Market reactions when zero-leverage firms obtain bank finance

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A thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

February 2014

Accounting Discipline Group

University of Technology, Sydney

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I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Acknowledgements

I wish to specially thank my primary supervisor Professor Andrew Ferguson, his continual support and motivation throughout the thesis has been greatly appreciated. His optimism and enthusiasm for research has made working with him a pleasure. I would also like to thank my co-supervisors Dr Peter Lam and Dr Robert Czernkowski. The insightful comments and suggestions received from Professor Philip Brown are also acknowledged.

I would like to acknowledge the help and support from UTS staff members, visitors, and in particular my fellow PhD students, Thomas Scott, Stephen Kean, Alexey Feigin, Gabriel Pündrich, Adrian Raftery and Nelson Ma, who have all helped on various projects with their generous sharing of ideas.

The financial support of UTS is gratefully acknowledged, as is the financial support of the Accounting and Finance Association of Australia and New Zealand (AFAANZ) through their PhD Scholarship. The professional editing services provide by Shona Bates are appreciated. Additionally, the research assistance provided by Demara Roche is also acknowledged.

Abstract

Prior studies of bank loan announcements depict significant capital market reactions. More recent evidence however, fails to identify such reactions (Fields *et al.* 2006, Maskara & Mullineaux 2011). In this study, I consider market reactions to loan initiations where the borrower has no prior record of bank lending. Zero-leverage firms are firms that have zero outstanding short-term or long-term debt in their capital structure (Strebulaev & Yang 2013). Using a unique hand collected sample of bank loan announcements for Australian Mining Development Stage entities, I find that both initial bank loans and subsequent bank loans attract significant market reactions. Further, I produce evidence consistent with announcements of such loans reducing information asymmetry which I proxy for with bid-ask spreads and trading volume. My final analysis examines evidence of bank specialisation. I find that borrowers from the industry leader in terms of loan origination (Macquarie Bank) in this sector exhibit stronger abnormal returns.

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Chapter 1. Introduction

1.1 Overview

Using a sample of zero-leverage firms, this thesis empirically examines market reactions to initial bank loan announcements. Zero-leverage firms are firms that have zero outstanding short-term or long-term debt in their capital structure (Strebulaev & Yang 2013). A zero-leverage firm announcing an initial bank loan represents a planned significant change in the borrowing firm's capital structure.[1] It also represents an initiation of a lending arrangement with a bank. I provide evidence on the information content bank loan announcements signal to equity investors by examining market reactions to zero-leverage firms announcing initial bank loans. I also examine the market reaction to leveraged firms announcing subsequent bank loans. I examine the borrowing firm's change in share price, share turnover and bid-ask spread surrounding bank loan announcements. In further tests, I examine whether the source of loans has an effect, in particular whether loans provided by banks classified as industry specialists signal more credible information to the equity market relative to loans provided by non-industry specialists.

The theory of financial intermediation suggests banks play an important role in information production within an economy. Banks have private information suggesting they know more about the prospects of the firms they lend to than other external parties. A bank's ability to overcome information asymmetry by confidentially accessing and analysing private information is considered one of the theoretical reasons as to why banks exist (Leland & Pyle 1977). Campbell and Kracaw (1980) demonstrate that an important function of financial intermediation is the production of information, while

[1] The economic significance of zero-leverage firms is examined in recent literature (Korteweg 2010; Devos et al. 2012; Strebulaev & Yang 2013).

Diamond (1984) develops a model which shows that financial intermediaries can exist simply because they provide an efficient means of evaluating and monitoring borrowers. Therefore, when banks make lending decisions on the basis of a borrowing firm's private information, the lending decision provides signals about the borrowers' creditworthiness. In the context of the Myers and Majluf (1984) pecking order model, information asymmetry causes firms to prioritise their source of financing in the order of internal funds, debt, and equity. The issuance of debt signals the board's confidence that an investment is profitable, and that the current stock price is not overvalued. Bernanke (1983) and Fama (1985) argue that bank loans are a form of inside debt, because banks have information about the borrower that is not available to other securities holders. As inside debt, bank loans are a way of avoiding the underinvestment problem associated with information asymmetry. As bank loans avoid the information asymmetry associated with public debt offerings, bank loan agreements can convey useful information to the market. Early empirical evidence provides support for the belief that bank loan agreements can signal positive news to the market, with a positive share price reaction observed surrounding bank loan announcements (Mikkelson & Partch 1986; James 1987).[2] However, recent studies show that market reactions to bank loan announcements may not be positive, with doubt cast upon the effectiveness of bank loan decisions to signal information to equity investors (Fields *et al.* 2006; Maskara & Mullineaux 2011).

[2] The ability to minimise information asymmetry suggests that banks are unique compared to other sources of external finance (Fama 1985). This is shown empirically as all other forms of security issuances and financing decisions are associated with negative or neutral share price response; examples include seasoned equity offerings (Mikkelson & Partch 1986), initial public offerings (Loughran & Ritter 1995), share purchase plans (Brown et al. 2008), private placements of debt (Mikkelson & Partch 1986), and bond issues (Spiess & Affleck-Graves 1999).

1.2 Objectives and research question

I aim to provide a fuller appreciation of the bank lending process and the way in which banks transmit information to capital markets. This is done by observing market reactions surrounding zero-leverage firms making initial bank loan announcements and specifically observing the initiation of a banking relationship. Assessing market reactions to initial loan announcements can indicate whether banks have an information advantage over other capital market participants at the outset of a loan agreement, or whether banks develop an information advantage from a continuing working relationship with a borrower. Prior studies have concluded that banks enter new credit agreements with no information advantage relative to other investors. However, as banks maintain a lending relationship with their customers, they produce superior information which gives them a relative information advantage over external parties (Lummer & McConnell 1989; Best & Zhang 1993). These conclusions are based on samples of observed bank switches and bank loan renewals. A sample of zero-leverage firms initiating loans provides an interesting setting to examine whether bank lending decisions can signal superior private information to investors. It is argued that observing loan initiations, relative to bank switches and renewals as in previous papers (Lummer & McConnell 1989; Best & Zhang 1993), is a cleaner setting in which to observe the value of the signal that a bank lending decision can provide. Thus, my first objective is to examine how informative initial bank loan announcements are to equity investors.[3]

[3] This thesis observes loan initiations from zero-leverage firms, and observes firms moving from having no current banking relationship, to initiating a first bank loan. This thesis differentiates between the classification of a 'new loan' and a 'loan initiation' used in prior papers such as Lummer and McConnell (1989) who classify a new loan as a firm that arranges a loan with a new bank that they have no previous loan from, stating: "except for five cases, all of the firms in our sample that announce new credit agreements had some prior bank financing in place, albeit with a different bank". Thus their new loan sample is more analogous to observing a bank switch, while this study concentrates on bank loan initiations.

Second, this thesis tests whether bank loan agreements help resolve information asymmetry by signalling lenders' private information to the market. I contribute to the literature by analysing changes in the borrowing firm's bid-ask spread and trading volume surrounding a bank loan announcement to proxy for changes in the level of information asymmetry. A negative association between bank loans and the borrowing firm's information asymmetry would be consistent with the claim of Fama (1985) that many organizations pay periodic monitoring fees for lines of credit from banks that remain unused, for the sole purpose of providing positive signals about the firm's inside information. Further, it would be consistent with findings that the presence of bank debt in firms' capital structure is seen to lower information asymmetry. Bank debt attenuates the under-pricing of initial public offerings (IPO) (James & Wier 1990; Slovin & Young 1990) and the negative share price response to seasoned equity offerings (Slovin *et al.* 1990), and it lowers the cost of debt capital for bond issuances (Datta *et al.* 1999). Thus I provide evidence on whether the provision of screening and monitoring by banks is able to transmit information to the capital markets that lowers firm level information asymmetry.

Third, I extend the lender identity literature and investigate whether industry specialist lenders provide an incremental effect on announcement returns. Prior literature has found that higher quality lenders are associated with larger share price reactions upon the announcement of bank loans (Lee & Sharpe 2009; Ross 2010). Theory indicates that banking industry specialisation should exist, with Almazan (2002) suggesting that banks tend to concentrate their portfolios by either region or industry, and that increasing bank expertise in an area can lead to decreased information production and monitoring costs. Both anecdotal measures of expertise and empirical measures based on the value and frequency of transactions are used to proxy for

industry expertise. Thus, this thesis tests whether a subset of bank lenders that are industry specialists signal more credible information to the market surrounding loan announcements than non-specialist banks.

Fourth, this thesis clarifies an understanding of the timing of equity investors' reaction to bank loans. Prior studies conduct event studies around a single date when a loan is announced in a newspaper article. These studies assume that all the information content of a bank loan announcement is released to the market on a single date. However, loan negotiations can be time consuming, with multiple sequential announcements made to the market during the process. For example, firms may announce when preliminary negotiations with a bank have begun, when a bank has been mandated, when the loan agreement has been signed, and when the initial drawdown of funds has occurred. Identification of key milestones in the lending process allows the information content of each announcement to be analysed. Event studies around all the relevant announcements provide a clearer picture of how much information is signalled to the market during the loan negotiation process.

To conduct this study, I identify an experimental setting that is conducive to observing firms that would benefit from the announcement of a bank loan. Bank loans are theorised to benefit a firm characterised by having no other monitors (Diamond 1984), a poor information environment (Dhaliwal *et al.* 2011), high information asymmetry (Boyd & Prescott 1986), low analyst coverage (Best & Zhang 1993), high risk (Diamond 1991), and small firm size (Fama 1985). These characteristics broadly describe mining firms (Ferguson *et al.* 2011a; Ferguson *et al.* 2011b). Additionally, the majority of mining firms follow a predictable lifecycle and will list on the Australian Securities Exchange (ASX) with zero-leverage. This makes mining firms an ideal

sample setting to consider the effects of bank financing, as bank loan initiation is both observable and likely to resolve substantial information asymmetry. If bank loan announcements contain no significant information in a setting where theory predicts the reaction will be strongest, then it will provide support for recent claims that bank loans contain no relevant information (Fields *et al.* 2006).

A practical contribution of this thesis to Australian market participants revolves around understanding the economic impact of financing decisions in the mining industry. Testing if the transition of moving from an all-equity funded firm, to signing a bank loan and dealing with bank monitoring (through covenants which can alter real business decisions), has an impact on business and stock performance can provide important information to shareholders. The importance of understanding the economic impact of bank financing on the mining industry can be highlighted by the estimated $350 billion of project financing that is forecast to be undertaken in coming years within the Australian resource sector (Australian Bureau of Agricultural and Resource Economics 2009).

1.3 Summary of findings

Results show that initial bank loan announcements are associated with a significantly positive share price reaction. This result contributes to the literature by showing that banks are an information intermediary capable of transmitting positive signals regarding a firm's private information at loan initiation. This finding is in contrast to prior studies that have suggested that banks are unable to signal private information at loan initiation and only provide signals of the borrowing firm's creditworthiness at loan renewal (Lummer & McConnell 1989). Consistent with prior research, subsequent loan announcements are associated with positive price reactions. Both initial and subsequent

loan announcements are on average reacted to in a significantly positive way. Multivariate analysis of loan announcement returns shows that both initial and subsequent loan sample returns are insignificantly different from each other after controlling for firm and loan characteristics. The prior relationship between the bank and the borrowing firm is insignificant in explaining announcement returns. This result is in contrast to prior studies showing loan renewals are more informative in explaining abnormal returns than loan initiations. The differential results between this study and prior literature are mainly due to the differing classification and observation of bank loan initiations. Using a sample of zero-leverage firms allows for a cleaner test of the information content of initial loan announcements relative to prior studies.

Additional tests of both initial and subsequent loan samples find that bank loan announcements are associated with a reduction in firm information asymmetry. Both abnormal turnover and abnormal bid-ask spread are used to proxy for the information asymmetry of borrowing firms. Average abnormal trading turnover is significantly positive on the bank loan announcement day, and cumulative average abnormal turnover is significantly positive in the two trading weeks following loan announcement. Average abnormal spread is significantly negative in the days following a bank loan announcement, and cumulative average abnormal spread is significantly negative in the two trading weeks following a bank loan announcement. An increase in trading volume and decrease in bid-ask spread is consistent with a reduction in the borrowing firm's information asymmetry, suggesting that banks are able to signal the borrower's inside information to equity investors.

Finally, the leading lender in mine financing is shown to be Macquarie Bank. Loans issued by Macquarie Bank are associated with a larger cumulative average abnormal return than loans issued by other banks. Results are significant at both the

univariate level and in regression analysis after controlling for firm and loan characteristics. This result provides support for the hypothesis that industry specialist lenders provide more informative signals about the borrowing firm's creditworthiness and future prospects.

1.4 Structure of thesis

The remainder of this thesis is structured as follows. Chapter 2 explains the institutional setting of how bank loan announcements are released to the ASX in Australia. Chapter 3 reviews the prior literature, explaining the role of banks as financial intermediaries and the market reaction to bank loan announcements. Chapter 4 develops the hypotheses. Chapter 5 outlines the research design for testing the hypotheses and describes the data and sample selection. Chapter 6 presents the descriptive results and reports the cross-sectional determinants of the market reaction to bank loan announcements. Concluding remarks are summarised in Chapter 7.

Chapter 2. Background and institutional setting

2.1 Continuous disclosure

The Australian Securities Exchange requires publicly-listed companies to report under continuous disclosure requirements. The practice of continuous disclosure requires entities to immediately inform the ASX of any information that a reasonable person would expect to have a material effect on the price or value of the entity's securities (ASX 2013).

Under continuous disclosure, the ASX requires listed firms to inform the public regarding new issues or allotments of financial securities, including equity issues (such as seasoned equity offerings and share buy backs), debt issues (such as bonds and notes), and derivative issues (such as options and warrants). ASX Guidance Note 8 suggests that firms should inform the market of the impact a capital issue or debt facility would have on the issuing firm's financial position (ASX 2014). A broad interpretation of the above guidance suggests that any planned change to the firm's capital structure should be disclosed to the market. Examples of this interpretation can be found in the continuous disclosure policies of listed firms. For instance, Mirabella Nickel Ltd (2013) state in their disclosure policy:

> *Examples of information that might need to be disclosed include the following: any other information regarding the Company that may be material to the share price or the value of shares and/or other securities of the Company such as: proposed changes to the capital structure of the Company.*

Additionally, Silver Mines Limited (2013) adopt a similar interpretation in their policy on continuous disclosure: '*Examples of information that may be market sensitive:*

any actual or proposed change to the Company's capital structure for example, a share issue.'

Due to the regulatory requirement of continuous disclosure, listed firms are required to inform the market of significant changes to their capital structure – which can include raising debt from bank loans. This is an important institutional difference as compared to prior US-based research that relied on creating loan announcement samples from newspaper articles. Recent research suggests that loans announced in newspaper articles are biased towards more positive news stories and thus newspaper article based samples have a self-selection bias (Fery *et al.* 2003; Gonzalez 2011; Maskara & Mullineaux 2011). Since the Australian setting requires continuous disclosure, the sample of loan announcements observed in this thesis is less likely to suffer from the same self-selection bias reported in prior studies.[4]

Announcements made to the ASX are freely available to the public at the time of issue via the ASX website and other financial news dissemination services. Historic ASX price sensitive announcements are stored in numerous commercial databases, allowing researchers to search and view announcement archives, including the date and time of the announcements.

