+252)</td>
<td>1543</td>
<td>3.39%</td>
<td>802:741</td>
<td>2.711**</td>
<td>3.502***</td>
</tr>
<tr>
<td>(+253,+504)</td>
<td>1425</td>
<td>2.98%</td>
<td>774:651</td>
<td>2.382**</td>
<td>5.133***</td>
</tr>
<tr>
<td>(+505,+756)</td>
<td>1293</td>
<td>2.86%</td>
<td>732:561</td>
<td>2.291*</td>
<td>6.543***</td>
</tr>
</tbody>
</table>

Panel C: Term Loan

<table>
<thead>
<tr>
<th>Days</th>
<th>N</th>
<th>Mean Cumulative Abnormal Return</th>
<th>Positive: Negative</th>
<th>t</th>
<th>Generalized Sign Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-756,-505)</td>
<td>308</td>
<td>8.90%</td>
<td>166:142</td>
<td>3.744***</td>
<td>2.414***</td>
</tr>
<tr>
<td>(-504,-253)</td>
<td>335</td>
<td>-2.60%</td>
<td>165:170</td>
<td>-1.167</td>
<td>0.817</td>
</tr>
<tr>
<td>(-252,-1)</td>
<td>367</td>
<td>5.20%</td>
<td>204:163</td>
<td>2.565**</td>
<td>3.304***</td>
</tr>
<tr>
<td>(-2,+2)</td>
<td>387</td>
<td>0.04%</td>
<td>186:201</td>
<td>0.141</td>
<td>0.446</td>
</tr>
<tr>
<td>(-1,+1)</td>
<td>387</td>
<td>0.02%</td>
<td>198:189</td>
<td>0.099</td>
<td>1.668*</td>
</tr>
<tr>
<td>(+1,+252)</td>
<td>384</td>
<td>-3.22%</td>
<td>191:193</td>
<td>-1.463</td>
<td>1.102</td>
</tr>
<tr>
<td>(+253,+504)</td>
<td>352</td>
<td>0.65%</td>
<td>185:167</td>
<td>0.295</td>
<td>2.115*</td>
</tr>
<tr>
<td>(+505,+756)</td>
<td>309</td>
<td>-1.88%</td>
<td>146:163</td>
<td>-0.854</td>
<td>0.112</td>
</tr>
</tbody>
</table>

Panel D: Hybrid Loan

<table>
<thead>
<tr>
<th>Days</th>
<th>N</th>
<th>Mean Cumulative Abnormal Return</th>
<th>Positive: Negative</th>
<th>t</th>
<th>Generalized Sign Z</th>
</tr>
</thead>
<tbody>
<tr>
<td>(-756,-505)</td>
<td>87</td>
<td>2.06%</td>
<td>44:43</td>
<td>0.393</td>
<td>0.751</td>
</tr>
<tr>
<td>(-504,-253)</td>
<td>98</td>
<td>10.40%</td>
<td>59:39</td>
<td>1.844*</td>
<td>2.899**</td>
</tr>
<tr>
<td>(-252,-1)</td>
<td>112</td>
<td>-11.51%</td>
<td>47:65</td>
<td>-2.275*</td>
<td>-0.905</td>
</tr>
<tr>
<td>(-2,+2)</td>
<td>123</td>
<td>0.56%</td>
<td>61:62</td>
<td>0.801</td>
<td>0.512</td>
</tr>
<tr>
<td>(-1,+1)</td>
<td>123</td>
<td>1.13%</td>
<td>64:59</td>
<td>2.070*</td>
<td>1.054</td>
</tr>
<tr>
<td>(+1,+252)</td>
<td>120</td>
<td>-13.44%</td>
<td>47:73</td>
<td>-2.686**</td>
<td>-1.782*</td>
</tr>
<tr>
<td>(+253,+504)</td>
<td>112</td>
<td>-4.98%</td>
<td>59:53</td>
<td>-0.996</td>
<td>1.143</td>
</tr>
<tr>
<td>(+505,+756)</td>
<td>91</td>
<td>19.53%</td>
<td>58:33</td>
<td>3.902***</td>
<td>3.143***</td>
</tr>
</tbody>
</table>

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively, using a 1-tail test.
that the market was not certain about the investment opportunities or growth prospects facing these firms. In any case these firms did have a need for funds in the form of bank loans.

Table 3.11 also reveals that for all holding periods following and including the loan announcement, CAARs are statistically significantly positive when all loans are included (except the first year (+1,+252) CAAR when t-statistic was used). I find that CAARs are positive for the very short periods of three- and five-days around the announcement and, surprisingly, for the very long holding periods of up to three years following the announcement. This is in contrast to the findings of Billett, Flannery and Garfinkel (2006) who report negative CAARs in the three years subsequent to the loan announcement.

Here again, partitioning of the loans according to their type shows that it is revolving credit loans that are the driving force of the overall results. The market reacts positively in the short run over the five-day period (-2,+2) and the positive CAARs persist over the following three years. These results are the same whether I use the t-test or the Z-test (except for the 3-day period for the Z-test). A number of explanations are suggested for these results. First, it appears that the market values the screening and monitoring signals provided by the lender and this is reflected in the initial positive responses. Secondly, since these responses persist over the subsequent period it is likely that revolving credit loans are being used effectively to increase shareholder wealth for the borrowers. Thirdly, these responses also indicate that the financial flexibility provided by the loans is valued by the market. The fact that positive market reaction persists over time suggests the borrowers
must have been creating value by investing in positive NPV projects above what the market originally anticipated and this activity was facilitated by the flexibility of revolving credit loans. In fact, my results are consistent with those provided in James and Smith (2000). I also find my results are consistent with Liu (2006) who reports that “firms maintain unused credit lines to keep down their borrowing while ensuring that they can quickly secure funds in an emergency, such as a sudden deterioration in the issuance environment for corporate bonds.” Our results are, however, inconsistent with Andre, Mathieu and Zhang (2001) who show that the introduction of the 1988 capital requirement in Canada “has significantly reduced the information content of lines of credit while the informativeness of term loans is not affected.” In my view, while the latter result appears to be inconsistent with prior studies (e.g. Lummer and McConnell (1989) and Best and Zhang (1993)) at first glance, it is quite rational. The market has already taken the information content of these lines of credit into account in the presence of the new regulation.

For term loans, a different story emerges. The initial reaction of the market is positive but insignificant using t-test. The Z-test, however, shows that the results are significant at the 5% level for the three-day period. In the year following the loan announcement, the CAARs become strongly negative but insignificant. This might be due to the inflexibility of term loans and/or poorly performing investment choices. As pointed out by James and Smith (2000), term loans are less flexible than revolving credit loans. They generally carry certain covenants that might restrict the options available to borrowers.
For hybrid loans, Table 3.11 shows that the results for these loans vary over time. First, I observe a positive reaction for the three-day period (1.13%) and for the five-day period, the reaction is also positive (0.56%). However, only the result for the three-day period is significant using the t-test. In the year following the loan announcement, there was a negative and significant abnormal return (-13.44%). In the second year following the loan there was still a negative abnormal return (-4.98%) but the result was not significant. The abnormal return in the third year following the loan became increasingly positive (19.53%) compared to the previous year and the result was highly significant. Since the hybrid loan is a mixture of both revolving credit loans and term loans, I speculate that they still allow borrowers a certain degree of flexibility to match the financing with the investment needs.