2.1.1 Information flow from bank loan announcements

Organising and signing a bank loan can be a lengthy process, with key information related to a loan agreement released at different milestones during negotiations between the borrower and the lender. Under ASX continuous disclosure, firms can announce

[4] Continuous disclosure regulation includes carve-out provisions that can protect the non-disclosure of ongoing, commercial-in-confidence negotiations. These carve-out provisions could apply to the early stage negotiations of bank loans, and allow firms to prevent disclosure until loan negotiations are finalised.

progress throughout the key steps of the lending process. ASX Guidance Note 8 provides an example of the disclosure a mining firm should make under continuous disclosure and suggests that firms should '*provide an update on negotiations with its bankers regarding the debt facility...'* (ASX 2014). Thus firms are expected to provide the market with updates during the negotiation of financing arrangements. An example of such sequential disclosure is found in Table 2.1. In this example, Base Resources Ltd makes four key announcements to the market regarding its bank loan negotiations over an 18-month period.[5] First, the mandated lead arranger for the loan was announced. Second, the credit approval was announced subject to conditions. Third, the agreement was signed after the firm was able to meet the required conditions. Finally, the firm was able to draw down an amount from the loan facility. A period of 18 months elapsed between the first announcement of a mandated lead arranger for a senior debt facility and the draw-down of funds by the firm.

Further anecdotal evidence on the length of time bank loan negotiations can take is provided by View Resources Limited (2006):

> *We are delighted to announce the Investec Facility as it culminates several months of detailed work by the bank in reviewing our Bronzewing feasibility study and it reflects their confidence in the project. Investec completed a comprehensive due diligence covering all the necessary technical, operational and financial aspects of Bronzewing and have given the project their full support.*

Final confirmation of the signing of the debt facility was announced three months after the aforementioned announcement.

[5] Appendix A.1 to Appendix A.4 provides the announcements that Base Resources' released to the market.

Understanding the institutional setting of this study is important in providing a comparison to prior bank loan announcement studies which use samples developed from newspaper article searches. Due to the sample constraint of observing loans only through newspaper articles, an assumption is made that all the information content of a bank loan agreement is released on the date a newspaper article mentions a loan. Thus prior studies have been unable to control for any information leakage prior to the newspaper article, or to observe at which point in the negotiation process a bank is potentially signalling its private information to equity investors.[6] Prior results on the information content of bank loan announcements could potentially be understated as the sequential nature of information flow may have been overlooked. Thus, the continuous disclosure setting in Australia helps address this issue as firms are encouraged to keep the market informed at crucial stages of the loan negotiation allowing the different stages of negotiations to be observed and analysed.

[6] Preece and Mullineaux (1996) acknowledge information leakage as a potential concern for bank loan announcement studies and investigate an eleven-day event prior to an announcement, a longer window compared to other studies.

2.2 Mining industry

Bank loans are theorised to benefit a firm characterised by having no other monitors (Diamond 1984), a poor information environment (Dhaliwal *et al.* 2011), high information asymmetry (Boyd & Prescott 1986), low analyst coverage (Best & Zhang 1993), high risk (Diamond 1991), and small firm size (Fama 1985). This suggests that firms with higher levels of information asymmetry benefit more from the signal of creditworthiness provided by bank loans (Leland & Pyle 1977). A type of firm that closely matches the characteristics listed above is mining development stage entities (MDSEs). The characteristics of MDSEs and appropriateness of using them as a sample for this thesis are outlined below.

The valuation of resource projects is primarily based on estimates of the in situ mineral resources of a firm (Hotelling 1931; Brennan & Schwartz 1985). Australian mining firms disclose resource estimates based on the Joint Ore Reserve Committee (JORC) code which are value relevant in that they are useful in helping predict future production (Bird *et al.* 2013; Kean 2013).[7] Thus the valuation of MDSEs is dependent upon highly technical geological information, resulting in high information asymmetry between management and external equity investors (Ferguson & Crockett 2003). MDSEs generally follow a predictable firm lifecycle.[8] Mining firms often list on the ASX as zero-leverage exploration firms. If exploration activities are successful and a mineral deposit is identified, in due course, a feasibility study will be conducted to determine its economic viability. Bank loans are generally sought at a late stage in the mine lifecycle to provide funds for mine construction.

[7] The JORC code provides standards for the public reporting of mineral exploration results, mineral resources, and ore reserves.
[8] Table 2.2 displays the phases of a typical mining firm's lifecycle.

The above characteristics of MDSEs suggest they possess characteristics consistent with the theory predicting they would benefit from bank loans. In other words, given the scarcity of other information intermediaries present, this is a setting where bank reputation signals are likely to matter. If bank loan announcements are not reacted to in a setting where theory predicts the reaction will be strongest, then it will provide support for recent claims that bank loans signal no relevant information to investors (Fields *et al.* 2006). If results show that bank loans do provide information content to capital market investors, it provides evidence that, in settings consistent with theoretical predictions, bank loan announcements signal useful information. Thus, recent finding of no reaction could be explained by samples populated by firms having an information environment dominated by competing information intermediaries and other monitors that mitigate the information content of a bank loan.

Another additional benefit of using MDSE firms for the sample is the ability to observe a large number of firms with no debt changing their capital structure from being zero-leverage firms to obtaining their first bank loan. In other words, zero-leverage firms initiating bank debt offer researchers a unique setting to analyse how bank loan announcements inform the market. In summary, I am able to identify a large sample of loan initiations amongst a homogeneous group of firms to analyse the information content of bank loan announcements where no prior bank loan relationships exist.[9]

[9] The use of the Australian mining firm sample does not lead to different predictions than those used in prior research. However, it allows the observation of a different phenomenon than has been previously observed i.e. it is possible to observe zero-leverage firms announcing initial bank loans. This is a unique feature of the sample setting, as mining firms list on public exchanges with zero-leverage at a greater frequency than non-mining firms.

2.3 Chapter 2 figures and tables

Table 2.1 Sequencing of bank loan announcements made by Base Resources Ltd.

Date of announcement	Announcement
30/03/2011	Appointed mandated lead arranger for $US150m senior debt facility
27/07/2011	Credit approval received for $170milllion senior debt facility. Subject to final documentation to be concluded during September 2011
23/11/2011	Final documentation approved. Agreement signed for US $170million senior debt facility
21/11/2012	Base makes first drawdown of US$52millionon debt facility

Table 2.2 Stages of the mine development lifecycle

Stage No.	General Stage	Specific Stage
1	Exploration	Project acquisition, Tenement application/grant
2		Grassroots exploration
3		Discovery
4		Resource definition
5	Scoping and Feasibility	Scoping study commencement
6		Scoping study completion
7		Pre-feasibility study commencement
8		Pre-feasibility completion
9		Full feasibility study commencement
10		Full feasibility study completion
11	Development	Approval
12		**Financing**
13		Construction
14		Commissioning
15	Production	Production

Source: Ferguson and Pundrich (2013)

Chapter 3. Literature review

3.1 Introduction

The objective of this chapter is to provide an overview of the literature relating to the role banks play as financial intermediaries and how markets react to bank loan announcements. I structure the literature review by providing a brief outline of individual papers in chronological order to illustrate how the literature has developed. First, I review the theoretical literature explaining the reasons why banks exist as financial intermediaries and the theorised benefits they can provide to borrowing firms. Subsequently, I introduce the empirical literature covering market reactions to bank loan announcements. Table 3.1 provides a summary of empirical literature relating to bank loan announcement market returns. The chapter concludes with a summary of both areas of research.

3.2 The role of banks as financial intermediaries

Economic theory suggests that frictions within markets, such as information asymmetry and agency costs, can explain why capital does not always flow to firms with profitable investment opportunities (Stiglitz & Weiss 1981). Financial intermediaries, such as banks, help partially overcome these frictions by engaging in costly information production and monitoring activities. The literature reviewed below briefly develops the reasoning for why banks exist, and how they operate as efficient financial intermediaries in capital markets.

Black (1975)

Black (1975) suggests that banks have a cost advantage in making loans to firms that hold a deposit account with the bank. The transaction history of an existing depositor seeking to borrow provides information that allows a bank to more efficiently

identify the risk of loans and to then monitor loans at a lower cost than other lenders. This information provides banks with a valuable competitive advantage in measuring the risk of organisations with less publically available information.

Leland and Pyle (1977)

Leland and Pyle (1977) show that financial intermediation can be viewed as a natural response to asymmetric information. When information asymmetry is high due to a lack of publically available information, an information intermediary can obtain private information with an expenditure of resources. A financial return on this information can be generated based on the intermediary buying and holding assets based on its specialised information. Additionally, borrowers with favourable characteristics wish to be identified as such; they may deal with an informed intermediary, such as a bank, rather than with an uninformed set of public bond holders in order to publicise these favourable characteristics.

Campbell and Kracaw (1980)

Campbell and Kracaw (1980) consolidate prior work and build a model showing that information intermediaries emerge as information producers because the provision of transaction services (Black 1975), production of information (Leland & Pyle 1977), and the protection of confidentiality (Campbell 1979), are natural complimentary activities. It is also shown that the market will only believe signals provided by information intermediaries when the intermediary has a sufficient stake in the market such that they have no incentives to misrepresent their information.

Diamond (1984)

Diamond (1984) develops a theory of financial intermediation based on minimising the cost of monitoring information. A model is developed to show that a financial intermediary, such as a bank, will have a net cost advantage in information production relative to outside lenders providing purchasing bonds.

Fama (1985)

Fama (1985) discusses the beneficial monitoring role that banks can have. The renewal process of short-term bank loans triggers periodic evaluations of a borrower's ability to meet low-priority fixed payoff contracts. Positive renewal signals from bank loans mean that other agents with higher-priority fixed payoff claims need not undertake similar costly evaluations of their claims. Bank signals are credible since the bank backs its opinions either by providing resources, or by declining resources. Fama (1985) further outlines the value of bank loans signalling the creditworthiness of an organisation by observing that many firms pay periodic monitoring fees for lines of credit that they do not use. The lines of credit are purchased for the sole purpose of providing a signal about the firm's creditworthiness to outsider stakeholders.

Flannery (1986)

Flannery (1986) shows that when an inside manager's information about their firm differs from market perceptions, an issuance of public debt will be mispriced in a way that varies with maturity. Issuing short –term debt today implies a need to reissue debt in the future at a price reflecting the firm's condition at that time. With asymmetric information, an insider with a relatively good firm will consider the market default premium to be excessive. The premium on long-term debt would appear to be the most excessive as the market would have overstated the risk of default and hence interest rates would be higher over a longer period of time. Therefore firms that expect positive

future outcomes will signal to the market their 'type' via the issuance of short-term debt, to be renegotiated after they reveal their positive internal news.

Diamond (1991)

Diamond (1991) outlines that bank loans are screened using both the borrowers' public and private information. Monitoring of private information is most efficiently delegated to a financial intermediary rather than being independently collected by many outside investors (Diamond 1984). When a loan is arranged, borrowers gain from positive reputation signals conveyed to the market by being monitored by banks with private information. The reputation effects derived from bank monitoring are enough to drive demand for bank loans. New borrowers will begin building their reputation by being monitored, and then later switch to issuing directly placed debt.

3.3 Market reactions to bank loan announcements

Publicly-listed companies have access to various sources of financing, including equity, public debt and private debt. The market reactions surrounding new finance offerings have been of particular interest to researchers.[10] Researchers have analysed the market reaction to equity offerings, such as IPOs (Ibbotson 1975), seasoned equity offerings (Masulis & Korwar 1986), and share purchase plans (Brown *et al.* 2008). Debt offerings, such as straight debt offerings (Eckbo 1986) and convertible debt offerings (Mikkelson & Partch 1986) have also been analysed. Due to the competitive advantage banks possess in screening and monitoring loans, bank loan announcements have received a lot of attention in the literature due to the potential private information they can signal to outside stakeholders. The following literature review focuses on the

[10] There is a large literature surrounding capital raisings. Important areas such as capital structure choice and financial instrument choice modelling fall outside the scope of this thesis.

market reaction to private debt announcements, primarily bank loan announcements. Table 3.1 provides a summary of the empirical papers conducting event studies surrounding bank loan announcements, organised in chronological order.

Mikkelson and Partch (1986)

Mikkelson and Partch (1986) examine market reactions of firms issuing both debt and equity securities using a sample of 360 randomly selected industrial firms listed on the New York Stock Exchange. External financing announcements over the period 1972–1982 are observed via the Wall Street Journal. Findings show that the type of security issued by a firm has more predictive power over abnormal stock returns relative to the characteristics of the security issue. A significantly negative valuation effect is experienced at the announcement of common stock and convertible debt offerings. Straight debt offerings also experience a small negative market reaction. Unique amongst the findings is that private credit agreements are associated with a positive share price response. For a sample of 155 credit agreement announcements issued by 88 firms, a significantly positive abnormal return of 0.89% is observed in a two-day window surrounding the announcement.

James (1987)

While Mikkelson and Partch (1986) examine the market response to both debt and equity offerings, James (1987) concentrates the analysis on the share price response to the announcement of various debt offerings; including bank loans, private placements of debt, and public debt issues. A sample of 300 randomly selected firms is employed, with 80 bank loan announcements observed over the period 1974–1983. An abnormal return of 1.93% is reported during a two-day event window surrounding the announcement of bank loans. Negative returns are reported surrounding the

announcement of private placements and public debt announcements. These results are consistent with Mikkelson and Partch (1986), showing positive and significant abnormal returns for bank loan announcements, and non-positive returns for publicly-placed debt issues. Analysis of debt maturity, borrower default risk, borrower size, and purpose of borrowings, indicate that the difference in abnormal returns between security types is not influenced by differing loan or borrower characteristics.

Slovin, Sushka and Hudson (1988)

Slovin *et al.* (1988) test whether the issuance of debt securities through a note issuance facility or commercial paper program, backed by a standby letter of credit from a bank, is a favourable signal about the issuing firm. A sample of 108 note issuance facilities are collected from the Wall Street Journal during 1982–1985; of which 35 note issuance facilities have bank guarantees in place. Results show that announcements of a note issuance backed by a bank guarantee have a significant positive abnormal return of 1.39% in the two-day window surrounding the announcement. Note issuances without bank certification have no significant impact on firm valuation. Cross-sectional analysis of abnormal returns shows that the firm's credit rating does not cause any variation in the experienced returns. Thus Slovin *et al.* (1988) conclude that, unlike other debt security issuances or equity security issuances, the information production and monitoring role of a bank, provides a positive signal to equity investors, resulting in a positive price reaction.

Lummer & McConnell (1989)

Mikkelson and Partch (1986) and James (1987) conduct event studies on various debt and equity security offerings. Due to the unique positive response of bank loan announcements observed, Lummer and McConnell (1989) concentrate their research on

bank loan announcements. A sample of 728 bank loan announcements released by industrial firms during the period 1976–1986 is obtained from the Wall Street Journal Index. Of the sample, 371 bank loan announcements are classified as new credit agreements and 357 are revised existing agreements, of which 259 contain positive revision terms. Event study results are consistent with Mikkelson and Partch (1986) and James (1987), with the total sample of loan announcements experiencing a positive abnormal return in the two-day event window of 0.61%. Sub-sample analysis shows this result is due to positive loan revisions, which experience a 0.87% abnormal return. The new loan sample has an insignificant price response, while renewals with negative term revisions suffer a –3.87% return.[11]

Lummer and McConnell (1989) conclude that when a bank enters into a new credit agreement, it does so with no information advantage over other outside claimholders, and, on average new loan agreements do not signal any new information to investors. Over time, as business relations develop, banks become privy to information not available to outside claimholders; based on this information, they will revise the terms of their credit agreement. If the private information reflects positively on the firm, the bank will renew with more favourable terms. This decision sends positive signals to the market and results in a positive share price response. Conversely, if the firm is having difficulty in making principal and interest payments, the bank can cancel the loan or tighten the loan criteria— a decision signalling negative information or bad news to the market.

[11] This thesis differentiates between the classification of a 'new loan' and a 'loan initiation'. Lummer and McConnell (1989) classify a new loan as a firm that arranges a loan with a new bank that they have no previous loan from, stating: "except for five cases, all of the firms in our sample that announce new credit agreements had some prior bank financing in place, albeit with a different bank". Thus their new loan sample is very different from the loan initiation sample used in this thesis, and is more analogous to observing a bank switch, while this study concentrates on bank loan initiations.

Slovin, Johnson and Glascock (1992)

Slovin *et al.* (1992) test if the share price response to loan announcements differs systematically between large and small capitalisation firms. Using a sample of 149 loan initiations and 124 renewals during the period 1980–1986, results show that small firms experience a positive abnormal return of 1.5% for loan initiations, and a 2.58% abnormal return for loan renewals.[12] In contrast, large firms have an insignificant abnormal return for both loan initiations and loan renewals.

Slovin *et al.* (1992) conclude that their empirical findings support the view of Fama (1985) and Diamond (1989) that bank loans have greater value for small firms over large firms. Small firms receive greater benefit from a bank's certification of firm quality through the loan and the signal of creditworthiness this conveys, compared to large firms who face fewer moral hazard or adverse selection problems and require less monitoring. Interestingly, my sample of MDSEs largely constitutes what could be considered as small firms.

Best and Zhang (1993)

Best and Zhang (1993) re-examine the information content of bank loans after controlling for the information production and monitoring capabilities of financial analysts. Bank loan announcements are divided into groups according to whether analyst earnings prediction errors are high or low. A sample of 143 bank loan announcements is collected over the period 1977–1989 from the Wall Street Journal. The total sample of announcements experiences an abnormal return of 0.32% over the

[12] Slovin *et al.* (1992) use the terminology 'initial loan' in a manner consistent with the term 'new loan' used by Lummer and McConnell (1989). They state '*new credit agreements with new banks are classified as initiations, even if other bank debt may exist.'* Thus the definition of the term 'loan initiation' as used in Slovin *et al.* (1992) differs to that used in this thesis. This thesis refers to a loan initiation only when the firm is obtaining its first bank loan when no prior bank loans exist.

two-day event window. Initial loan announcements experience an insignificant abnormal return, while favourably revised loans experience a 0.71% abnormal return.

Additional results show that abnormal returns surrounding bank loan announcements are higher when analyst forecast errors are high. Firms with high analyst prediction errors represent firms whose future performance cannot be accurately predicted by financial analysts, and information asymmetry remains high. It is within the high information asymmetry sample of firms where bank loan announcements provide the largest price signal to equity investors.

Results are consistent with theories that suggest banks provide unique information production services (Leland & Pyle 1977; Campbell & Kracaw 1980; Diamond 1984). These theories suggest that banks know more about the prospects of the firms they lend to than outsiders. Thus bank loans should signal useful information and result in a resolution of information asymmetry. Best and Zhang (1993) conclude that banks play a unique role in alleviating situations of high information asymmetry. The findings generally support the results of Lummer and McConnell (1989), that banks have no information advantage relative to outsiders when initiating a new loan; however, they do flag the possibility that for certain firms the bank may have greater incentives to supply additional new information.[13]

McDonald 1994

McDonald (1994) tests whether a borrower's share price response to a loan announcement varies depending on the type of bank loan issued. A sample of 250 loans

[13] Best and Zhang (1993) follow Lummer and McConnell (1989) in their definition of a 'new loan'. Stating "*The loan is classified as new if the WSJ article indicates that the agreement is new or there is no indication that it is a revision, extension, or replacement of an existing credit agreement*". Thus the conclusion of Best and Zhang (1993) that banks have no information advantage relative to outsiders when initiating a new loan uses a different definition of loan initiation than the one adopted in this thesis.

announced during 1980–1986 is observed. Results demonstrate that the type of bank loan entered into determines if a price reaction occurs. Significantly positive price reactions occur when the announcement of a formal revolving credit agreement is made; however, no significant price reaction occurs when a straight line of credit is announced. Revolving credit agreements are formalised loan commitments characterized by contract obligations and maturities of two or more years. The announcement of these formal agreements results in a two-day abnormal return of 1.3%. Straight lines of credit are a more informal arrangement, and are often unsecured by the assets of the firm. The announcement of these loan agreements has no significant price response.

McDonald (1994) concludes that the market treats revolving credit agreements as an observable signal of firm quality due to the fact that the bank has undertaken a thorough analysis and audit of the borrowing firm. They are perceived as a clear signal of firm quality due to the bank's willingness to enter into an agreement. In contrast, it is concluded that straight lines of credit are a more obscure event, not seen by investors as a reliable signal of the bank's confidence in the borrowing firm.

Preece and Mullineaux (1994)

Preece and Mullineaux (1994) test for differences in the market reaction to loans issued by banks and non-bank financial services firms. This tests whether the positive announcement return associated with bank loan announcements is due to the nature of the lending contract, or the characteristics and structure of the lending institution. A sample of 439 loans announced during the 1980–1987 period is split into 52 loans issued by finance companies and 387 loans issued by banks. Results show that the announcement of loans issued by non-bank lenders, bank holding company subsidiaries,

and banks attract significantly positive security returns. Further analysis shows there is no significant difference in the reaction to loans issued by banks and non-banks. Preece and Mullineaux (1994) conclude that it is the nature of the loan contracts that results in positive price reactions. Non-bank firms appear to collect and analyse private information similar to that utilized by banks in reaching credit decisions. Thus the contention in prior research that banks are unique appears to be an overstatement. It is the private loan which is unique amongst security offerings, not the lending institution. The uniqueness of loans is due to access to private firm information and closer monitoring of borrower behaviour by private lenders than by public financing.

Billet, Flannery and Garfinkel (1995)

Billett *et al.* (1995) investigate whether a borrowing firm's market reaction to a loan announcement varies based on whether the lender is a bank or private finance company. Consistent with Preece and Mullineaux (1994), results suggest that borrower returns associated with non-bank loans are positive and statistically indistinguishable from the returns associated with bank loans.

Results are extended to show market reactions to loans vary depending on the lending firm's credit rating. A sample of 346 loan announcements in which the lender credit rating is known is obtained during the period 1980–1989. Loan announcements have a significantly positive abnormal return of 0.64% on the event day if the lender has an AAA credit rating. Insignificant loan announcement returns are observed when lenders have a credit rating below BAA. Regression results show that when lenders are sorted by their credit rating, borrower's abnormal returns increase with the lender's credit rating, indicating that outside investors' reaction to a loan announcement varies with the lender's characteristics.

While the association between bank loan announcement returns and the characteristics of borrowing firms had been widely investigated, no prior research has considered the impact of the lending firm's identity on the borrowing firm's loan response. Billett *et al.* (1995) put forward two hypotheses on why the lender identity might matter to equity investors. First, the lender might be known to prefer certain risk classes of private debt and thus a bank's lending decision might signal a borrower's true risk. Second, lenders may have different monitoring abilities in which they ensure the borrowing firm engages in appropriate investment and spending decisions. Billett *et al.* (1995) conclude that both borrower and lender characteristics are associated with loan announcement returns. Strong evidence is presented that higher quality lenders (as measured by credit ratings) are associated with higher abnormal returns to the borrower's stock.

Preece and Mullineaux (1996)

Preece and Mullineaux (1996) extend their earlier work (1994) on market reactions to loan issuance by considering loan renegotiation during financial distress. Public debt, held by dispersed bondholders without sufficiently detailed covenants, cannot achieve the same efficient outcomes during renegotiation as can be achieved with private debt agreements (Gorton & Kahn 1993). Preece and Mullineaux (1996) use a sample of 446 loan announcement during the period 1980–1987; of which121 loans are issued by single lenders, and the remaining 325 loans by lending syndicates. Results show that loans issued by a single lender have a two-day abnormal return of 1.79%, higher than the abnormal return of 0.73% observed for loans issued by syndicates. Furthermore, in syndicated loan agreements, the market reaction decreases as the number of lending banks in the syndicate increases. This suggests that as the difficulty

of renegotiation increases with the number of lenders, the value of bank loans is lessened and the market response decreases.

Johnson (1997)

Johnson (1997) draws on the auditor and investment banking reputation literature and examines whether the characteristics of banks can proxy for their reputation. A sample of 222 favourable bank loan announcements made during the 1980–1986 period is analysed. After controlling for borrower and loan agreement characteristics, share price reactions are found to be positively associated with bank deposit size and capital ratio, and negatively associated with their loan loss provision ratio. These results suggest that equity investors use indicators of the lending banks' reputation to determine if they are a high quality lender and will respond more favourably to loans issued by higher reputation banks. Johnson (1997) reports findings consistent with Billett *et al.* (1995) that there is a positive association between bank credit ratings and borrowing firm abnormal returns surrounding a loan announcement at the univariate level. However, bond ratings are unrelated to the share price effects associated with loan announcements after controlling for the bank deposit size, capital ratio and loan loss provision ratio. These results imply that bond ratings do not convey information useful in explaining the monitoring benefits provided by banks after controlling for other bank characteristics.

Carey, Post and Sharpe (1998)

Both Preece and Mullineaux (1994) and Billett *et al.* (1995) find that there is no difference in the borrowing firm's share price reactions to announcements of loans by banks and non-banks. Carey *et al.* (1998) extend this research by investigating whether there is a difference between the type of firms that bank and non-bank lenders lend to.

Results show that both banks and non-bank lenders are equally likely to provide loans to information-problematic firms as measured by various proxies for firm information asymmetry. However, specialisation between the two lender types is evident in that finance companies (non-banks) on average tend to lend to observably riskier borrowers, especially borrowers that have a higher level of leverage.

These findings are inconsistent with the hypothesis that banks have a unique advantage in monitoring borrowers due to their easy access to information in a business' checking account, compared with finance companies that monitor loans, but do not offer checking accounts (Black 1975; Fama 1985; Nakamura 1991). Consistent with Preece and Mullineaux (1994) and Billett *et al.* (1995), Carey *et al.* (1998) conclude that it is private market lending intermediaries, not specifically banks, that are unique in being able to signal private information to equity investors.

Mosebach (1999)

Mosebach (1999) reconfirms when the market becomes aware that a bank loan is granted, the borrower's stock has a positive and significant reaction. Additional analysis shows that the loan provider also has a positive share price reaction when the loan issued is large. These findings suggest that large loan issuance signals positive information about the reputation of both the borrowing firm and the credit provider.

Datta, Iskandar-Datta and Patel (1999)

Datta *et al.* (1999) test whether having bank debt in a firm's capital structure will reduce debt-related monitoring costs, and hence reduce the cost of capital of the firm's public debt. A sample of 98 initial public debt issuances are examined during the 1971–1994 period, with 64 firms having prior bank debt and 34 having no bank debt.

Results show that bank monitoring lowers the yield for first public bond offerings by roughly 68 basis points after controlling for firm and bond characteristics. The results complement prior findings that the screening and monitoring function of banks can signal good news about the borrowing firm to outside investors.

Aintablian and Roberts (2000)

Aintablian and Roberts (2000) extend the research on bank loan announcements into the Canadian institutional setting. With all prior bank loan announcement studies being conducted on the US market, Aintablian and Roberts (2000) show that prior findings are consistent with a sample of Canadian firms. A sample of 137 loans announced during the period 1988–1995 is examined, with bank loan announcements eliciting a positive price reaction of 1.23% amongst the total sample of firms.

Fery, Gasbarro, Woodliff and Zumwalt (2003)

Fery *et al.* (2003) note that the sample selection process in prior bank loan announcement studies is biased towards positive announcements. With prior studies utilising newspaper article searches to identify bank loan announcements, it is argued that both lenders and borrowers are biased in making press releases regarding positive loan agreements. A sample of 196 credit agreements signed during 1983–1999 is obtained using data from the IFR platinum database. Loans are split into two categories, of published and non-published loans. Results show that positive abnormal results are only found for loans that are published in both the financial press and dedicated information providers, with a three-day abnormal return of 1.19%. No significant return is observed for the non-published credit agreements that are observed in dedicated databases.

Boscalijon and Ho (2005)

Boscaljon and Ho (2005) find that lender quality is the most important determinant of the information content of bank loan announcements in a sample of Asian countries surrounding the Asian financial crisis. Lender quality is assumed to vary with the domicile of the bank. Results show that loans from banks based in countries with stronger banking regulation are positively associated with abnormal returns surrounding bank loan announcements. Additionally, abnormal returns increase after banking regulation improved in the aftermath of the Asian financial crisis.

Billet, Flannery and Garfinkel (2006)

Billett *et al.* (2006) provide evidence on the long-term performance of firms after bank loan financing. A large sample of 10,619 loans is obtained from the Loan Pricing Corporation Database spanning the years 1980–2000. Results show that firms announcing bank loans suffer negative abnormal stock returns over the subsequent three years. Negative long-term performance after bank loans is consistent with the negative returns obtained after other financing agreements, such as seasoned equity offerings (Spiess & Affleck-Graves 1995) and public debt issues (Spiess & Affleck-Graves 1999). Thus, Billett *et al.* (2006) provide the first evidence that bank loans may not be beneficial to stock returns for the borrowing firm as short-term positive returns significantly reverse in the long-term.

Fields, Fraser, Berry and Byers (2006)

Fields *et al.* (2006) find that abnormal returns associated with bank loan announcements reduced during the period 1980–2003, with bank loan announcements experiencing insignificant returns during the latter part of the sample. A sample of 1,111

loan announcements is examined during the 1980–2003 period. Loans issued prior to the year 2000 are associated with a significantly positive abnormal return of 0.60% during 1980–1990, and 0.50% during 1990–2000. Loans issued after the year 2000 have an insignificant price reaction. The decline in the market reaction to bank loans is hypothesised to be caused by the increase in publically available information and the decline in the cost of accessing public information.

Lee and Sharpe (2009)

Lee and Sharpe (2009) find a positive association between bank monitoring ability and abnormal returns around bank loan announcements using a new proxy to measure bank monitoring ability based on employee wages as a proportion of total bank expenses. The proxy aims to reflect the amount banks invest in their employees as monitors of loans. A sample of 201 bank loan announcements issued by 31 banks spanning the time period 1995–1999 are observed. The main presumption is that the quantity and quality of the bank's staff reflects its monitoring effort and ability. After controlling for bank risk and size, and for loan and borrower characteristics, the findings show a significantly positive relationship between the lending banks' monitoring ability proxy and the borrowing firm's loan announcement return. This proxy is noted to have greater explanatory power than bank size (Johnson 1997) and credit rating (Billett *et al.* 1995).