Finally, I can infer the nature of the distributions of the positive and negative CAARs from the positive/negative values. For instance, for the revolving credit loans, there are a greater number of negative CAARs than positive CAARs in the three- and five-day windows. However, since the cumulative average abnormal returns are positive for these windows, the positive returns must be greater than the negative returns. Thus, this result confirms the “driving force” effect of revolving credits on the overall results on the announcement date. James (1987) reports positive responses accounted for 66% of the announcements in his study. Comparing the results with the negative responses to private placements, James and Wier (1988) conclude that banks “may indeed have a lending advantage over insurance companies and pension funds” and that “bank loans may well be a special form of “inside” debt.” So, it can be seen that the market values highly the revolving credit loans. In addition, over the following three years, the positive/negative
numbers reverse – there are more positive CAARs than negative and the differences are greater as evidenced by the size of the CAARs.

A different pattern emerges for the term loans. Here the initial positive/negative numbers are similar to the revolving credit loans, but the positive CAARs are outweighed by the negative CAARs resulting in a negative, but insignificant cumulative abnormal return. Over the longer period, unlike the revolving credit loans, the number of negative CAARs for term loans is generally greater than the number of the positive. Hence, I can infer that the loan type does play an important role in market valuation of the borrowing firm’s share. Because the hybrids have characteristics of both revolving credit and term loans, the results are mixed.¹⁶ Thus, based on the results above I have to reject the hypothesis that long-term performance of borrowing firms is not associated with announcements of syndicated loans. I further reject the hypothesis that loan structure does not impact on stock returns of borrowers.

¹⁶ The results using a value-weighted market index are virtually identical to those shown here.
3.5.2. INVESTORS’ REACTION TO EARNINGS ANNOUNCEMENTS OF BANK BORROWERS.

Panels A to C of Table 3.12 presents the results of the impact of earnings announcements on the borrower’s share price prior to the announcement of the loan while panels D to F reports the impacts after the loan announcement. Substantial differences can be observed in market responses to the earnings announcements before and after the loan. It can be seen from the first three panels that prior to the loan being approved, the market views the earnings announcements positively and all are statistically significant. This might be due to earnings announcements being more positive or less negative than the market anticipates. Liu and Thomas (2000) reason that: “changes in expectations of future earnings are related strongly to unexpected returns.” If this were the case then my results suggest that market’s expectations of the borrowing firm’s future earnings must be favourable. The positive reaction to the announcements implies that the earnings these firms are reporting are viewed favourably by the market. However, at this time the market is unable to distinguish if and what type of financing each firm will pursue and how the financial markets will accommodate their needs.
Table 3.12: Earnings announcement returns pre- and post-syndicated loan announcements for a five-day event window

The table presents the results associated with quarterly earnings announcements. Loan announcements are: all announcements (All), revolving credit (RC), term loan (TL) and hybrid loan (HY). N indicates the number of loans. The mean cumulative abnormal return was obtained using the GARCH (1,1) market model. Earnings announcements are indicated by negative (positive) signs for pre- and post-loan announcements. Positive (negative) indicates the number of announcements with positive (negative) cumulative abnormal returns. Levels of significance are indicated by the t-values and generalized sign Z. The data include loan announcements over the 1995 – 2000 period.

<table>
<thead>
<tr>
<th>Loan Type</th>
<th>N</th>
<th>Mean Cumulative Abnormal Return</th>
<th>Positive: Negative</th>
<th>t-value</th>
<th>Generalized Sign Z</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Panel A:</strong> Earnings Announcements (-12,-9) Quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>3450</td>
<td>0.64%</td>
<td>1827:1623</td>
<td>5.864***</td>
<td>7.013***</td>
</tr>
<tr>
<td>RC</td>
<td>2852</td>
<td>0.57%</td>
<td>1500:1352</td>
<td>5.010***</td>
<td>5.957***</td>
</tr>
<tr>
<td>TL</td>
<td>428</td>
<td>0.84%</td>
<td>236:192</td>
<td>2.871**</td>
<td>3.345***</td>
</tr>
<tr>
<td>HY</td>
<td>170</td>
<td>1.24%</td>
<td>91:79</td>
<td>2.475**</td>
<td>1.887*</td>
</tr>
<tr>
<td><strong>Panel B:</strong> Earnings Announcements (-8,-5) Quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>4372</td>
<td>0.47%</td>
<td>2287:2085</td>
<td>4.688***</td>
<td>6.847***</td>
</tr>
<tr>
<td>RC</td>
<td>3464</td>
<td>0.41%</td>
<td>1801:1663</td>
<td>3.663***</td>
<td>5.722***</td>
</tr>
<tr>
<td>TL</td>
<td>679</td>
<td>0.40%</td>
<td>349:330</td>
<td>1.859*</td>
<td>2.031*</td>
</tr>
<tr>
<td>HY</td>
<td>229</td>
<td>1.54%</td>
<td>137:92</td>
<td>3.570***</td>
<td>4.171***</td>
</tr>
<tr>
<td><strong>Panel C:</strong> Earnings Announcements (-4,-1) Quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>4877</td>
<td>0.58%</td>
<td>2591:2286</td>
<td>5.910***</td>
<td>8.154***</td>
</tr>
<tr>
<td>RC</td>
<td>3799</td>
<td>0.47%</td>
<td>1995:1804</td>
<td>4.107***</td>
<td>6.328***</td>
</tr>
<tr>
<td>TL</td>
<td>805</td>
<td>0.94%</td>
<td>448:357</td>
<td>4.586***</td>
<td>4.861***</td>
</tr>
<tr>
<td>HY</td>
<td>273</td>
<td>1.06%</td>
<td>148:125</td>
<td>2.375**</td>
<td>2.514**</td>
</tr>
<tr>
<td><strong>Panel D:</strong> Earnings Announcements (1,4) Quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>4949</td>
<td>0.48%</td>
<td>2596:2353</td>
<td>4.773***</td>
<td>6.979***</td>
</tr>
<tr>
<td>RC</td>
<td>3860</td>
<td>0.46%</td>
<td>2005:1855</td>
<td>3.976***</td>
<td>5.419***</td>
</tr>
<tr>
<td>TL</td>
<td>807</td>
<td>0.30%</td>
<td>427:380</td>
<td>1.403</td>
<td>3.269***</td>
</tr>
<tr>
<td>HY</td>
<td>282</td>
<td>1.21%</td>
<td>164:118</td>
<td>2.414**</td>
<td>3.659***</td>
</tr>
<tr>
<td><strong>Panel E:</strong> Earnings Announcements (5,8) Quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>4510</td>
<td>0.37%</td>
<td>2469:2237</td>
<td>3.191***</td>
<td>6.377***</td>
</tr>
<tr>
<td>RC</td>
<td>3679</td>
<td>0.45%</td>
<td>1947:1732</td>
<td>3.279***</td>
<td>6.085***</td>
</tr>
<tr>
<td>TL</td>
<td>769</td>
<td>0.15%</td>
<td>388:381</td>
<td>0.683</td>
<td>1.659*</td>
</tr>
<tr>
<td>HY</td>
<td>258</td>
<td>-0.05%</td>
<td>134:124</td>
<td>0.091</td>
<td>1.390</td>
</tr>
<tr>
<td><strong>Panel F:</strong> Earnings Announcements (9,12) Quarters</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>4510</td>
<td>0.43%</td>
<td>2297:2213</td>
<td>3.822***</td>
<td>3.789***</td>
</tr>
<tr>
<td>RC</td>
<td>3548</td>
<td>0.30%</td>
<td>1800:1748</td>
<td>2.396**</td>
<td>3.052**</td>
</tr>
<tr>
<td>TL</td>
<td>734</td>
<td>0.66%</td>
<td>376:358</td>
<td>2.842**</td>
<td>1.817*</td>
</tr>
<tr>
<td>HY</td>
<td>228</td>
<td>1.58%</td>
<td>121:107</td>
<td>2.348**</td>
<td>1.553</td>
</tr>
</tbody>
</table>