Maskara and Mullineaux (2011)

Maskara and Mullineaux (2011) extend the literature by questioning whether the market reaction to bank loans is indeed positive. Results consistent with Fery *et al.* (2003) show that bank loans announced in newspaper articles are rare, and fail to represent the population of bank loans. When a random sample of 800 loans is

examined, representative of the full population of bank loans, market reactions are insignificantly different from zero. Consistent with Maskara and Mullineaux (2011), Gonzalez (2011) finds that only a small subset of bank loans are reported, with riskier and more opaque firms more likely to have their loans covered by the financial press. Thus positive bank loan reactions observed in prior studies may have been due to sample self-selection, as firms and lenders are more likely to announce positive loans.

3.4 Summary

A summary of the empirical literature is presented below in Table 3.1. Theory suggests that banks perform two functions in their role as a financial intermediary; screening and monitoring. The screening function refers to the banks' ability to collect and process private firm information before making a loan decision. The monitoring function refers to the banks' ability to ex-post reduce agency costs of the borrowing firm by applying restrictive loan covenants that modify the behaviour of the firm.

Banks are theorised to provide an efficient form of financial intermediation due to their ability to provide low cost screening and monitoring of loans because of their access to the transactional history of their depositors (Black 1975; Fama 1985; Mester *et al.* 2007); their ability to reduce asymmetric information via access to private information from the borrower (Leland & Pyle 1977); their cost advantage in information production (Diamond 1984); and the complementary nature of their information production, confidentiality and transaction services (Campbell & Kracaw 1980). Monitoring is expected to have a positive value after initiating a loan as ex-post monitoring raises the probability of firm success through either enforcing efficient project choice or the expenditure of the owner's effort (Diamond 1991; Faulkender & Petersen 2006; Mester *et al.* 2007). Additionally, the bank may even participate in the

decision making process of the borrowing firm via seats on the board of directors (Fama 1985). Nevertheless, banks may be more efficient at restructuring firms that are in financial distress (Bolton & Scharfstein 1996; Bolton & Freixas 2000) relative to outside lenders. Thus bank monitoring should add positive economic value to the borrowing firm.

Consistent with the above mentioned positive aspects of bank lending, initial empirical studies investigating bank loan announcements find that the share market reacts to bank loan announcements in a positive way (Mikkelson & Partch 1986; James 1987). Subsequent studies investigate the cross-sectional variation in the abnormal returns surrounding bank loan announcements by considering the characteristics of the loan, the characteristics of the borrowing firm, and the characteristics of the lending institution.

The characteristics of the loan that have been shown to be associated with bank loan announcement returns are whether the loan is a new loan or a loan renewal (Lummer & McConnell 1989); the type of loan, specifically whether it is a formal revolving credit agreement or a straight line of credit (McDonald 1994); and the number of lenders in a loan syndicate (Preece & Mullineaux 1996). The characteristics of the firm that have been shown to be associated with bank loan announcement returns are the size of the firm (Slovin *et al.* 1992) and the firm's level of information asymmetry (Best & Zhang 1993).

Characteristics of the lending institution have been shown to influence loan announcement returns. Whether a loan is provided by a bank, or a non-bank lender is shown to be insignificant in explaining loan announcement returns (Preece & Mullineaux 1994; Billett *et al.* 1995), suggesting that it is the content of the private loan

that signals information to the market rather than the type of lending institution providing the loan (Carey *et al.* 1998). While the type of lending institution is not shown to influence announcement returns, the quality of the lending institution is associated with announcement returns. A positive relation between proxies of lender quality, including the lender's credit rating, bank deposit size and capital ratio are observed (Billett *et al.* 1995; Johnson 1997). Further, Boscaljon and Ho (2005) show that loan announcement returns are higher for loans issued by banks that originate in countries with stronger banking regulation in a sample surrounding the Asian financial crisis. Thus the lending decisions of higher quality lenders are found to signal more information to investors relative to the decisions of lower quality lenders.

Despite the strong theoretical underpinning of results showing that firms experience a positive reaction to bank loan announcements, recent studies have cast doubt on whether bank loan announcements do in fact signal information to equity investors. Billett *et al.* (2006) find that the long-term performance of firms is negative after obtaining a bank loan, while Fields *et al.* (2006) show that the positive bank loan announcement returns observed in early studies has declined through time, with bank loan announcements no longer having positive abnormal returns. Recent studies indicate that the positive abnormal returns surrounding bank loan announcements documented in early studies may be due to sample self-selection bias. Early studies developed bank loan announcement samples from newspaper word searches; however, loans announced in newspapers are shown to be systematically different to unannounced bank loans obtained from banking databases (Fery *et al.* 2003; Gonzalez 2011; Maskara & Mullineaux 2011). Unannounced bank loans garner no significant positive share market reaction, suggesting that early papers report positive results due to biased samples.

To conclude, banking theory suggests that bank loans can offer borrowing firms numerous benefits. Early studies show that borrowing firms experience a positive abnormal share price reaction when they announce the signing of a bank loan. These empirical results are consistent with the theory that bank loans are unique amongst the sources of financing, in that they provide outside investors a positive signal about the firm. However, recent evidence has suggested that bank loans do not signal information to investors, and on average bank loans do not elicit a share price reaction. My thesis updates the literature and provides new evidence of the impact of bank loans using a different sample period and an Australian sample of firms. In addition, I provide evidence on loans to the mining industry, which is yet to be considered in the literature.

3.5 Tables and figures

Table 3.1 A summary of prior papers conducting event studies surrounding bank loan announcements

Author	Journal	Sample size	Sample period	Country	Announcement collection	Abnormal return
Mikkelson & Partch (1986)	*Journal of Financial Economics*	155	1972–1982	US	Wall Street Journal Index	0.89% 2 day return
James (1987)	*Journal of Financial Economics*	80	1974–1983	US	Wall Street Journal Index	1.93% 2 day return
Slovin, Sushka and Hudson (1988)	*Journal of International Money and Finance*	108 agreements 35 bank guarantees	1982–1985	US	Wall Street Journal	1.39% 2 day return
Lummer & McConnell (1989)	*Journal of Financial Economics*	371 new loans 357 renewals	1976–1986	US	Wall Street Journal Index	0.61% all credit agreements –0.01% New credit agreements 1.24% revised credit agreements
Slovin, Johnson and Glascock (1992)	*Journal of Banking and Finance*	273 bank loans 149 initiations 124 renewals	1980–1986	US	Wall Street Journal Index	0.69% total sample 1.09% initiations 1.55% renewals

Best & Zhang (1993)	*Journal of Finance*	143 bank loans	1977–1989	US	Wall Street Journal	0.32% all credit agreements Insignificant for new loans 0.49% for revised loans
McDonald (1994)	*Journal of Financial and Strategic Decisions*	250 bank loans	1980–1986	US	Wall Street Journal	1.30% revolving credit agreements Insignificant for straight lines of credit
Preece & Mullineaux (1994)	*Journal of Financial Services Research*	439 loans	1980–1987	US	Wall Street Journal	0.786% Bank agreements 1.842% nonbank financing Insignificant difference between samples
Billet, Flannery and Garfinkel (1995)	*The Journal of Finance*	626 loans 346 with bank credit ratings	1980–1989	US	Dow Jones News Retrieval Service	0.68% all loans 0.64% banks with AAA credit rating Insignificant for credit rating BAA or lower

Preece & Mullineaux (1996)	*Journal of Banking and Finance*	446 loans	1980–1987	US	Wall Street Journal Financing News	1.785% no syndicate 0.729% syndicated loans
Johnson (1997)	*Journal of Accounting, Auditing and Finance*	222 favourable loans 58 banks	1980–1986	US	Wall Street Journal Index	1.18% all agreements 1.78% largest banks 0.90% smallest banks
Aintablian & Roberts (2000)	*Journal of Banking and Finance*	137 bank loans	1988–1995	Canada	Canadian Corporate News and Canada Newswire	1.23% all loans 0.623% new loans 1.26% loan renewals
Fery, Gasbarro, Woodliff and Zumwalt (2003)	*Quarterly Review of Economics and Finance*	196 bank loans	1983–1999	Australia	IFR Platinum database	1.192% published loans 0.143% for non-published announcements
Boscalijon & Ho (2005)	*Journal of Banking and Finance*	128 bank loans 56 initiations 72 renewals	1991–2002	Hong Kong, Korea, Taiwan, Thailand	Asian Wall Street Journal Index	1.25% total sample 1.27% loan initiation 1.71% favourable renewals.

Billet, Flannery & Garfinkel (2006)	*Journal of Financial and Quantitative Analysis*	10,619 loans	1980–2000	US	Loan Pricing Corporation database	–32.7% BHAR over 3 years following a loan announcement.
Fields, Fraser, Berry & Byers (2006)	*Journal of Money, Credit, and Banking*	1111 bank loans	1980–2003	US	Lexis/Nexis	0.46% all loans 0.60% 1980–1990 Insignificant 2000–2003
Lee & Sharpe (2009)	*Journal of Financial Services Research*	201 bank loans	1995–1999	US	Dow Jones News Service	0.25% for high monitoring banks Insignificant for low monitoring banks
Maskara & Mullineaux (2011)	*Journal of Financial Economics*	800 bank loans	1987–2004	US	Loan Pricing Corporation database	Insignificant abnormal returns

Table 3.1 presents a list of papers that have conducted event-studies surrounding bank loan announcements. Papers are displayed in chronological order.

Chapter 4. Hypothesis development

4.1 Hypothesis 1 – Returns on initial loan announcement

There are numerous reasons to expect a positive share price reaction upon the announcement of an initial loan. First, theory suggests that banks are better able to screen potential loans relative to outside lenders due to their access to a borrowing firm's private information (Leland & Pyle 1977). Capital market participants will act on signals provided by information intermediaries only when an intermediary has a sufficient stake in the market to remove incentives to misrepresent their information (Campbell & Kracaw 1980). Bank loans can provide a credible signal about a firm's quality, as banks back their opinions by either allocating or declining resources to borrowing firms (Fama 1985). Based on the informational advantages banks possess over external parties, and the credibility their lending decisions can signal, investors will gain insight into the quality of a firm's incomplete contracts after loan approval. Resolution of ex-ante information asymmetry signals firm value, and thereby reduces problems stemming from the under-pricing of a firm's securities (Johnson 1998). Thus, initial loan announcements may be associated with a positive share price reaction as uncertainty surrounding the borrowing firm's future cash flow is partially resolved.

Second, the ex-post loan monitoring banks provide can raise the probability of firm success through the enforcement of efficient project choice, or the enforcement of the owner's effort (Diamond 1991; Faulkender & Petersen 2006; Mester *et al.* 2007). Additionally, the bank may take a position on the board of directors (Fama 1985).[14] Further, banks are more efficient at restructuring firms that are in financial distress

[14] An example of a lender requiring a position on the board of directors is shown when Matrix Metals Limited announced the requirement to appoint a representative to the board of directors as a condition of their $10 million loan.

relative to outside lenders (Bolton & Scharfstein 1996; Bolton & Freixas 2000). Thus the ex-post monitoring provided by a bank after entering into an initial loan can increase a borrowing firm's value.

Third, as long as the marginal tax rate of the borrowing firm is not zero, the tax shield benefits of switching from a zero-leverage capital structure to a positive leverage structure provide positive value to equity holders. Korteweg (2010) finds that the median firm is valued 5.5% more at its value maximising leverage level compared to a firm with no leverage. Similarly, Strebulaev and Yang (2013) estimate that if dividend paying zero-leverage firms were to increase their leverage to an optimal level, they would increase their market value of equity by roughly 7%. Thus, Strebulaev and Yang (2013) and Korteweg (2010) estimate that zero-leverage firms can significantly improve their value by adopting an optimal leverage structure.[15]

Finally Ross (1977) argues that management is likely to have inside information about the value of their firm. He argues that it is in the interests of all firms to convince the public that they are high quality firms. Therefore, firms that are of truly high quality must devise a costly way to signal their quality. Ross (1977) suggests that one such signal may be the firms' use of debt financing. As managers incur a penalty if their firm goes bankrupt, high quality firms will have a higher tolerance for debt than lower quality firms. The implication is that the market should interpret a higher level of debt as a signal of higher value. Therefore managers use private debt financing strategies to signal the fact that their firm is high quality. This is consistent with the claim of Fama (1985) that many organizations pay periodic monitoring fees for lines of credit from

[15] This thesis does not estimate or predict whether the bank debt obtained represents an optimal level of leverage for the borrowing firm. No empirical capital structure estimation techniques find zero-leverage firms to be optimal. Thus, it is assumed that as a firm moves away from a zero-leverage capital structure it represents a movement towards an optimal debt level.

banks even though they do not take the resources offered, as corporations may purchase lines of credit from banks for the sole purpose of providing a positive signal about their creditworthiness.

My first hypothesis extends prior research by investigating firms securing their first ever bank loan (loan initiation). Observing firms securing their first ever bank loan (zero-leverage firms), contributes to prior literature by providing a stronger test of the bank lending decision to signal private information to capital markets. Loan initiation allows for a change to be observed in the borrowing firms information environment as it moves from having the information intermediary (bank) being absent, to being present. Prior studies have examined the information content of loan switches and loan renewals, but not the first ever initiation of a bank loan. This thesis differentiates between the classification of a new loan and a loan initiation. Lummer and McConnell (1989) classify a new loan as a firm that arranges a loan with a new bank that it has not previously borrowed from, stating, *'Except for five cases, all of the firms in our sample that announce new credit agreements had some prior bank financing in place, albeit with a different bank*.' This methodology was adopted in subsequent studies such as in Slovin et al. (1992) who state, '*New credit agreements with new banks are classified as initiations, even if other bank debt may exist.*'[16]

It is important to note how the difference between a new loan sample and a loan initiation sample may influence the results and conclusions of prior papers. Theory predicts that bank loan announcements will signal value to outsiders when there are few other intermediaries and information asymmetry is high (Diamond 1984; Boyd & Prescott 1986). In the new loan samples used in prior research, the borrowing firm

[16] Slovin et al. (1992) use the term 'initiation' in the same manner as Lummer and McConnell (1989) use the term 'new loan'. Thus the definition of the initiation sample in Slovin et al. (1992) is not the same as in this thesis.

already had a bank that had screened and monitored the borrower. When a bank loan is announced with a second (or more) bank, the new bank duplicates the initial bank's screening and monitoring, with little extra information signalled to the market. The result that banks possess no informational advantage at the beginning of a loan (Lummer & McConnell 1989; Slovin *et al.* 1992; Best & Zhang 1993) may be due to the sample using announcements that miss the initiation of the bank loan process, i.e. when a firm is first screened and bank monitoring begins. Going from no bank monitoring to being monitored by a bank is likely to have a substantially different effect on market perceptions of the firm than an existing borrower obtaining a new loan from a second new bank (simply an additional loan for an already existing borrower).

Where an existing borrower obtains an additional loan, it is only the differential monitoring between the two banks that would be observed. Thus, consideration of the following hypothesis allows the results of prior studies, which conclude that banks signal no private information at the initiation of a loan and are only able to signal private information during bank loan renewals to existing borrowers, to be revisited. In summary, I hypothesise that upon the announcement of a firm obtaining its first bank loan and changing from a zero-leverage capital structure to having private debt, the borrowing firm will experience a positive share price reaction. Thus, my first hypothesis is formally stated as:

H1: *Initial loan announcements by zero-leverage firms are associated with a positive share price reaction.*

4.2 Hypothesis 2 – Returns on subsequent loan announcements

Most bank loans are fixed-period contracts; at expiry the renewal process of these contracts trigger periodic evaluation of the borrowing organization's ability to meet low-priority fixed payoff contracts. Positive renewal signals from bank loans mean that other agents with higher-priority fixed payoff claims need not undertake similar costly evaluations of their claims (Fama 1985). The empirical findings of Lummer and McConnell (1989) are consistent with this theory. Within Fama's framework, there is no requirement that banks have a competitive information advantage at the initiation of a loan; rather banks learn about their customers over time as part of their business interactions. This makes the loan renewals an important process in transmitting information to capital markets.