The symbols *, **, and *** denote statistical significance at the 5%, 1% and 0.1% levels, respectively, using a 1-tail test.
Subsequent to the loan announcements, the market recognizes the differences among the firms and the reactions are dependent on the type of loan provided by the lenders. Panels D through F in Table 3.12 show the only earnings announcements that are statistically significant for all periods are for firms that received revolving credit loans. Earnings announcements signal to the market past operating and financial performance, but not investment opportunities. This is consistent with Allen, Guo and Weintrop (2004) who find that “when earnings announcements convey relevant information about borrowing firms the syndicated loan market expeditiously incorporates that information into the prices.” Firms with revolving credit loans have greater flexibility concerning future investment opportunities. Hence, their financial flexibility is better matched to their investment opportunity schedules. If investment opportunities change over time, firms can expand or contract their financing structure to accommodate their needs. This feature of revolving credit loans was emphasized by James and Smith (2000). Hadlock and James (2002) also report the flexibility of this type of loan in terms of financial slack. In addition to the flexibility, revolving credit loans also allow borrowing firms that have improved financial performance to renegotiate the loan on more favourable terms. In contrast, earnings announcements for firms with term loans are not as powerful a signal in the year following the loan announcement (0.30%). Nevertheless, the result is significant when I use the generalized Z-test. The reason is that in the case of term loans borrowers cannot react as easily to changing circumstances. Furthermore, management may not be that confident in the future performance of the firm which may reduce creditworthiness. Thus, they prefer to
avoid loan renegotiation. However, by the ninth quarter after the loan, the financing decision is old news relative to the earnings announcements and the announcements are viewed favourably as in the years before the loan.

On the basis of my results I reject the hypothesis that the market does not view earnings announcements positively regardless of earnings expectations. I further reject the null hypothesis that stock market reaction on earnings announcements is not related to the degree of financial flexibility provided by different types of loan.

3.5.3. ACCOUNTING PERFORMANCE AND MARKET RETURNS

The results in this section are interpreted in conjunction with the results obtained for the loan structure and the interpretation that was offered in the previous two sections. Table 3.13 shows the relations between cumulative abnormal returns (CARs) and accounting measures of firm performance one year prior to the loan announcement, the year of the announcement (contemporaneous), and one year after the announcement. In addition to partitioning the data according to the type of loan, I also partition the data according to whether the CARs are positive or negative for each loan announcement.

Prior to the announcement of a syndicated loan, it is logical to perceive that financial statement ratios should provide some insight into how the market will react to the loan announcements. Firstly, for all loans combined and for revolving credit loans, total-
debt-to-tangible-assets exhibit a positive relation\(^\text{17}\) with the subsequent positive CARs. This is understandable given that bank loans increase the total debt of the borrowers. Furthermore, if the overall effect of bank loans is favourable as I found in the previous section then they should be positively related to each other.

In contrast, the payout ratio exhibits a negative relation with the subsequent positive CARs. This result is difficult to interpret. According to standard theory of corporate finance, I expect the higher payout ratio to result if firms did not have good growth prospects or good investment opportunities that result in a return on equity which is higher than the cost of borrowing. If this were the case then the market would not react favourably to loan announcements and consequently these firms should have negative CARs not positive CARs. For subsequent negative CARs, sales growth exhibits a negative relation. It might be argued that the market is in doubt whether firms continue to have good investment opportunities available for further growth. In addition, for revolving credit loans, total-asset-turnover also exhibits an inverse relation to subsequent negative CARs. By the same reasoning just as in the case of sales growth, here again, my interpretation is that the market is unsure about growth prospect of firms. However, for companies that subsequently secure term loans, only the payout ratio is significantly negative relative to the subsequent positive CARs but it has no significant relation for those with negative CARs. Hybrid loans only exhibit a significantly negative return on assets to negative CARs.

\(^\text{17}\) For presentation purposes, we have used three decimal places and zero arises from rounding.
Table 3.13: Results of regressions on cumulative abnormal returns (CARs) on accounting measures.

This table shows the results of regressions of Cumulative Abnormal Returns on accounting measures for borrowing firms. The sample was divided into firms that have positive CARs and those that experienced negative CARs. It was further subdivided into three types of loans: revolving credit, term loan and hybrid loan. The dependent variables are Return on Assets (ROA), Return on Equity (ROE), Total Assets Turnover (TAT), Total Debt to Tangible Assets (TDTG), Net Profit Margin (NPM), Sales Growth (SGRO), Payout Ratio (PO), Operating Return on Assets (OROA), and Cash Flow to Total Assets (CFTA). The regressions were run for both pre- and post-loan announcement periods as well as for the contemporary period. In the table Coefficient is represented by the abbreviation Coef.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Positive All Loans</th>
<th></th>
<th>Negative All Loans</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-One Year</td>
<td>Contemporaneous</td>
<td>Post-One Year</td>
<td>Pre-One Year</td>
<td>Contemporaneous</td>
</tr>
<tr>
<td>Constant</td>
<td>0.042</td>
<td>4.022</td>
<td>0.021</td>
<td>1.845</td>
<td>0.043</td>
</tr>
<tr>
<td>Type</td>
<td>0.000</td>
<td>-0.064</td>
<td>0.004</td>
<td>0.753</td>
<td>-0.005</td>
</tr>
<tr>
<td>ROA</td>
<td>0.002</td>
<td>0.953</td>
<td>0.001</td>
<td>0.663</td>
<td>0.001</td>
</tr>
<tr>
<td>ROE</td>
<td>0.000</td>
<td>-1.156</td>
<td>-0.001</td>
<td>-2.85**</td>
<td>0.000</td>
</tr>
<tr>
<td>TAT</td>
<td>0.001</td>
<td>0.213</td>
<td>0.010</td>
<td>1.681</td>
<td>0.005</td>
</tr>
<tr>
<td>TDTG</td>
<td>0.000</td>
<td>3.18**</td>
<td>0.000</td>
<td>2.36*</td>
<td>0.000</td>
</tr>
<tr>
<td>NPM</td>
<td>0.000</td>
<td>-0.340</td>
<td>0.002</td>
<td>1.991</td>
<td>0.000</td>
</tr>
<tr>
<td>SGRO</td>
<td>0.000</td>
<td>0.869</td>
<td>0.000</td>
<td>0.903</td>
<td>0.000</td>
</tr>
<tr>
<td>PO</td>
<td>0.000</td>
<td>-4.07***</td>
<td>0.000</td>
<td>-1.514</td>
<td>0.000</td>
</tr>
<tr>
<td>OROA</td>
<td>-0.094</td>
<td>-1.263</td>
<td>0.312</td>
<td>3.81***</td>
<td>0.145</td>
</tr>
<tr>
<td>CFTA</td>
<td>0.125</td>
<td>1.265</td>
<td>-0.418</td>
<td>-3.47***</td>
<td>-0.194</td>
</tr>
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</table>