The experimental setting of this thesis offers an interesting extension of the intuition behind Lummer and McConnell (1989) regarding loan renewals in two ways. First, I can observe when a firm enters into an initial loan. Previously, four reasons are outlined for why a loan initiation announcement would result in a positive share price reaction. An initial loan provides value due to the private information obtained in ex-ante screening of the firm and the ex-post monitoring of the firm. It may also signal future taxation savings (Strebulaev & Yang 2013) and is a costly signal of a firm's quality (Ross 1977). When a firm enters into a loan extension, or has a loan renewal, the value of the monitoring provided from the bank is maintained at a constant level and the costly signal of firm quality stays constant. The main signal that can be sent to outside shareholders during a renewal relates to any additional private information that has been learned in recent business interactions. Thus, I predict that loan renewals will exhibit positive market reactions, but that the abnormal returns are smaller in magnitude than an initial loan announcement. This gives rise to Hypothesis 2, stated as follows:

H2*: Subsequent bank loan announcements are associated with positive abnormal returns that are lower in magnitude than the abnormal returns associated with initial loan announcements.*

It is noted that typically for mining firms, financing occurs after a feasibility study is completed. However, in some cases, something akin to seed funding is provided as an initial arrangement to assist in the completion of the feasibility study. Assuming that private information is captured in the announcement of the initial arrangement, I expect that the subsequent project financing announcement (which can be likened to a renewal) will exhibit abnormal returns lower than those for the initial loan.

Second, there is a possibility is that the initial loan financing is supplemented by a later supplementary financing tranche due to cost over-runs on the project, or project expansion. Project cost over-runs were common during the recent mining boom where labour and equipment was scarce. Additionally, project expansions occurred during rising commodity prices and the changing economic feasibility of mines. A supplementary loan requested under these circumstances is akin to a loan renewal. Once again, I argue that under these circumstances, the announcement of a subsequent loan will exhibit lower positive abnormal returns than the primary project financing announcement, consistent with expectations in H2.

4.3 Hypothesis 3 – Resolution of information asymmetry

Theories of financial intermediation explain the role of banks in reducing information asymmetry. Leland and Pyle (1977) suggest that information asymmetry may be the primary reason that intermediaries exist. Campbell and Kracaw (1980) demonstrate that an important function of financial intermediaries is to produce information. These

information transmission theories argue that banks provide unique information in an imperfect capital market (Best & Zhang 1993). They suggest that banks know more about the prospects of the firms they lend to than others. Thus, a bank's lending decision can signal private information to the market, and a bank loan agreement should lower the information asymmetry of the borrowing firm.

Bank loans being associated with a reduction in the borrowing firm's information asymmetry is consistent with the assertion of Fama (1985) that many organizations pay periodic monitoring fees for lines of credit from banks even though they do not utilise the resources offered. The sole purpose of maintaining the loans is to provide positive signals about the firm's inside information. Other studies have indirectly shown an association between private debt in a firm's capital structure and the reduction of information asymmetry. The presence of bank debt in a firms' capital structure is seen to lower information asymmetry in that it attenuates IPO under-pricing (James & Wier 1990; Slovin & Young 1990), and the negative share price response to seasoned equity offerings (Slovin *et al.* 1990), as well as lowering the cost of debt capital for bond issuances (Datta *et al.* 1999). Thus, there is evidence that commercial banks help lower information asymmetry and mitigate adverse selection and moral hazard problems intrinsic to external financing.

Theory predicts that banks are useful in lowering information asymmetry, and research shows the benefits of having bank debt in reducing transaction costs of issuing financial securities. However, no study has directly tested whether bank loan announcements are associated with a reduction in the borrowing firm's information asymmetry. Having a sample of homogeneous MDSEs may assist in examining this issue. If banks help mitigate information asymmetry, then a reduction in the borrowing firm's bid-ask spread and an increase in the firm's share turnover should be observed in

the period immediately after a bank loan announcement. I hypothesis this assertion in the following manner:

H3: *Loan announcements are associated with a reduction in the borrowing firm's information asymmetry.*

4.4 Hypothesis 4 – Industry specialisation

Prior research indicates that lender characteristics are associated with bank loan announcement returns. Borrowing firms experience a larger positive abnormal return surrounding bank loan announcements issued by higher quality banks (Billett *et al.* 1995; Johnson 1997; Lee & Sharpe 2009; Ross 2010). Ross (2010) defines the three largest banks by market share in the syndicated lending market as high quality, and reports a positive association between loans arranged by the top three banks and abnormal price reactions surrounding loan announcements. Additionally, Bushman and Wittenberg-Moerman (2012) document that loans from higher reputation lenders, classified as the six largest banks active in the syndicated loan market, are associated with higher profitability and credit quality in the three years subsequent to the loan. I extend this literature by testing if a bank that specialises in lending to a particular industry acts as a higher quality intermediary and signals more credible information about the borrowing firm to outside investors.

Corporate lenders may participate in the type of reputational equilibrium previously described for underwriters and auditors, with banks of higher reputation providing investors more credible signals regarding firm quality. Therefore a lender's identity might matter to the capital market if the lender is known to prefer certain classes of risk. If lenders obtain private information in the process of screening loans, their lending decisions would then convey valuable information about a borrower's true

risk. Lenders may have different monitoring abilities, which enhance a borrower's value by assuring that appropriate investment and spending decisions are implemented (Fama 1985). If negotiating and managing high-risk loans (with many covenants to be designed and enforced) requires different skills than low-risk credits, individual lenders may choose to specialize (Billett *et al.* 1995).

Industry specialisation and leadership has been shown to exist amongst financial intermediaries such as underwriters (Carter & Manaster 1990; Booth & Chua 1996), auditors (Craswell *et al.* 1995; Ferguson & Stokes 2002; Ferguson *et al.* 2003), and non-GAAP financial assurance (Ferguson & Pundrich 2013). Theory suggests that bank industry specialisation should also exist. Almazan (2002) reports that banks tend to concentrate their portfolios by either region or industry, and that increasing bank specialisation can lead to decreased information production and monitoring costs due to learning. Winton (1999) shows that banks benefit from specialisation due to more effective monitoring of borrowers, leading to decreased adverse selection costs. Empirical support for these claims is provided by Acharya *et al.* (2006), who show that banks engaging in specialisation have higher returns and lower risk than diversified banks due to improved information production and monitoring capabilities.

The existence of bank industry specialisation is expected to occur in settings with high information asymmetry (Bonaccorsi di Patti & Dell'Ariccia 2004). High information asymmetry leads to banks carving out a captive market by overinvesting in information acquisition, enhancing lending efficiency and leading to excessive information production (Hauswald & Marquez 2006). Thus, the Australian mining setting is ideal for testing for the effects of banking industry specialisation due to the high level of information asymmetry between firms and investors, and specialist geological knowledge required to understand a mining project.

Anecdotal evidence supports the existence of banking industry specialisation within the mining industry in Australia. A resource analyst from Emerging Trends (2010) commenting on a mining firm's chance of obtaining bank financing, states:

> *Between the failure of Opes Prime, the withdrawal of Societe Generale and the scaled back operations of ABN Amro, a lingering after effect of the global financial crisis is that mining finance in Australia is largely in the hands of Macquarie Bank, which now has a near monopoly on project finance.*

Borrowers are also cognisant of the market-leading position of Macquarie Bank, as this quote from Saracen Resources shows:

> *We are pleased to advise the market about the facilities from Macquarie, which is a leader in this segment of the resources sector. The Finance Facilities bring substantial benefits to Saracen… This is a solid outcome for our shareholders, and gives us significant financial flexibility.*

Additionally, Macquarie Bank market themselves as an industry leader in resource financing. Macquarie Bank state that they are the '*global leader in financing the resources infrastructure sector'.* Further quotes from the Macquarie Bank website refer to their specialisation within the industry:

> *Macquarie Capital's Resources team combines financial services and specialised industry knowledge with a focus on companies operating globally in the resources sector, particularly the mining and metals, energy and related services sectors… This specialisation provides miners with the ability to efficiently finance new or existing capital intensive infrastructure to focus on their core businesses.*

Despite predictions suggesting the presence of bank industry specialisation, to date no empirical studies have analysed if industry specialist lenders signal more credible information to the market when they make lending decisions. I predict that specialist lenders will signal more private information to outside investors when they make lending decisions, and this will be reflected in higher bank loan announcement returns when the lender is an industry specialist.

This hypothesis can be formally stated as:

H4: *Firms that receive loans from an industry specialist lender will have higher loan announcement abnormal returns relative to firms that receive loans from non-industry specialist lenders.*

Chapter 5. Research Design

5.1 Sample & data

5.1.1 Sample period

The sample period used for this study spans September 1998 to July 2013. The ASX announcements search tool available via DatAnalysis Premium allows for text searches of announcement files archived after September 1998. Thus, all the available years of announcements are used to create the sample. During this period, a full economic cycle was experienced, with the mining industry experiencing both boom conditions in the lead up to the global financial crisis (GFC) and tough trading conditions following the GFC. A sample spanning a full economic cycle helps mitigate any concerns that a particular economic event during the sample period influences the results.

5.1.2 Sample country and industry

This study draws on a sample of listed Australian mining firms.[17] The Australian continuous disclosure regime provides a setting that is advantageous for identifying the announcement of bank loans, with continuous disclosure requirements for firms to announce material information to the ASX.[18] As of November 2013, the ASX comprised a total of 2,062 companies, of which 1,049 are classified within the Materials and Energy sector using the Global Industry Classification Standard (GICS). Although not all firms with a GICS sector within the Materials and Energy categories are mining firms, they do constitute a large proportion of firms within the sector, allowing for a reasonable sample size of MDSEs to be collected.

[17] The advantage of restricting the sample to mining firms is outlined in Section 2.2.
[18] Further information regarding the Australian continuous disclosure setting is provided in Section 2.1.

5.1.3 Sample identification

Since information on bank loans announced to the ASX are not readily stored in commercial databases, announcements have to be manually identified. Text searches of ASX announcements serve as the primary source of bank loan announcement identification.

The following steps were followed to identify a sample of bank loan announcements:

1. Bank loan announcements are primarily identified via keyword searches of the DatAnalysis Premium 'ASX Announcements Search' database. Searches are restricted to firms in the Materials and Energy GICS classifications. Keyword searches are conducted using terms that are likely to be associated with bank loan announcements. Examples of search words include, but are not limited to, 'Bank Loan', 'Debt Financing', 'Project Finance', 'Credit Agreement' and 'Finance Facility'. Results from text searches are read individually to identify whether events are bank loan announcements.
2. When a bank loan announcement is identified, the firm's operations are investigated to determine if its primary activity is to operate as a mining company. Non-mining firms are excluded from the sample.
3. After confirming the firm is a mining company, the firm's annual reports for the corresponding years are read to determine if the firm is a zero-leverage firm. If the firm is a zero-leverage firm, the announcement is classified as an initial loan. If prior debt is observed in the annual report, the firm's loan is classified as a subsequent loan. The firm's announcement history is then manually searched to identify initial loan announcements.

4. To ensure observations using uncommon terminology are not missed due to the reliance on key word searches, observations are cross-checked against the long-term debt of all ASX-listed mining firms. Long-term debt is obtained from both Aspect Huntley and Datastream for the period 1998–2012. Two databases are used to help improve the accuracy of data points, and to ensure breadth of firm coverage. Firms with large movements in long-term debt or movements from zero long-term debt to positive debt between any adjacent years are cross checked against the loan announcement sample.[19] Any firm that experiences large changes in debt but did not have a loan announcement identified in the text search is subsequently examined to ascertain if there are missing announcements. First, the firm's annual report is checked to see if the change in long-term debt is due to a bank loan. If bank borrowing is mentioned in the annual report the firm's announcement history is searched individually to identify bank loan announcements.
5. After an initial sample of bank loan announcements is identified, the announcement history of each firm is searched individually to identify any corresponding announcements relating to the bank loan. Corresponding announcements include the announcement of initial mandate agreements, the requirements of a loan being satisfied, the drawdown of loan funds, and updates regarding the negotiation process.

5.1.4 Data

The characteristics of each announced loan are hand collected from the bank loan announcement document. Firms are able to disclose as much or as little information

[19] Australia has a relatively small public debt market. Large movements in long-term debt are generally due to private loans.

regarding their bank loan as they wish. Significant variation in the number of items disclosed in bank loan announcements exists throughout the sample. Examples of firms with both extensive and limited disclosure of loan characteristics are included in Appendix A.5 and Appendix A.6. Appendix A.5 displays a bank loan announcement released by Antares Energy Limited which provides a relatively high level of disclosure; the lending source, maturity, interest rate, payment schedule and drawdown schedule are all disclosed. Appendix A.6 displays a bank loan announcement released by CGA Mining Limited which provides a relatively low level of disclosure; the loan maturity, interest rate, payment schedule and drawdown schedule are all withheld.

Capital market data such as daily closing prices, daily bid prices, daily ask prices, daily trading volume and market capitalisation, is obtained from Datastream. Firm level financial data is obtained from Aspect Huntley. Analyst information is extracted from the Institutional Brokers' Estimate System (I/B/E/S).

5.2 Loan announcement returns

I initially examine H1 and H2 using a two-step approach. First, descriptive statistics are used at a univariate level for the sample of initial loans and the sample of loan renewals. Statistical differences between the two samples are compared using student *t*-tests. Second, an ordinary least squares (OLS) regression is used to examine the determinants of the abnormal returns experienced surrounding bank loan announcements. A loan initiation variable is examined to determine if market reactions to loan initiations exceed those around subsequent loans.

5.2.1 Event study

An event study is conducted on the sample of initial loans, and the sample of subsequent loans to determine if the market reacts to bank loan announcements. I calculate abnormal returns as:

$$AR_{i,t} = ln\left[\frac{P_{i,t}}{P_{i,t-1}}\right] - ln\left[\frac{P_{m,t}}{P_{m,t-1}}\right] \quad (1)$$

where $AR_{i,t}$ is the abnormal return of firm *i* at time *t*, with *t* being the event day of a bank loan announcement; $P_{i,t}$ is the share price of firm *i* at time *t*; and $P_{m,t}$ is the index value of the All Ordinaries at time *t*.[2021] The cumulative abnormal return from event day *q* to event day *s* is the summation of the abnormal returns, calculated as:

$$CAR_i(q,s) = \sum_{t=q}^{s} AR_{i,t} \quad (2)$$

Modified *t*-tests are calculated to test if the market reaction following a bank loan announcement is, on average, significantly different from zero. Following Ritter (1991), the *t*-statistic for the cumulative average abnormal return $CAR_{q,s}$ is calculated as:

[20] All prices are adjusted for changes in the basis of quotation, such as dividends on the ex-dividend day.
[21] The All Ordinaries Index is used as a measure of market returns in primary tests. Furthermore, multiple robustness tests are conducted using a variety of alternative market model measures as outlined in section 6.8.1.

$$t(CAR) = CAR_{q,s} * \sqrt{N_t} / \left[(q-s) * var + 2 * \left((q-s) - 1\right) * cov\right]^{0.5} \quad (3)$$

where N_t is the number of observations; q–s represents the number of days between event day q and event day s; *var* is the average cross-sectional variance over q–s days; and *cov* is the first-order auto-covariance of the AR_t series.

The abnormal returns of the initial loan sample and subsequent loan sample are compared using student *t*-tests to test if the market reaction following initial bank loan announcements is statistically different from the market reaction following subsequent loan announcements.

5.2.2 Market reaction determinants

I employ an OLS regression model to provide additional insight into the cross-sectional variation of the abnormal returns surrounding bank loan announcements. This model is specified as follows:

$$CAR_i(q,s) = \beta_0 + \beta_1 Initial_i + \beta_2 FirstAnn_i + \beta_3 LnAmount_i + \beta_4 Lenders_i + \beta_5 Hedge_i + \beta_6 BankEquity_i + \beta_7 EquityRaise_i + \beta_8 LnMCap_i + \beta_9 Loss_i + \beta_{10} NumAnalyst_i + \varepsilon_i \quad (4)$$

where the dependent variable, $CAR_i(q,s)$ = cumulative abnormal return for firm i over the window q to s, is calculated as per Equation 2. Independent variables are grouped into two broad categories of borrower characteristics and loan characteristics discussed as follows.

Initial represents a binary variable equals to one if the loan is an initial loan, and zero otherwise. An initial loan is defined as the first loan a firm obtains as it changes its capital structure from a zero-leverage firm to a positive leverage firm. As outlined in Hypothesis 2, a positive and significant coefficient is predicted as initial loans are expected to signal more private information to the market relative to subsequent loans.

FirstAnn is a binary variable equals to one if the announcement is the first announcement regarding a particular loan, and zero otherwise. *FirstAnn* is predicted to be positively associated with abnormal returns, as the first announcement made to the market regarding a loan should contain mostly new, and price sensitive information.

LnAmount is calculated as the dollar amount of borrowed funds, scaled by the borrowing firm's total assets in the period prior to the loan announcement. A positive association is expected between the amount of funds borrowed and the abnormal market reaction. A larger loan represents a stronger vote of confidence in the firm's creditworthiness by the bank, and signals positive news about the firm.

Lenders is the number of lenders mentioned in the bank loan announcement. A negative association is expected between the number of lenders and abnormal returns. As the number of lenders increases, the ability of banks to renegotiate a debt when a firm is distressed decreases (Preece & Mullineaux 1996).

Hedge is a binary variable equals to one if it is disclosed within the bank loan announcement that commodity or foreign exchange hedging is required before a loan agreement can be completed. Hedging might have a positive or negative sign. On the positive side, hedging improves certainty regarding future firm cash flows and lowers firm risk, especially where the project has a high cost of production. However, equity investors may potentially lose any upside or option value from commodity price

fluctuations and consider it a burden on future profitability in times of rising commodity prices.

BankEquity is a binary variable equals to one if it is disclosed within the bank loan announcement that the bank owns shares, warrants or options in the borrowing firm. A positive association is predicted between banks holding equity in the firm and providing a loan. If a bank holds an equity position, it is a signal that they believe the firm has upside potential.

EquityRaise is a binary variable equals to one if it is disclosed within the bank loan announcement that the bank requires the borrowing firm to raise further equity before a loan agreement can be completed. If a bank loan is dependent on the firm issuing more equity, a negative coefficient is expected as the raising of equity is associated with a negative reaction in share price (Mikkelson & Partch 1986).

LnMCAP measures firm size and is calculated as the natural logarithm of the firm's market capitalisation five-days before the bank loan announcement. Firm size is expected to have a negative relation with abnormal returns. Smaller firms are expected to have higher levels of information asymmetry and benefit more from bank finance signals (Fama 1985; Diamond 1989; Slovin *et al.* 1992).

Loss is a binary variable equals to one if the firm reported a net profit after tax of less than zero in the annual report prior to the bank loan announcement. Loss is expected to have a positive association with announcement returns. Firms issued a loan while making losses are likely to have a larger gain in creditworthiness if a bank signals the firm is able to pay back the loaned funds in the future.

NumAnalyst is the number of analysts following firm *i* on the announcement date of a loan. A negative association between the number of analysts following a firm and its abnormal returns surrounding a bank loan announcement is predicted. An

increasing number of analysts covering a firm represent an improved information environment and reduction in information asymmetry. Bank loans are predicted to signal more information when information asymmetry is high.

5.3 Information asymmetry resolution

Two proxies are used to test for changes in the level of a firm's information asymmetry surrounding a bank loan announcement; the bid-ask spread and trading volume in the firm's shares. The bid-ask spread is commonly thought to measure information asymmetry explicitly as this addresses the adverse selection problem that arises from transacting in firm shares in the presence of asymmetrically informed investors. Less information asymmetry implies less adverse selection, which in turn implies a smaller bid-ask spread (Leuz & Verrecchia 2000). Numerous studies in related areas of research measure changes in a firm's bid-ask spread surrounding firm disclosures to test if the disclosures are effective in lowering firm-level information asymmetry. For example, firms using industry specialist auditors maintain a lower bid-ask spread (Schauer 2002); energy firms who release fair value reserve disclosures have a lower bid-ask spread (Raman & Tripathy 1993; Boone 1998); and firms that maintain a higher quality of disclosure reduce their bid-ask spread (Leuz & Verrecchia 2000).

An alternative proxy for adverse selection is trading volume in firm's shares. Trading volume is a measure of liquidity that captures the willingness of some investors who hold shares in the firm to sell and the willingness of others to buy. This willingness to transact in the firm's shares should be inversely related to the existence of information asymmetry (Leuz & Verrecchia 2000). When investors' beliefs converge about the value of the firm, there is an increase in turnover in the firm's stock (Diamond & Verrecchia 1991). Consistent with this proposition, Easley *et al.* (1996) present

evidence that suggests high turnover stocks have lower information-based trading. Turnover is therefore used as a measure of a firm's level of information asymmetry, with increases in turnover associated with a decrease in information asymmetry.

5.3.1 Bid-Ask spread

I first examine Hypothesis 3 by testing for changes in the borrowing firm's information asymmetry in the period surrounding a bank loan announcement. The abnormal change in bid-ask spread is measured to test whether bank loan announcements are able to signal private information that helps resolve information asymmetry, measured as:

$$SPREAD_{i,t} = \left[\frac{(AskPrice_{i,t} - BidPrice_{i,t})}{1/2(AskPrice_{i,t} + BidPrice_{i,t})}\right] \quad (5)$$

$$ESPREAD_i(p,q) = \frac{\sum_{t=p}^{q} SPREAD_{i,t}}{(q-p)} \quad (6)$$

$$ASPREAD_{i,t} = SPREAD_{i,t} - ESPREAD_i(p,q) \quad (7)$$

where $SPREAD_{i,t}$ is the daily average bid-ask spread for firm *i* on day *t,* calculated as the closing $AskPrice_{i,t}$ for the stock of firm *i* during day *t,* less the closing $BidPrice_{i,t}$ for the stock of firm *i,,* divided by the closing mid-point price. $ESPREAD_i$ is the average daily bid-ask spread for the stock of firm *i* over days p to q. $ASPREAD_{i,t}$ is the abnormal bid-ask spread, calculated as the difference between $SPREAD_{i,t}$ and the $ESPREAD_i$. In the main results, *p* and *q* are *t*-100 and *t*-15 respectively. To examine if changes in abnormal bid-ask spread are significantly different from zero, student *t*-tests are calculated.

The cumulative average abnormal spread from event day q to event day s is the summation of the abnormal spread, calculated as:

$$CAAS_i(q,s) = \sum_{t=q}^{s} ASPREAD_{i,t} \quad (8)$$

5.3.2 Trading volume

The event study methodology is adopted to analyse whether a stock's abnormal trading turnover is significantly different from zero following a bank loan announcement. I calculate abnormal turnover as follows:

$$TURN_{i,t} = \frac{VOL_{i,t}}{\#Shares_{i,t}} \quad (9)$$

$$ETURN_i(p,q) = \frac{\sum_{t=p}^{q} VOL_{i,t}/(q-p)}{\#Shares_{i,t}} \quad (10)$$

$$ATURN_{i,t} = TURN_{i,t} - ETURN_i(p,q) \quad (11)$$

where $TURN_{i,t}$ is the turnover of the stock of firm i on day t, calculated as the volume of shares traded for firm i on day t ($VOL_{i,t}$), divided by the number of ordinary shares outstanding for firm i on day t ($\#Shares_{i,t}$). $ETURN_i$ is the average daily turnover for the stock of firm i over days p to q. $ATURN_{i,t}$ is the abnormal turnover of firm i at time t, calculated as the difference between $TURN_{i,t}$ and $ETURN_i$. In the main results, p and q are set at t-90 and t-16, respectively. To examine if changes in abnormal turnover are significantly different from zero, student t-tests are calculated.

The cumulative average abnormal turnover from event day q to event day s is the summation of the abnormal turnover, calculated as:

$$CAAT_i(q,s) = \sum_{t=q}^{s} ATURN_{i,t} \quad (12)$$

5.4 Lender industry specialisation

I initially examine Hypothesis 4 at a univariate level, comparing loans issued by the industry specialist bank (Macquarie Bank), with the sample of loans issued by banks considered not to be industry specialists. Statistical differences between the two samples are compared using student *t*-tests.[22]

Next, OLS regression is used to examine the determinants of the abnormal returns experienced surrounding bank loan announcements. To determine if the industry-specialist bank signals more credible information to equity investors relative to non-specialist banks, the model specification described in Equation (4) is altered to include the variable *Macquarie.* The augmented OLS regression specification is documented in Equation (13) as follows:

$$CAR_i(q,s) = \beta_0 + \beta_1 Macquarie_i + \beta_2 Initial_i + \beta_3 FirstAnn_i + \beta_4 LnAmount_i + \beta_5 Lenders_i + \beta_6 Hedge_i + \beta_7 BankEquity_i + \beta_8 EquityRaise_i + \beta_9 LnMCap_i + \beta_{10} Loss_i + \beta_{11} NumAnalyst_i + \varepsilon_i \quad (13)$$

where all variables are defined as previously outlined in Equation (4) in Section 5.2.2, except for the new test variable *Macquarie.* The dummy variable *Macquarie* is coded

[22] The event study methodology used is outlined in Section 5.2.1.

one if a bank loan has been issued by Macquarie Bank, (classified as a mining industry specialist), and zero otherwise.

Ross (2010) analyses whether abnormal returns are associated with bank reputation; bank size is used to proxy for the reputation of the bank. The largest three banks in the US are used to represent lenders with the best reputation. Using size as a proxy for reputation and quality has also been adopted in other financial intermediary studies, such as in auditing (DeAngelo 1981), underwriting bonds (Fang 2005), and underwriting initial public offerings (Megginson & Weiss 1991). Descriptive and anecdotal evidence is used to classify whether a bank is an industry specialist. Anecdotally, Macquarie Bank is considered as a market-leading lender within the resource industry.[23] Empirically, transaction frequency and total transaction size within the industry are reported to determine the industry leading firm.

[23] Section 4.4 provides a selection of quotes from market participants illustrating the belief that Macquarie Bank is a leader within the industry.

Chapter 6. Results

6.1 Sample descriptive statistics

A sample of bank loan announcements is identified following the sample selection process outlined in Section 5.1. Table 6.1 displays the sample size of the initial loan and subsequent loan announcements. An initial loan is defined as a loan issued by a zero-leverage firm which is initiating a debt position. A subsequent loan is defined as a loan issued to a firm which has a positive debt level prior to the loan announcement. A total of 216 initial loan announcements and 191 subsequent loan announcements are identified in the period 1998 to 2013. These announcements are made by 126 and 96 unique companies, respectively. The number of unique companies making initial loan announcements is less than the total number of announcements for two reasons. First, firms may make multiple announcements regarding a single bank loan to the market as outlined in Section 2.1.1. Loan announcements, from when a lender has been mandated to the final drawdown of funds, are captured to ensure all appropriate information relating to the bank lending process is identified. Second, over the 15 year sample period, certain firms may be identified as having multiple initial loans if they have a period of being a zero-leverage firm between loans. Firms may initiate a loan, repay the debt and operate as a zero-leverage firm for multiple years before initiating a bank loan at a later time.[24] Both instances would be captured as an initial loan observation.

The sample covers the period from February 1998 to July 2013. During this period, both the mining and banking industries experienced a full business cycle with boom conditions prior to the GFC and tough trading conditions following the GFC from

[24] Only a few firms are observed changing from a zero-leverage, to levered states multiple times. Robustness testing was conducted by removing these few firms from the initial loan sample, and results remained qualitatively the same.

2008 onwards.[25] Table 6.2 displays the frequency of loan announcements by year. Announcement frequency is increasing throughout the sample period, with more announcements occurring later in the sample period. This pattern is expected, as there are an increasing number of firms listed in the mining industry towards the second half of the sample period due to the mining boom. The frequency of announcements is relatively stable in the period from 2006 to 2012; probably due to a lag effect from the boom continuing into the GFC period (mining projects are notoriously long in terms of duration). Additionally, Table 6.3 shows that announcements are distributed relatively evenly throughout the week. No announcements are released on weekends, allowing market price changes to be observed on trading days for the purpose of identifying event dates.[26]

Borrowers may make multiple announcements to the market regarding the status of their bank loan negotiations as outlined in Section 2.1.1. Loan announcements are categorised into four groups:(1) initial mentions, (2) mandates, (3) approval and (4) drawdowns. Table 6.4 outlines the frequency of loan announcements per announcement type. An announcement is classified as an *initial mention* if the firm announces that it has begun negotiations for a bank loan. In these cases, often only the identity of the lender or the proposed amount to be borrowed is disclosed. Further loan details are not formally agreed upon, and therefore are not disclosed. The market is only informed of the firm's future intention to borrow. Relatively few announcements are classified as initial mentions.

[25] Figure 6.2 displays the index returns to the CRB metals index, and the S&P/ASX 300 Financials index over the sample period..
[26] Some announcements are released after market close. If an announcement is released after market close, the event date is assumed to be the following trading day.

An announcement is classified as a *mandate* if the firm has entered into an agreement with the lender to arrange financing. Indicative terms may be announced, such as the proposed amount and the term for the loan. However, significant conditions will still need to be agreed before the loan is signed and due diligence to be done by the lending institution before they sign-off on the loan. Thus, there is still significant uncertainty as to whether the borrowing firm will successfully pass the final bank screening processes.

An announcement is classified as an *approval* when the firm and bank have both agreed either conditionally on the terms of the loan or actually signed off on the loan. Thus there is a much lower level of uncertainty surrounding the future agreement. As shown in Table 6.4, loan approvals are the most common announcement type in the sample. Finally, an announcement is classified as a *drawdown* where the borrowing firm announces it has obtained access to the funds borrowed. This removes all uncertainty regarding whether the bank will proceed with the loan.