223
Table 3.13 (continued)

<table>
<thead>
<tr>
<th>Positive Revolving Credit</th>
<th>Negative Revolving Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-One Year</td>
</tr>
<tr>
<td></td>
<td>t</td>
</tr>
<tr>
<td>Constant</td>
<td>0.045</td>
</tr>
<tr>
<td>ROA</td>
<td>0.000</td>
</tr>
<tr>
<td>ROE</td>
<td>0.000</td>
</tr>
<tr>
<td>TAT</td>
<td>0.004</td>
</tr>
<tr>
<td>TDTG</td>
<td>0.000</td>
</tr>
<tr>
<td>NPM</td>
<td>0.000</td>
</tr>
<tr>
<td>SGRO</td>
<td>0.000</td>
</tr>
<tr>
<td>RO</td>
<td>0.000</td>
</tr>
<tr>
<td>OROA</td>
<td>-0.103</td>
</tr>
<tr>
<td>CFTA</td>
<td>0.152</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Positive Term Loan</th>
<th>Negative Term Loan</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-One Year</td>
</tr>
<tr>
<td></td>
<td>t</td>
</tr>
<tr>
<td>Constant</td>
<td>0.040</td>
</tr>
<tr>
<td>ROA</td>
<td>0.003</td>
</tr>
<tr>
<td>ROE</td>
<td>-0.001</td>
</tr>
<tr>
<td>TAT</td>
<td>0.000</td>
</tr>
<tr>
<td>TDTG</td>
<td>0.000</td>
</tr>
<tr>
<td>NPM</td>
<td>0.000</td>
</tr>
<tr>
<td>SGRO</td>
<td>0.000</td>
</tr>
<tr>
<td>PO</td>
<td>0.000</td>
</tr>
<tr>
<td>OROA</td>
<td>-0.135</td>
</tr>
<tr>
<td>CFTA</td>
<td>0.146</td>
</tr>
</tbody>
</table>
Table 3.13 (continued)

<table>
<thead>
<tr>
<th></th>
<th>Positive Hybrid Loans</th>
<th></th>
<th>Negative Hybrid Loans</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre-One Year</td>
<td>Contemporaneous</td>
<td>Post-One Year</td>
<td>Pre-One Year</td>
</tr>
<tr>
<td>Variable</td>
<td>Coef.</td>
<td>t</td>
<td>Coef.</td>
<td>t</td>
</tr>
<tr>
<td>Constant</td>
<td>0.101</td>
<td>0.549</td>
<td>0.086</td>
<td>0.635</td>
</tr>
<tr>
<td>ROA</td>
<td>0.018</td>
<td>0.977</td>
<td>0.008</td>
<td>0.566</td>
</tr>
<tr>
<td>ROE</td>
<td>-0.006</td>
<td>-1.519</td>
<td>-0.001</td>
<td>-0.364</td>
</tr>
<tr>
<td>TAT</td>
<td>-0.037</td>
<td>-0.413</td>
<td>0.007</td>
<td>0.115</td>
</tr>
<tr>
<td>TDTG</td>
<td>0.003</td>
<td>1.440</td>
<td>-0.001</td>
<td>-0.628</td>
</tr>
<tr>
<td>NPM</td>
<td>0.006</td>
<td>0.692</td>
<td>-0.001</td>
<td>-0.153</td>
</tr>
<tr>
<td>SGRO</td>
<td>-0.003</td>
<td>-1.105</td>
<td>0.000</td>
<td>-0.241</td>
</tr>
<tr>
<td>PO</td>
<td>-0.001</td>
<td>-0.455</td>
<td>0.002</td>
<td>2.009</td>
</tr>
<tr>
<td>OROA</td>
<td>-0.595</td>
<td>-0.679</td>
<td>1.217</td>
<td>2.110</td>
</tr>
<tr>
<td>CFTA</td>
<td>0.155</td>
<td>0.156</td>
<td>-1.830</td>
<td>-1.731</td>
</tr>
</tbody>
</table>

The symbols *,**, and *** denote statistical significance at the 5%, 1% and 0.1%, respectively
The relations between accounting measures and CARs are much stronger in the year of the announcement with the revolving credit loans again driving the overall results. At this juncture, the picture about the prospects of firms becomes clearer and the market reacts accordingly. For all loans, total-debt-to-tangible-assets and operating return on assets are significantly positively related to the contemporaneous positive CARs. Return on equity and cash-flow-to-total-assets are significantly negatively related to the positive CARs. For the contemporaneous negative CARs, total-asset-turnover and sales growth exhibit negative relations. Considering revolving credit loans, two operating performance variables, total-asset-turnover and the net profit margin, are significant for both positive and negative CARs. For positive CARs, the positive coefficients indicate greater performance is recognized by the market. In contrast, for negative CARs, it appears better performance is discounted. Notwithstanding, these two operating performance variables are positively related to their corresponding CARs regardless of whether they are positive or negative. In addition, sales growth is negatively related to the negative CARs. Almost all measures for term and hybrid loans are not significant for positive CARs and all measures are insignificant for negative CARs.

In the year following the announcements, for all loans, positive CARs are significantly negatively related to the payout ratio while negative CARs are inversely related to the net profit margin, sales growth, and operating-return-on-assets and positively related to return on assets. Positive revolving credit loan CARs are related with payout and sales growth issues. In contrast, for negative revolving credit loan CARs, the issue appears
to be operating performance as indicated by the negative net profit margin, sales growth and operating-return-on-assets and positive relation with the return on assets. For positive CAR term loans, the total-debt-to-tangible-assets ratio is significant. The results for positive CARs for hybrids are mixed, though both operating and cash flow measures are significant. For the negative CARs, neither term loans nor hybrid loans exhibit any relation to the accounting measures.

In short, some variables are positively related to both negative CARs and positive CARS whereas other variables are negatively correlated with both positive CARs and negative CARs. These results also apply when I partition my sample into different types of loan.

Thus, although there appears to be some evidence supporting my hypotheses that accounting performance and market returns are related, I can neither reject nor accept the hypothesis that favourable or unfavourable stock market reaction is related to performance of borrowers in the one year prior to or post-loan announcement. This conclusion can also be applied to the contemporaneous relation between firm performance and market returns albeit the relation between the two is much stronger.
3.6 SUMMARY

The existing literature on long-term performance of firms following corporate events is abundant but, surprisingly, research in this area for bank loans and, in particular for syndicated loans, is rare. In this essay I look at long-term performance of firms following major corporate events such as SEOs and bonds. The general finding is that security issuance – debt or equity - is followed by low long-term performance and this is puzzling because it was managers who initiated these activities. I also noted that announcements of bank loans are different to other corporate events and as such long-term performance of borrowers should be in some ways different compared to other corporate events.

I also reviewed the literature on capital structure issues. Specifically, I looked at the main theories of capital structures: the trade-off theory, the pecking order theory and the market timing (or windows of opportunity) theory. I noted that each theory explains the capital structure based on different behaviour of management of the firm. For example, market timing postulates that executives tend to time the market in the sense that they will issue equity when the firm’s stock is overvalued and repurchase it otherwise.

I also examined the issue of whether firms adjust toward an optimal capital structure. The evidence found in the literature appears to be inconclusive. Researchers provide different evidence based on different methods of research and none of the
researchers has claimed that their results can provide a complete explanation of the capital structure of firms.

As far as the capital structure issues are concerned, it can be seen that previous studies have examined the broad debt versus equity issue without considering the role of bank loans in the capital structure decision. One exception is the study by Hadlock and James (2002) who examine the market timing and pecking order models of capital structure in the context of bank financing. I have shed some light on the issue whether bank loans can help explain management’s financing decisions and the firm’s capital structure.

In addition, I review the literature on the impact of earnings announcements on the stock market reaction to the share price of borrowers. The underlying rationale is that the level of earnings will confirm market assessment of the firm performance. Finally, I also review the literature on the association between firm accounting performance and market returns. The reason for bringing this issue into my research is that I believe firm performance is likely to be closely associated with market reaction.

In this essay I present the following findings. First, my results provide evidence that post-announcement abnormal returns are significantly positive. These results are consistent with the findings of previous studies by James (1987), Lummer and McConnell (1989), Best and Zhang (1993), Billett, Flannery, and Garfinkel (1995), James and Smith (2000) and Gasbarro, Le, Schwebach and Zumwalt (2004). That is the market reacts favourably to announcements of bank loans. From the long-term perspective, I find that overall the
borrowing firms outperform the market over a three-year period following the loan. This is in contrast to the study of Billett, Flannery and Garfinkel (2006).

Secondly, I find that overall my results are driven by revolving credit loans. Since I use the market-adjusted model in my event study, I can reason that the performance of revolving credit firms outperform the market over the three years following the loan. However, I find that the longer-term performance for firms acquiring term loans is not significantly different from the market performance. The longer-term results are mixed for the firms receiving hybrid loans. My results are consistent with previous findings of financial flexibility and those of loan structure. For example, Chemmanur and Fulghieri (1994) find that financial flexibility increases shareholder wealth. The results are also consistent with McDonald (1994) who finds that the market takes a positive view of loan commitments in the form of revolving credit loans. James and Smith (2000) give a useful discussion of the impact of the loan structure on announcements of bank loans. In addition I find support for Hadlock and James (2002) who indicate that bank loans reduce adverse selection issues and that the market values financial slack.

Overall, it is apparent that the flexibility offered by the revolving credit loans to the borrowing firm is viewed favourably according to all my tests. The main reason is that it allows borrowers to match financing needs with investment opportunities. Furthermore, it also increases the financial slack of the firm. These two reasons combined understandably allow firms to achieve their ultimate goal, namely, maximisation of shareholders’ wealth.
Thirdly, in this essay I also report that prior to loan announcement, the market reaction to announcements of quarterly earnings are also positive. I reason that it might have been the case that the market was unable to differentiate among the borrowing firms due to the fact that the earnings are all significantly positive. I also reason that at this juncture information asymmetry exists regarding the borrowing decision of the firm. The market does not know whether the firm is going to borrow from a bank or not or when. However, positive earnings do provide firms with a window of opportunity to raise funds on favourable terms.

Finally, I did not find strong relations between excess returns and accounting information. Nevertheless, I can make the following inferences. First, it appears that the revolving credit loans are driving the overall results in their relation with financial information of the firm. This could be due to their large number and their stronger relation between accounting information and abnormal returns. Ex ante, I observe that firms with higher debt-to-tangible-asset ratios and lower payout ratios are associated with a positive market reaction, while firms with lower total asset turnover and lower sales growth tend to produce a negative market response. Ex post, I observe that the negative CARs are more closely related to subsequent financial performance than are the positive CARs. In this instance, banks should be more rigorous in their monitoring of the poorer performing firms. In the case of firms with positive CARs, banks can afford to be less concerned with the borrower’s performance.
A major conclusion is that the type of loan granted by the banks provides a signal to the market concerning the nature of the firm. Consistent with previous studies, I find that revolving credit loans provide greater flexibility for the firm to match the sources of funds with the characteristics of its investment opportunities. If management is confident about the future of the firm then it can acquire more funding in the form of a revolving credit loan. I find that this type of loan will give them the flexibility to renegotiate terms such as size, maturity, and borrowing rates, over time. Conversely, if management is less optimistic about the future then it will seek a term loan in order to lock in the funding for a longer period and defer screening and monitoring associated with a new or revised loan. It appears that a revolving credit loan is much more attractive than a term loan. Firms realize the advantages of this type of loan and this view is strongly endorsed by the market with positive response in share price of the borrowing firms.
CHAPTER FOUR: CONCLUSIONS, LIMITATIONS AND FUTURE RESEARCH DIRECTION

Existing literature on bank loans shows some intriguing aspects of this type of debt instrument. These include James (1987), Lummer and McConnell (1989), Best and Zhang (1993), Billett, Flannery and Garfinkel (1995) and James and Smith (2000). The general consensus in the literature is that banks in the process of screening and monitoring their borrowers acquire private information. Banks can certify the status of a firm or signal to the market by granting loans to the firm. This is reflected in the market response to announcements of bank loans. Most studies report that the market views these announcements favourably. The announcement effects for bank loans are generally positive and significant.

Previous studies also examine whether bank loans are likely to be reported in the financial press. For example, Lummer and McConnell (1989) report that favourably revised loans are more likely to be reported in the financial press than unfavourably revised loans. Billett, Flannery and Garfinkel (1995) focus on the share price response to the announcement of bank loans. They report that bank loan announcements favourably impact the borrowers’ equity value. The source of information of loan announcements is also considered in existing literature. Mosebach (1999) argues that the information given in the financial press is redundant. However, he only uses information provided by a commercial source to arrive at this conclusion.
I also review the reasons why banks offer syndicated loans. Dennis and Mullineaux (1994, 2000) indicate that syndication is related to loan size, borrower’s credit rating, reputation of the lead bank and the collateral offered. Megginson, Poulsen and Sinkey (1995) find that market responses are situation specific. They report that syndicated loans to less developed countries in the 1980s were viewed negatively by the market and this was reflected in negative stock returns during this period. Preece and Mullineaux (1996) argue that the ease of loan re-negotiability can create value for borrowing firms and the number of banks participating in a syndicate does affect this restructuring. They find that only the smallest syndicate in their study generates a positive and significant return and that there is an inverse relationship between the number of banks participating in the syndicate and the market responses.

One important paper referenced in this thesis is that by Billett, Flannery and Garfinkel (2006) who report that although the initial response is positive, firm performance over the subsequent three years is negative. Their results indeed show a reversal of positive announcement results. The mean (median) long run returns were reported at –32.7% (-10.3%) in three years following the announcement date. Billett, Flannery and Garfinkel (2006) argue that if reversal were documented then this would indicate that the market was not only incorrect about the initial magnitude of the event’s effect, but also incorrect about the expected direction of the effect on firm value. They claim that this is the first robust evidence of reversal between the announcement and long run returns. Based on their findings they conclude that “loan announcements are misinterpreted by the market, both in
the magnitude of their effect on firm value and, in some cases, the direction of it.” It follows that “bank loans do not appear to be nearly so “special” as previously thought.” Billett, Flannery and Garfinkel’s (2006) results run counter to my results concerning the uniqueness of bank loans and information asymmetry.