6.2 Firm descriptive statistics

The characteristics of the sample firms are provided in Table 6.5. Panel A reports descriptive statistics of the firms announcing initial loans and Panel B reports descriptive statistics of the firms announcing subsequent loans. Three measures of firm size are described. It can be seen that firms announcing an initial loan are significantly smaller than firms announcing subsequent loans across all three measures. The median market capitalisation (*MCAP*) of firms announcing an initial loan is approximately $80 million, compared to the median market capitalisation (*MCAP)* for firms announcing subsequent loans of $195 million. Median total assets (*Total Assets*) for the initial loan sample are $30 million, while the subsequent loan sample has median total assets (*Total*

Assets) of $115 million. Median total book value of equity (*Total Equity*) is $27 million for the initial loan sample, and $79 million for the subsequent loan sample. All three size measures show firms announcing initial loans to be smaller than firms announcing subsequent loans. This is consistent with the expectation that MDSEs list with zero-leverage and obtain debt as they expand in size later in the firm lifecycle.

The level of debt between the two samples, not surprisingly, is vastly different. Bank loans are classified as initial loans if the borrowing firm is a zero-leverage firm. Thus the short-term and long-term debt of the loan initiation sample is zero. Firms obtaining subsequent loans have prior debt and have median borrowings of over $5 million. The minimum debt position of the subsequent loan sample is reported as zero. Two reasons can cause a subsequent loan sample firm to have zero debt reported in the descriptive statistics. First, a firm may have zero long-term debt while still have positive short-term debt, and vice versa. Second, as debt levels are taken from the annual report prior to the loan announcement, there are firms in the sample who have obtained an initial loan and subsequent loan in the same financial year. Thus observing the debt position from the prior financial report would result in an observation of zero debt, as the initial loan was entered into during the reporting period and is not yet disclosed in the financial statements.

Both samples report a median net loss (*Net Profit After Tax*) of approximately $2 million. This suggests that the majority of borrowing firms in both samples are loss-making firms. Descriptive statistics on the loss indicator, *Loss,* shows that 84.36% of firms in the initial loan sample are loss-making firms, while 65.61% of firms in the subsequent loan sample are loss-making firms.

The information environment of the two samples is observed. Firms announcing initial loans are compared to firms announcing subsequent loans. Firms announcing initial loans are shown to: be younger in age, with a difference in median *Age* of 1384 days (3.79 years). They also have higher information asymmetry, with a median spread (*AvgSpread*) that is 0.61% larger and average turnover (*AvgTurnover*) that is 0.01% less. Firms making initial loan announcements have fewer information intermediaries with an average of 1.62 fewer analysts (*NumAnalyst*) following the firm. Additionally, fewer firms making initial loan announcements have any analyst coverage or Big 4 auditors; only 39.53% of firms have an analyst (*Analyst*) following them at the time of an initial bank loan announcement, and 59% have a big 4 auditor (*Big4*), relative to 55.03% and 68.78%, respectively for the subsequent loan sample. Overall these descriptive statistics show that firms announcing initial loans have an information environment that is characterised by high information asymmetry.

As was discussed in Section 2.2, bank loan announcements are likely to signal significant information to equity market participants in situations where the borrowing firm has no other monitors (Diamond 1984), a poor information environment (Dhaliwal *et al.* 2011), high information asymmetry (Boyd & Prescott 1986), low analyst coverage (Best & Zhang 1993), high risk (Diamond 1991), and small firm size (Fama 1985). This suggests that firms with higher levels of information asymmetry benefit more from the signal of creditworthiness provided by bank loans (Leland & Pyle 1977). Overall the descriptive statistics describe a sample with characteristics that support the notion that the signalling benefits provided by an outside lender should matter. Sample firms are small as measured by market capitalisation, total assets and total equity, and relatively risky as evidenced by their poor profitability records. Information asymmetry is

relatively high due to a lack of analyst coverage, and the relevance of auditors is low due to the value relevance of non-financial information (Ferguson *et al.* 2014).

6.3 Loan descriptive statistics

Loan descriptive statistics are provided in Table 6.6. The size of the average loan issued to an initial borrower (*Amount*) is $76 million, while the average loan size (*Amount*) for subsequent loans is $159 million, which is more than double the amount borrowed by zero-leverage MDSEs. Consistent with the loan initiation sample consisting of smaller firms, the amount borrowed is also much smaller. The median loan of $31 million represents a significant increase in a firm's debt level; the median zero-leverage firm will have a debt to equity ratio of approximately 50% after securing a loan. A significant variation in loan size is present within both samples. Minimum loan amounts of $1 million represent relatively small loans, even for the firms with the smallest market capitalisation; however, at the upper end of the spectrum, multi-billion dollar loans are observed to fund large projects. The median and average loan term (*Maturity*) in both samples is between 3 to 4 years, representing loans of a medium-term nature. The majority of loans in both samples are issued by a single lender (*Number of lenders*).

The terms of the loan disclosed in announcements varies significantly. Over 95% of firms disclosed the number of lenders (*Number of lenders*) and the amount (*Amount*) of the loan. However, disclosure of other material items is less pervasive, with only 46% of initial loans and 57% of subsequent loans disclosing the maturity of the loan (*Maturity*). Less than 25% of firms disclosed the interest rate (*Interest rate*) of the loan at the time of announcement, with many firms stating commercial confidence as the reason for the lack of disclosure. Of the firms which disclosed the interest rate, the

majority of loans are based on variable interest rates with a fixed margin over the London Interbank Offered Rate (LIBOR).

One of the ways banks can alter the real business activities of a firm is through monitoring the borrower's business activities. A common way in which banks monitor firms is through the use of loan covenants. Within this sample there are two common covenants that banks require the borrower to uphold before funds can be drawn down. Over 25% of loan initiations (18% of subsequent loans) require a commodity or foreign exchange hedging programme (*Hedging*) to be implemented by the lender. The requirement to hedge production or currency risk alters the pay-off structure of the firm, and is an example of bank monitoring potentially lowering firm risk. Additionally, over 10% of loans were conditional upon the borrowing firm raising further equity (*EquityRaising*) before drawdown. Banks enforced further equity raisings to ensure the borrowing firm maintained a suitable debt to equity ratio and preserved sufficient cash on hand to ensure loan repayments were able to be made.

Finally, the variable *BankEquity* indicates that 28% of initial loans and 22% of subsequent loans were issued to borrowing firms in which the lender had either stock, warrant or option positions. Banks having an equity or option position in the borrowing firm can be interpreted as an endorsement of the firm's future prospects as banks look to access the firm's future upside potential. However, equity or option grants as part of loans may simply reflect a form of payment for cash strapped firms, as banks are granted options or equity in lieu of cash payments of interest or loan establishment fees.

6.4 Lender descriptive statistics

Lender descriptive statistics are provided in Table 6.7 and Table 6.8. Table 6.7 shows that 121 unique lenders are identified, with 635 lender observations across the total

sample. The number of lender observations is larger than the total sample size due to loan syndication in which more than one lender is identified in a single announcement. The median lender is observed making two loans to sample firms; however, the average lender is observed making 5.25 loans. The significantly higher average is due to certain banks having a significant market share within the industry and regularly issuing loans. Table 6.8 presents the top 40 lenders sorted by the number of loans issued. Macquarie Bank is identified as a lender in 70 bank loan announcements and is a clear market leader in terms of loan frequency. Macquarie Bank is the lender in more than double the number of loan announcements made by next frequent lender the ANZ Bank (with 33 observations). The finding that Macquarie Bank is a clear industry leader in the number of loans issued is consistent with the anecdotal evidence provided in Section 4.4 that Macquarie Bank is considered by industry participants as a leader in the market.

Table 6.8 also displays the total value of loans issued, with Macquarie Bank ranked in 3rd place with over $3 billion in loans issued. I note China Development Bank is the 2nd largest lender in the industry in terms of loan size, with outstanding loans of $3,468,000,000. This figure is driven by three large loans valued close to a billion dollars each. Additionally, the strong performance in total loaned funds by Credit Suisse and ANZ is due to having single loans worth over $1 billion each. Thus Macquarie Bank is the most active lender in the industry, as evidenced by the frequency of loan announcements being double the second most active lender. However, Macquarie Bank's largest individual loan of $200 million is significantly smaller than some of the other lending institutions. Thus Macquarie Bank is a clear industry leader in the initial loan segment where smaller loans are the norm, while other large lenders may lend more funds to single large projects.

6.5 Loan announcement returns

6.5.1 Event studies

To observe if bank loan announcements are associated with a positive share price response, the event study methodology outlined in Section 5.2.1 is utilised. First, analysis is conducted on the total sample of bank loan announcements. Table 6.9 Panel A presents abnormal returns during the –10 to +10 day window for the full sample of bank loan announcements. A significantly positive average abnormal return (AAR) of 2.051% is observed on the day of a loan announcement, with 64% of observations experiencing a positive event day abnormal return. Significantly positive abnormal returns on the bank loan announcement day are consistent with prior studies (James 1987; Lummer & McConnell 1989; Best & Zhang 1993). These results are consistent with the theory that bank loan announcements provide positive signals regarding the borrowing firm's creditworthiness to the market. Table 6.9 Panel B reports results for initial loan announcements. Results are supportive of Hypothesis 1, with initial bank loan announcements being associated with a significantly positive abnormal return of 2.480% on the announcement day. As suggested in Hypothesis 1, when a firm changes its capital structure from being a zero-leverage firm, to having positive leverage, the bank's lending decision signals positive news regarding the firm's creditworthiness and future prospects. This result differs from prior studies that find new loans do not attract a significant market response (Lummer & McConnell 1989; Best & Zhang 1993). Table 6.9 Panel C reports a significantly positive abnormal return of 1.551% on the event day of subsequent loan announcements. This result is consistent with the prediction of Hypothesis 2, with a significantly positive reaction observed surrounding a subsequent loan that is smaller in magnitude than the reaction observed for the initial loan sample.

To test if the abnormal return surrounding bank loan announcements persists over a longer event window, the cumulative average abnormal return (CAAR) is calculated as outlined in Equation (2) over the –5 to +5 event day window. Table 6.10 Panel A displays the CAAR for the total sample of bank loan announcements over various windows. The –5 to –2 day CAAR is small and insignificant, suggesting no information leakage prior to loan announcements. Additionally, the +2 to +5 day CAAR is also small and insignificant. The significantly positive –5 to +5 day CAAR of 2.518% is driven by the market response in the 0 to 1 day event window, with abnormal returns achieved on the event day maintained over the following trading week. Table 6.10 Panel B presents CAARs for the sample of initial loan announcements. Results further support Hypothesis 1, with the –5 to +5 day CAAR reported as significantly positive at 2.732%. The abnormal return observed in the –1 to +1 day window is maintained during the following trading week, with little evidence of significant returns in the pre-event window. Table 6.10 Panel C provides evidence that the subsequent loan announcements behave in a manner similar to the initial loan sample, with a significantly positive CAAR of 2.268% observed over the –5 to +5 day event window, and little evidence of significant pre- or post-announcement returns.

Table 6.9 indicates that the initial loan sample experiences a 2.480% AAR on event day zero, relative to a smaller AAR of 1.551% being observed on event day zero for the subsequent loan sample. These results provide initial evidence supporting Hypothesis 2, as initial loans exhibit a larger abnormal return relative to subsequent loans. Table 6.11 provides a test of Hypothesis 2, with a comparison of the statistical difference in abnormal returns surrounding initial loan and subsequent loan samples. The initial loan sample AAR is 0.93% larger and significantly different from the subsequent loan sample at a 5% level of significance on event day zero. This result

provides statistical support for Hypothesis 2 that initial loans exhibit a larger abnormal return than subsequent loan announcements. The difference in CAAR over the –1 to +1 day event window and the –5 to +5 day event window are also compared. Both event windows show the initial loan sample to have a larger abnormal return than the subsequent loan sample; however, results are not statistically significant.

Univariate results testing Hypothesis 1 and Hypothesis 2 are provided in Table 6.9, Table 6.10 and Table 6.11. The univariate results strongly support Hypothesis 1; that initial bank loan announcements are associated with a positive share price response. The positive share price response is observed on both the event day AAR, and over a –5 to +5 day CAAR. This result shows that bank lending decisions can provide strong signals to equity market participants. Banks engage in an extensive screening process before initiating a lending relationship with a firm, and this screening process allows the bank to understand the private information of the borrowing firm. This result contrasts with prior research that finds that banks do not signal information to equity markets upon the announcement of a new loan (Lummer & McConnell 1989; Slovin *et al.* 1992; Best & Zhang 1993). A sample allowing for bank initiation to be observed is theorised to be the reason for the conflicting results in this study and prior research. Prior research has been unable to observe bank loan initiations with samples comprising the less informative bank switches. Hypothesis 2 predicts that subsequent loan announcements have a positive market reaction, lower in magnitude than initial loan announcements have. Descriptive support is provided that subsequent loan announcements are responded to in a positive manner, with both event day AARs and –5 to +5 day CAARs being significantly positive. Subsequent loan reactions are lower in magnitude than the initial loan sample as predicted; however, only day zero returns are significantly different.

6.5.2 Market reaction determinants

I examine the association between bank loan announcement attributes and firm characteristics on market reactions by conducting OLS regressions. I regress bank loan characteristics and firm characteristics on the cumulative abnormal return surrounding the 0 to +1, –5 to +5, and –10 to +10 day event windows. Table 6.12 presents a correlation matrix which shows that multi-collinearity does not appear to be a concern. Significant correlations are under 0.4 for all variables except for *LnMCap* which is correlated with *NumAnalyst* and *LnAmount*. Furthermore, in unreported tests, all variance inflation factors on primary multivariate models, reported in Table 6.13, are below 1.5.

Table 6.13 presents OLS regressions to examine the determinants of market reactions around the sample of bank loan announcements. Three models are presented with the dependent variable being the cumulative average abnormal return in the 0 to +1, –5 to +5, and –10 to +10 day event windows in Panel A, Panel B and Panel C, respectively. All three models are significant at the $p<0.01\%$ level with *F*-statistics greater than 2.5. Panel A presents results for the 0 to +1 day event window and shows all variables, with the exception of *LnMCap,* having the predicted signs on their coefficients. Significant predictors of abnormal returns include whether the announcement is the first in the sequence of announcements (*FirstAnn),* the amount borrowed (*LnAmount)*, and whether the bank has an equity position in the borrowing firm (*BankEquity)*. *LnAmount* provides the strongest predictor of abnormal returns with a positive coefficient of 0.18 and significant at $p<0.000$. This indicates that larger loans scaled by firm equity are associated with higher abnormal returns. A larger loan provides a more credible signal of the bank's assessment of the firm's valuation and future cash flows. *FirstAnn* has a positive coefficient of 0.28 and is significant at

p<0.001. A firm's first announcement regarding its bank loan contains the most new information, and the price response is most positive for these announcements. Future announcements further discussing the loan contain less new information and are reacted to in a weaker manner. If a bank has an equity position in the borrowing firm (*BankEquity*), it is associated with a more positive price reaction with a coefficient of 0.016 and p-value of 0.100. This is consistent with the belief that banks are attracted to the future upside potential of the firm, and signals the banks belief that the borrowing firm has a bright future prospect. Additionally, the variable *Hedge* has a negative coefficient of –0.015 and p-value of 0.115. Although only marginally significant, this suggests equity investors do not value the requirement to hedge commodity prices imposed by the bank loan. Hedging may lower future upside potential for equity investors, especially in periods of rising commodity prices.