In addition to looking at the announcement effect and long-term performance of borrowing firms, some authors also look at the effect that loan structures have on stock market responses. For example, James and Smith (2000) find that the degree of financial flexibility associated with the loan structure is an important consideration in market responses.

To recap, the literature review shows that banks continue to play an important role in financial markets. They continue to deliver “functional” services which are not available from non-bank intermediaries. Bank loans are still viewed as an important financial instrument for companies.

Having reviewed the literature on bank loans, I raised a number of research questions related to syndicated loans. First, I asked the question whether the stock market views announcements of syndicated loans favourably. I find that overall the market views announcements of bank loans favourably. For the whole sample I report that the CAARs are 0.39% and 0.28 % for five-day event window and three-day event window, respectively. These results are not only positive but also statistically significant at the 1% level. The second research question I looked at in this thesis is whether loan structures have
different impacts on stock market reaction to announcement of syndicated loans. My results show that this is indeed the case. I find that the results for the whole sample on the announcement date were actually driven by revolving credit loans. The CAARs for revolving credit loans are 0.47% and 0.29% for the five-day window and the three-day window, respectively. The results are also statistically significant at the 1% level. I find that the announcement effects for term loans although positive, are insignificant for both event windows. The results for hybrid loans (a combination of both revolving credit loans and term loans) are mixed. The third overarching research question that I address is whether the information source has an impact on announcements of syndicated loans. I use two sources of information, the International Financing Review (IFR) Platinum database, a commercial database, and the Dow Jones Interactive Index (DJII). My results show that the source of information does make a difference. This is shown in the three-day event window when announcements reported in the financial press are found to be positive and significant for revolving credit announcements and negative and significant for term loan announcements. My results are unique in this respect.

Both pre- and post-loan announcement three-year periods are used to examine the performance of the borrowing firms. In the three years prior to the loan announcement the cumulative average abnormal returns of the borrowing firms were positive and statistically significant. Subsequently, I find that for all holding periods except the first year following the loan announcement, the cumulative average abnormal returns for all loans are positive and statistically significant using either the t-test or the Z-test. I also find that it is the revolving credit loans that drive the overall results.
A number of complementary research questions are raised in the thesis. The first question is whether borrower share price reacts differently to the number of announcements in a syndicated loan. I find that for the five-day event window, the IFR single announcements are significant while those for the DJII are not. In contrast, the DJII multiple announcements are significant while those for the IFR are not. All these announcement effects are similar in that they are all positive. For the three-day event window, however, only the results for revolving credit loans are significant. The second complementary question addressed is whether there is information leakage or post-announcement drift in relation to announcements of syndicated loans. I examine the (-10, 0) and (0, +10) event windows and find some evidence of both information leakage and post-announcement drift in the case of revolving credit announcements$^{18}$.

This thesis also examines whether market reaction on the announcement date and over the long-term are influenced by the degree of financial flexibility inherent in the loan structure. I find strong evidence throughout my tests that indeed the market values highly this feature of bank loans in general and of syndicated loans in particular. My study support the findings of previous studies (e.g. Lummer and McConnell (1989), Allen (1990), Preece and Mullineaux (1996), Billett, Flannery and Garfinkel (1995) and James and Smith (2000). The flexibility provided by revolving credit loans allows borrowers to use the funds when they are needed. Understandably, my results also support Hadlock and James’s (2002) argument that financial slack is highly valued by the market because it allows firms

$^{18}$ The complete set of results are available from the author.
to have more choice in making both financing and investment decisions. In addition, the financial slack created by revolving credit loans allows firm to enhance market timing of borrowing firms.

I also address the question whether the market views favourably earnings announcements regardless of whether they are positive or less negative than expected. I find that earnings announcements are all positively viewed by the market and are significant prior to the loan announcement. I reason that at this juncture the market does not know whether firms will opt for a loan. Subsequent to the loan, this information becomes available and the market acts accordingly. I find that revolving credit loans are valued by the market in all three years following the loan announcement.

Finally, I examine whether market reaction to borrower share price are related to accounting measures of performance in pre- and post-announcement periods. I do not find strong evidence to support this hypothesis. Nevertheless, I also find some evidence that the loan structure does influence the association between share price and firm performance.

I note a number of limitations of my research. As mentioned in the introduction, a limitation of this thesis is that I did not use the matched-firm technique suggested in Barber and Lyon (1997) and Barber, Lyon and Tsai (1999) to measure long-term performance of borrowers. I test whether there is any association between the announcement effect of syndicated loans and long-term performance of borrowers using the market adjusted buy-and-hold abnormal return method. Nevertheless, all my results are internally consistent.
find that regardless of what measure I consider in examining the effect of loan type on the value of the firm I still observe the differences in my results.

Having pointed out the main limitation, I note that even the matching-firm technique itself is not free of shortcomings. The common benchmarks used for matching firms in the literature are size and the book-to-market ratio. Spiess and Affleck-Graves (1999, 47) argue that “it is possible that size and book-to-market ratio do not adequately capture the risk difference between issuers and matched non-issuers.”

Eckbo, Masulis and Norli (2006, 116) note that “the difference between the return to issuers and non-issuing matched firms is a measure of abnormal (or unexpected) returns, only if the two types of firms have identical exposures and matches to priced risk factors.” They report that “A number of studies have shown that the assumption of equal risk exposures is unlikely to hold.”

Kothari and Warner (2006) also look at problems associated with measurement of long-term performance using matched firms. Kothari and Warner (2006, 15) point out that “event study tests are joint tests of whether abnormal returns are zero and of whether the assumed model of expected returns (i.e. the CAPM, market model) is correct.” Kothari and Warner (2006, 28) note that “The joint-test problem remains in that any inference on the basis of BHAR hinges on the validity of the assumption that event firms differ from “otherwise similar non-event firms” only in that they experience the event.” However, this might not be the case. Kothari and Warner (2006, 28) point out that “since corporate events
themselves are unlikely to be random occurrences, i.e., they are unlikely to be exogenous with respect to past performance and expected return, there is a danger that the event and non-event samples differ systematically in their expected returns notwithstanding the matching on certain firm characteristics.”

It is certainly true that if the specification of the underlying model is incorrect then the inferences of the results or conclusion of the study are questionable. Apparently, to date no researcher has shown that a particular model has been free of measurement problems. Kothari and Warner (2006, 18) also point out that “power is higher with increasing sample size, regardless of horizon length.” Thus, in this respect, I am not too concerned with the power of my tests.

The second limitation is that most of the borrowing firms in my sample are large firms. Therefore my results may be biased toward large firms. This bias is unavoidable because most syndicated loans are granted to large firms and it is syndicated loans which are of relevance to my topic.

Last and not least, there have been few studies in the area of syndicated loans. To the best of my knowledge research in the area of long-term performance following bank loans is still in its early stage. The only paper that I have found in the literature is that provided by Billet, Flannery and Garfinkel (2006). This reduces the number of comparisons of my results with the existing literature. The upside of this situation, however, is that it provides a whole new area for future research.
In concluding my discussion of limitations on the research methodology, I quote Barber, Lyon and Tsai (1999, 198) who note that “the analysis of long-run abnormal returns is treacherous.” Furthermore, Byun and Rozefelt (2003, 1065) point out: “in the current state of the art, one can find reason to criticize virtually any method of estimating long-run performance.” Kothari and Warner (2006, 2) also sum up their work by noting: “Short-horizon methods are quite reliable. While long-horizon methods have improved, serious limitations remain. A challenge is to continue to refine long-horizon methods.”

Finally, a number of research topics related to the study presented in this thesis can also be explored. For example, one can study the wealth effect of announcements of syndicated loans on lenders using the same data set and loan structure partition used in this thesis. Another important issue is whether firms that had revolving credit had more investment opportunities and whether these firms actually experienced liquidity problems at the time of applying for bank loans. Other topics might include testing bank loans in the context of pecking order theory or the trade-off theory which has not been attempted in this thesis. Still another important topic is to undertake a cross-country study in order to establish the uniqueness of revolving credit loans. It would also be of interest to examine whether collateralisation can explain revolving credit results. In terms of event study methodology a rigorous review of the underlying logic and consistency of all the methods presented in the literature is urgently needed. Finally, one might wish to examine whether firms that announce syndicated loans do adjust their capital structures toward an optimal leverage ratio. The quest for asymptotic perfection continues.
APPENDICES
APPENDIX 1: DISCUSSION OF EVENT STUDY METHODOLOGY

In this thesis, Eventus (version 7), a specialised software designed for event studies, is used. This software allows us to extract the price data from CRSP and calculate abnormal returns for firms as desired. The software also provides the user a number of options in terms of modeling. I use the market model in this study. To maintain consistency, I adapt the presentation of event study methodology presented in the Eventus 7 user’s guide.

Although the program carried out all the instructions specified, it is necessary to describe the event study methodology used in this study. I define the event of interest in this study as the announcement of a syndicated loan. To measure the stock market reaction to announcements of syndicated loans, I will use the market model to estimate abnormal returns around the announcement of a syndicated loan agreement. Day 0 is taken to be the event date. I estimate the normal performance of the securities using an estimation period of 255 days that ends 46 days before the event date and examine three-day (-1, +1) and five-day (-2, +2) event windows. These figures denote the number of days prior to and after the event date, respectively. The methodology assumes that the event is exogenous with respect to the change in market value of the security.
If the market reaction is favourable, I would expect a positive abnormal return (AR) for the borrower’s stock. An abnormal return is defined as the difference between the actual ex post return of the security over the event window and the normal return of the security over the estimation period. The normal return is defined as the return that would be expected if the event did not take place. In other words, the abnormal return over the event window can be thought of as a measure of the impact of the event on the value of the firm.

To take into account the presence of confounding effects I exclude from my sample firms which have one of the following events occurring in the event window periods. These are declaration of dividends, announcement of a merger, announcement of a new product, filing of a large damage suit, announcement of unexpected earnings, and change in key executive. One important point to note is that it will be more difficult for researchers to control for confounding effects if longer event windows are used. Also, firms that do not trade frequently (defined as missing data for at least ten trading days in a row) are excluded from my sample.

In an event study framework, the results are based on the normality assumptions which are associated with large samples. Sample size tends to be a common problem in event studies. In my case, fortunately, I have a relatively large sample size and I am confident that the normality assumptions hold.
As presented above, the event study methodology was developed to measure the effect of an unanticipated event on stock prices. It has to be pointed out that it is possible for syndicated loans to be an anticipated event given that the syndication process will take at least two weeks to complete and that the information might have been leaked before the official announcement date. For this reason, I will use both the signed date in the IFR and the official announcement date in the financial press.

**A. 1.1. MEASURING EVENT-PERIOD ABNORMAL RETURNS**

In this thesis, I apply the market model with equal weighting to measure stock market reaction to announcements of syndicated loans. The predicted return is obtained by regressing the actual return of firm j on the market return in the estimation period using the market model:

\[
R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt} \quad (A.1.1)
\]

where \( R_{jt} \) is the rate of return on the share price of firm j on day t; \( R_{mt} \) is the rate of return on a market index on day t; \( \alpha_j \) is the intercept term; \( \beta_j \) is the systematic risk of stock j; and the error term \( \varepsilon_{jt} \) is a random variable that must have an expected value of zero (i.e. \( E(\varepsilon_{jt}) = 0 \)), and is assumed to be uncorrelated with \( R_{mt} \), uncorrelated with \( R_{kt} \) for \( k \neq j \), not autocorrelated, and homoscedastic.
In the market model, \( R_{jt} \) was regressed on \( R_{mt} \) to obtain the below model which gives us the predicted return for firm j, that is:

\[
\hat{R}_{jt} = \hat{\alpha}_j + \hat{\beta}_j R_{mt} \quad (A.1.2)
\]

The daily abnormal returns (AR) for firm j are then obtained by subtracting the predicted return for firm j from the actual return for firm j:

\[
AR_{jt} = R_{jt} - \hat{R}_{jt} \quad (A.1.3)
\]

The residual thus represents the return which is the unexpected or abnormal return caused by the announcement of the event. For each day in the event period the residuals are averaged across firms to produce the average abnormal return (\( AAR_t \)) for that day:

\[
AAR_t = \frac{\sum_j AR_{jt}}{N} \quad (A.1.4)
\]

where \( N \) is the number of the firms in the sample. The reason for averaging across firms is to smooth out the noise. Hence the larger the sample, the better the ability of the model to single out the effect of an event.

The final step is to cumulate the average abnormal return (\( AAR_t \)) for each day over the entire period to produce the cumulative average abnormal return, CAAR, where
The cumulative average residual represents the average total effect of the event across all firms over a specified time interval (i.e., the event period).

\[ CAAR = \sum_{t=t_1}^{t=t_2} AAR_t \quad \text{(A.1.5)} \]

A.2.1.1. TESTING ABNORMAL RETURNS

To test the null hypothesis that announcements of syndicated loans do not have any impact on stock prices of borrowing firms, I use both parametric and non-parametric tests. The parametric test will be the Patell test and the non-parametric test is the generalized Z test.

A.2.1.1.1. Parametric test: the Patell test

Patell test is also referred to in the literature as a standardized abnormal return test or a test assuming cross-sectional independence. The purpose of standardization is to overcome the heteroskedasticity problem, i.e., different variances of abnormal returns.

In order to ensure that each abnormal return will have the same variance, I use standardized residuals (abnormal returns). When dividing each firm’s abnormal return by its standard deviation (obtained over the estimation period), each abnormal return has an estimated variance of 1.0.
Under the null hypothesis, each $A_{jt}$ has mean zero and variance $\sigma^2_{AR \ _j \ \ \ \}$. The maximum likelihood estimate of the variance is

$$
S^2_{AR, j} = S^2_{AR, j} \left[ 1 + \frac{1}{D_j} + \frac{\sum_{k=T_{d_b}}^{T_{d_e}} (R_{mt} - \bar{R}_m)^2}{\sum_{k=T_{d_b}}^{T_{d_e}} (R_{mt} - \bar{R}_m)^2} \right] \quad (A.1.6)
$$

where

$$
S^2_{AR, j} = \frac{\sum_{k=T_{d_b}}^{T_{d_e}} (AR^{2}_{jk})}{D_j - 2}
$$

In equation A.1.6 above, $R_{mt}$ is the observed return on the market index on day $t$, $\bar{R}_m$ is the mean market return over the estimation period and $D_j$ is the number of non-missing trading day returns in the D-day interval $T_{d_b}$ through $T_{d_e}$ used to estimate the parameters for firm $j$.

Define the standardized abnormal return (or standardized prediction error) as

$$
SAR_{jt} = \frac{AR_{jt}}{S_{jt}} \quad (A1.7)
$$
Under the null hypothesis, each \( S A R_{jt} \) follows a Student’s t distribution with \( D_j - 2 \) degrees of freedom. Summing the \( S A R_{jt} \) across the sample gives:

\[
TSAR_t = \sum_{j=1}^{N} SAR_{jt},
\]

The expected value of \( TSAR_t \) is zero. The variance of \( TSAR_t \) is

\[
Q_t = \sum_{j=1}^{N} \frac{D_j - 2}{D_j - 4}
\]

The test statistic for the null hypothesis that \( CAAR_{T1,T2} = 0 \) is

\[
Z_{T_{t1},T_{t2}} = \frac{1}{\sqrt{N}} \sum_{j=1}^{N} Z_{T_{t1},T_{t2}}^j
\]

(A.1.8)

Where

\[
Z_{T_{t1},T_{t2}}^j = \frac{1}{\sqrt{Q_{T_{t1},T_{t2}}^j}} \sum_{i=T_{t1}}^{T_{t2}} SAR_{jt}
\]

And

\[
Q_{T_{t1},T_{t2}}^j = (T_{t2} - T_{t1} + 1) \frac{D_j - 2}{D_j - 4}
\]

As cited in Eventus 7 (Cowan Research LC, 2002), under cross-sectional independence of the \( Z_{T_{t1},T_{t2}}^j \) and the Linderberg condition described in Patell (1976), \( Z_{T_{t1},T_{t2}} \) follows the standard normal distribution under the null hypothesis.
The above parametric test assumes the distribution of excess returns to be normal, independent and identically distributed. However, in many cases, the distribution of excess returns exhibits some patterns that differ from a normal distribution, i.e., it follows a non-normality process. A number of researchers find that daily returns have a fat-tailed distribution (Brown and Warner, 1980 and 1985).

The above parametric test is also vulnerable to mis-specification caused by an increase in the variance of the distribution of event-day excess returns. Brown and Warner (1985) note that underestimating an event-induced increase in variances will lead to rejection of the null hypothesis more frequently than it should, even when the average abnormal performance is zero. For the aforementioned reasons, according to Kothari and Warner, (1997) and Barber and Lyon (1997) the use of parametric tests may very well result in the misspecification of tests and cause the researchers to draw an inappropriate conclusion.

A.2.1.2. Non-parametric test: the generalized sign test

To overcome the problems mentioned in the previous section, in this thesis I also use a non-parametric test called the generalized sign test to confirm the robustness of my parametric test. The generalized sign test is a refined version of the simple binomial (the sign) test. In the generalized sign test the proportion of stocks in the sample that should
have non-negative abnormal returns under the null hypothesis of no abnormal performance is determined first. This is estimated using the average proportion of stocks with non-negative abnormal returns in the estimation period.

According to this test, if abnormal returns are independent across securities, then under the null hypothesis, the number of non-negative values of abnormal returns has a binomial distribution with parameter p. The generalized sign test is given by

\[
GS = \frac{|p_0 - p|}{\sqrt{p(1-p)/N}}
\]  \hspace{1cm}(A.1.9)

where \( p_0 \) is the observed fraction of positive returns computed across stocks in event day t. The advantage of the generalized sign test is that it takes into account the evidence of skewness in security returns.

The null hypothesis for the generalized sign test is that the proportion of positive returns is the same as in the estimation period. More specifically, if the proportion of positive market adjusted returns in the estimation period is \( p\% \) and the proportion of firms that have positive market adjusted returns on event day \( t \) is \( p_0\% \), then the generalized sign test in this case is to test whether the difference between the two proportions is significant at a specified level (i.e., 1\%, 5\%, etc.). The actual test uses the normal approximation to the binomial distribution (Eventus 7 user guide, Cowan Research L.C., 2002).
A.1.2. MEASURING LONG-TERM PERFORMANCE OF BORROWERS.

To measure long-term performance of borrowers I use the market adjusted buy-and-hold abnormal returns (BHARs) approach. Specifically, for each loan-announcing firm, three-year pre- and post-loan announcement excess returns are examined. As pointed out by Kothari and Warner (2006, 28): “An appealing feature of using BHAR is that buy-and-hold returns better resemble investors’ actual investment experience than periodic (monthly) rebalancing entailed in other approaches to measuring risk-adjusted performance.”

The market model buy-and-hold abnormal return over an interval \((T_1, T_2)\) for firm \(j\) is defined as follows:

\[
BHAR_{J, \eta, \tau} = \left[ \prod_{t = T_1}^{T_2} \left( 1 + R_{j,t} \right) \right] - \left[ \left( 1 + \hat{\alpha}_j \right) \left( T_{i+1} - T_i \right) - 1 \right] - \hat{\beta}_j \left[ \prod_{t = T_1}^{T_2} \left( 1 + R_{m,t} \right) - 1 \right] \quad \text{A1.10}
\]

The market adjusted model is a special case of the market model where \(\hat{\alpha}_j = 0\) and \(\hat{\beta}_j = 1\). Empirical evidence has shown that the results from the two market models are in most cases similar. It should be pointed out that in this study I do not use matched-firms to calculate BHARs (the second term on the right hand side of equation above). Rather, I use the market returns in place of the matched-firms’ returns to calculate BHARs.
In the second essay, following existing literature I run regression using GARCH (1,1) (Generalized Autoregressive Conditional Heteroskedasticity) model.\textsuperscript{19} It is argued that this model can be used to overcome the problem of time-varying systematic risk parameter ($\beta$) and time-varying conditional variance (Coutts et al, 1994 and Brockett et al., 1999). The model can be described as follows (Harvey, 1990):

\[
R_{j,t} = \alpha_j + \beta_j R_{m,t} + \varepsilon_{j,t} \quad (A.1.11)
\]

where,

\[
\varepsilon_{j,t} | \Psi_{t-1} \sim (0, h_{j,t})
\]

and $\Psi_{t-1}$ denotes all information available at time t -1. The conditional variance in this model is:

\[
h_{j,t} = w_j + \delta_j h_{j,t-1} + \gamma_j \varepsilon_{j,t-1}^2
\]

with $w_i > 0$, $\gamma_j > 0$, $\delta_j \geq 0$, and $\gamma_j + \delta_j < 1$. In this model, the parameters are estimated by using the maximum likelihood method. Hence, the $E(R_{j,t})$ is

\[
E(R_{j,t}) \equiv \hat{R}_{j,t} = \hat{\alpha} + \hat{\beta} R_{mt} \quad (A.1.12)
\]

Finally, to supplement my parametric t-test, I also use the popular non-parametric generalized Z test. This allows us to overcome the skewness and kurtosis problems in

\textsuperscript{19} Note that the method we use in this part in respect of announcement effect is the market model with GARCH (1, 1). In our view, this can be seen as a test of robustness of the results that we used in the first essay.
parametric tests. Just as above, the market adjusted model is one in which \( \hat{\alpha}_j = 0 \) and 
\( \hat{\beta}_j = 1. \)
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