Table 6.13 Panel B presents regression results over the event window –5 to +5 days. The explanatory power of the model decreases as the event window increases. An adjusted *R*-squared of 0.056 is lower than the results presented in Panel A. *FirstAnn* and *LnAmount* remain significant predictors of announcement returns, with significantly positive coefficients of 0.026 and 0.018. *EquityRaise* and *NumAnalyst* are also significantly important predictors. *EquityRaise* has a positive coefficient of 0.061 at a significance level of p<0.015. A loan announcement that mentions further equity issuance is required is associated with a positive reaction. Slovin *et al.* (1990) find that firms with bank debt have a lower negative price reaction to seasoned equity offerings. This result suggests that investors are encouraged by the signal of the bank's inside information, and the further issue of equity may be seen as a positive signal to ensure full project funding. This would be a very different situation than equity offerings that signal firm overvaluation, as in the pecking order model (Myers & Majluf 1984).

Consistent with predictions that the firm information environment is an important determinant of loan announcement returns, *NumAnalyst* has a negative coefficient of –0.005 with a significance level p<0.043. Firms with a higher analysts following have lower information asymmetry, and the signal provided by a bank loan may result in less of a reduction in information asymmetry and may mitigate the reaction to the loan announcement.

Table 6.13 Panel C presents the regression results over the –10 to +10 day event window. Over the longer event window, the predictive power of the model is lower relative to the two shorter event windows with an adjusted *R*-squared of 0.040. *FirstAnn* maintains a positive coefficient of 0.045 and significance at p<0.040. *BankEquity*, *EquityRaise* and *NumAnalyst* are all significant predictors with significance levels similar to the previous models.

Overall, regression results suggest that the amount borrowed (*LnAmount)*, whether the bank also has an equity position in the borrowing firm (*BankEquity)*, whether an equity issuance is required (*EquityRaise*), and the number of analysts following the borrowing firm (*NumAnalyst),* are significant at predicting announcement returns. Whether an announcement is the first mention of a bank loan announcement is also highly significant (*FirstAnn*). *FirstAnn* firms in this sample have a market reaction often well before a loan sign-off date would be recorded in a loan database.[27]

The variable of interest *Initial* is found to be insignificant across the three models. Strong univariate results showed that initial loan announcements were responded to in a positive and significant manner as predicted in Hypothesis 1. Tests of

[27] In sensitivity tests, the firm's cash balance was tested as an additional independent variable. The firm's cash balance was insignificant in explaining announcement abnormal returns. Cash strapped firms are not associated with a higher abnormal market reaction subsequent to a bank loan announcement.

differences between the initial loan sample and subsequent loan sample price reactions, presented in Table 6.11, show evidence consistent with Hypothesis 2 that initial loans had a price reaction larger than the subsequent loan sample. However, multivariate analysis presented in Table 6.13 shows that after controlling for firm and loan characteristics, whether a loan is an initial or subsequent loan is insignificant in explaining announcement returns. The lack of significance for *Initial* provides results that are unable to support Hypothesis 2. These results are in contrast to prior literature that concludes initial bank loans and bank loan renewals signal differing amounts of information to the market. (Lummer & McConnell 1989; Slovin *et al.* 1992; Best & Zhang 1993). Banks are able to successfully produce private information during the screening process. However, the signals provided during subsequent loans are just as strong as those provided by initial loans after controlling for firm and loan characteristics.

6.6 Information asymmetry

Hypothesis 3 states that bank loan announcements are associated with a reduction in firm information asymmetry. Changes in a firm's level of information asymmetry surrounding bank loan announcements are examined to determine if bank lending decisions can signal the borrowing firm's private information and help resolve information asymmetry. To proxy for a firm's level of information asymmetry, I examine the borrowing firm's average abnormal turnover (AATO) and average abnormal spread (AAS) surrounding bank loan announcements.

6.6.1 Average abnormal turnover

Figure 6.5 presents the average abnormal turnover surrounding bank loan announcements. Results across all three samples are displayed in Panel A, Panel B and

Panel C, and consistently display a sharp positive spike in AATO on the day of a bank loan announcement, suggesting that the announcements generate increased trading volume. Table 6.14 presents the average abnormal turnover and significance tests surrounding bank loan announcements during the –10 to +10 day event window. Bank loan announcements are associated with a statistically significant increase in average abnormal turnover on the event day, with a 0.123% increase in turnover observed on the event day. The initial loan sample is associated with a larger increase in abnormal turnover relative to the subsequent loan sample, with the former experiencing a 0.142% increase in daily abnormal turnover and the latter a 0.102%. A cumulative average abnormal turnover over the 0 to +10 day event window shows a significantly positive turnover of 0.256% in the post-announcement window for the total sample, while the –10 to –1 day event window experiences insignificant changes in abnormal turnover. This result suggests that turnover increases in the period after the announcement of a bank loan. Table 6.15 presents results testing the statistical significance of differences between the average abnormal turnover of the initial loans sample and the subsequent loans sample. Over both the –1 to +1 and –3 to +3 day event windows, initial loan announcements experienced a significantly larger average abnormal turnover relative to the subsequent loan sample. Results suggest that both initial and subsequent loan announcements are associated with an increase in abnormal trading turnover; however, consistent with the event study results, reactions are larger for the initial loan sample of firm than for the subsequent loan sample of firms.

Results presented in Table 6.16 suggest that the cumulative abnormal turnover in the post-announcement period is larger than in the pre-announcement period. To examine whether the announcement of a bank loan has an impact on the information environment of the firm, the cumulative average abnormal trading volume in the 10

days prior to the loan announcement is compared to the cumulative average abnormal trading volume in the 10 days after the loan announcement. Table 6.16 presents results showing that an increased level of abnormal turnover is experienced in the period after a bank loan is announced across all three samples. Despite the post-loan period experiencing a higher abnormal turnover relative to the pre-loan period on a descriptive level in all 3 samples, statistical significance is limited. Overall, results in Table 6.14 show an increased level of abnormal turnover on the event day, and a significant increase in abnormal turnover in the ten-day event window after a loan announcement. Table 6.15 shows initial loans having a larger increase in turnover than subsequent loans. Table 6.16 provides a comparison of the pre-loan and post-loan period and provides limited evidence of an increase in cumulative abnormal turnover in the ten days after an announcement. The willingness to transact in a firm's shares should be inversely related to the existence of information asymmetry (Leuz & Verrecchia 2000), and when investors' beliefs converge about a firm's value, there is an increase in turnover in the firm's stock (Diamond & Verrecchia 1991). Thus results displaying an increase in abnormal turnover surrounding bank loan announcements are interpreted as evidence of a bank's ability to signal private information, resulting in a decrease in the borrowing firm's level of information asymmetry. Thus, turnover results provide support for Hypothesis 3.

Table 6.20 Panel A presents results of an OLS regression with cumulative abnormal turnover in the –10 to +10 day event window as the dependent variable. The model is significant with an *F*-statistic of 2.8 and significant at $p<0.002$. An adjusted *R*-squared of 0.046 is reported. Significant predictors of cumulative average abnormal turnover are *FirstAnn*, *BankEquity* and *EquityRaise. FirstAnn* has a coefficient of 0.008, (significant at $p<0.009$), which suggests that the increase in a firm's turnover is largest

when the first loan announcement is released. Further announcements clarifying loan negotiations have a weaker impact on increasing abnormal turnover. If the bank has an equity position in the borrowing firm (*BankEquity*), a lower increase in abnormal turnover is observed. A potential reason for this result is if the bank's equity position is accumulated in the pre-announcement period, the number of shares on issue would increase as the bank is issued with new shares; abnormal turnover may be lowered due to the increase in the denominator. *EquityRaise* is significantly positive with $p<0.005$ and a coefficient of 0.013. If the firm announces it will be raising more equity capital in the future as part of the loan conditions, abnormal turnover increases. After controlling for the characteristics of the borrowing firm and loan agreement, the variable of interest *Initial* is not significant. This suggests that both samples of bank loan announcements are associated with a reduction in information asymmetry, and that both initial loans and subsequent loans are able to signal private information about the firm's future prospects to equity investors.

6.6.2 Average abnormal spread

Table 6.17 presents the average abnormal spread over the –10 to +10 day event window surrounding the announcement of a bank loan. Panel A, Panel B and Panel C display results for the total sample, initial loan sample and subsequent loan sample respectively. A negative abnormal spread is observed on the announcement day and the following event day in all three samples. Table 6.17 presents the average abnormal spread and tests of statistical significance. Abnormal spreads decrease on the announcement day for all three samples, although not at a statistically significant level. Event day 1 experiences a reduction in abnormal spread of –0.524% (significant at $p<0.05$), –0.546% (significant at $p<0.01$), and –0.499% (significant at $p<0.005$) for the total,

initial and subsequent sample of loan announcements respectively. The total sample experiences a cumulative average abnormal spread that is significantly negative in the 1 to 10 day post-announcement period, with cumulative spread reducing by –3.165% (significant at $p<0.10$). This result suggests that bank loan announcements result in a decrease in spread that persists over two trading weeks after the loan is announced. During the –10 to –1 pre-event window, cumulative average abnormal spread is insignificant across all three samples. This suggests that the normal spread model is an appropriate model as no abnormal spread is detected until the reaction to the loan announcement is observed. To further test whether the bank loan announcement is responsible for the significant decrease in spread, Table 6.19 provides a statistical test of the difference between pre- announcement and post-announcement abnormal spread. Abnormal spreads have declined in all three samples, with declines in spread being strongly significant for the subsequent loan sample and total sample.

Table 6.18 presents results testing if the change in abnormal spread differs between the initial and subsequent loan sample. No significant difference is found across the –3 to +3 day event window between the two samples. This result suggests that both the initial and subsequent loan sample of firms benefit from a decrease in bid-ask spread following bank loan announcements.

The bid-ask spread is commonly thought to measure information asymmetry. The bid-ask spread addresses the adverse selection problem that arises from transacting in firm shares in the presence of asymmetrically informed investors. Less information asymmetry implies less adverse selection, which in turn implies a smaller bid-ask spread (Leuz & Verrecchia 2000). Thus, the decrease in average abnormal spread reported in Table 6.17 and Table 6.19 is interpreted as showing a decrease in the firm's level of information asymmetry after making a bank loan announcement. These results

are consistent with other studies showing that firms experience a decrease in bid-ask spread after releasing important disclosures to the market (Raman & Tripathy 1993; Boone 1998; Leuz & Verrecchia 2000; Schauer 2002).

Table 6.20 Panel B presents the results of an OLS regression, with cumulative average abnormal spread over the –10 to +10 day event window as the dependent variable. The model is significant with $p<0.006$ and an adjusted *R*-squared of 0.042. Variables that contain significant prediction power in explaining changes to abnormal spread are *Lenders*, *LnMCap*, and *Loss*. *Lenders* is significantly negative with a coefficient of –0.031 and p-value of 0.031. A negative coefficient suggests that as the number of lenders increases, the spread decreases. *LnMCap*, is significantly positive with a coefficient of 0.033; implying larger firms have a smaller reduction in information asymmetry after announcing a bank loan. *Loss* is significantly negative with a coefficient of –0.056; consistent with the loss-making firms having a larger reduction in information asymmetry after a bank loan announcement. The results for *Loss* and *LnMCap* are consistent with the expectation that smaller firms will benefit from the signal of creditworthiness provided by a bank's loan decision.

In summary, these results provide support for Hypothesis 3; firms experience an increase in average abnormal turnover and a decrease in average abnormal spread on the event day of a bank loan announcement. Turnover is higher, and spread is lower in the 10 day post-announcement period relative to the 10 day pre-announcement period. Thus the theories of financial intermediation that suggest banks play an important role in reducing information asymmetry are supported by these results (Leland & Pyle 1977).

6.7 Industry specialisation

Hypothesis 4 predicts industry specialist lenders will provide stronger signals to equity investors regarding the creditworthiness of borrowers. Table 6.8 provides descriptive statistics of lender frequency for the full sample and indicates the unambiguous industry leadership of Macquarie Bank. Industry descriptive statistics support the anecdotal evidence outlined in Section 4.4 from analysts and firms that Macquarie Bank is considered a leader with the mining industry. With Macquarie Bank classified as the industry leader, Table 6.21 displays the cumulative average abnormal return for the sample of loans issued by Macquarie Bank, compared to the sample of loans issued by non-industry specialist lenders. Larger returns are experienced surrounding loans issued by Macquarie Bank in the three event windows analysed. Over the –5 to +5 day event window, loans originated from Macquarie Bank experience a cumulative average abnormal return of 5.053%, compared to a return of 1.89% experienced by firms borrowing from non-industry specialist lenders. Tests of significance between the two samples show that the 3.167% difference in returns is statistically significant at the 5% level. Despite Macquarie Bank loans experiencing the predicted larger cumulative average abnormal return over the other two event windows, tests of significance provide only limited support.

Univariate results suggest that Macquarie Bank is able to signal more credible information to equity investors regarding the borrowing firm's creditworthiness over the –5 to +5 day event window. Thus, support for Hypothesis 4 is provided; loans from an industry specialist lender are associated with higher abnormal returns relative to loans issued by a non-industry specialist lender.

Table 6.22 presents an OLS regression examining the determinants of market reactions around the sample of bank loan announcements, including the industry leadership variable (*Macquarie*). Three models are presented with the dependent variable being the cumulative average abnormal return in the 0 to +1, –5 to +5 and –10 to +10 day event windows in Panel A, Panel B and Panel C, respectively. All three models are significant at p<0.01% with *F*-statistics greater than 3. Panel A presents results for the 0 to +1 day event window. *Macquarie* is insignificant in explaining abnormal returns over the two-day event window. This is consistent with the univariate results presented in Table 6.21, which show that significant differences in announcement returns are only evident over longer event windows. Consistent with results presented in Table 6.13, *FirstAnn*, *LnAmount* and *BankEquity* are significant predictors of loan announcement returns with positive and significant coefficients. The addition of the *Macquarie* test variable does not add predictive power to the model.

Panel B and Panel C of Table 6.22 both provide evidence of industry leadership influencing loan announcement returns. Panel B shows that during the –5 to +5 day event window *Macquarie* has a positive coefficient of 0.032 and is significant at p<0.10, while Panel C shows that over the longer event window, industry leadership is of increasing importance in explaining loan returns; *Macquarie* is the most important predictor of loan announcement returns in the –10 to +10 window with a coefficient of 0.078, significant at p<0.05. Thus, industry leadership is a more influential determinant of abnormal returns over longer event windows. Other significant predictors are *FirstAnn* (with a coefficient of 0.048, significant at p<0.029), suggesting that the first loan announcement in a sequence of announcements is the most informative. *EquityRaise,* (with a coefficient of 0.064 significant at p<0.071), and *NumAnalyst,* (with

a coefficient of –0.009 significant at p<0.018), suggesting that firms with a weaker information environment experience larger loan announcement returns.

Hypothesis 4 states that loan announcements in which an industry leader is identified as the lending firm provide more informative signals to equity investors relative to loans issued by other lenders. Univariate evidence, presented in Table 6.21, and multivariate evidence, presented in Table 6.22, provide support for Hypothesis 4 over longer event windows. Over a short 0 to +1 day event window, industry leadership is not significantly associated with an increased announcement abnormal return. However, as the event window is increased, the sample of loan announcements in which Macquarie Bank is identified as a lender provide larger abnormal returns. Over a –5 to +5 day event window Macquarie Bank loans have an abnormal return of 5.053%. This abnormal return is 3.167% higher than the loan sample of other lenders, and statistically significant at p<0.042. This significant relation is still present after controlling for borrowing firm characteristics and loan characteristics using OLS regression. Overall Hypothesis 4 is supported; consistent with existing literature, bank lender identity is a significant determinant of abnormal returns surrounding bank loan announcements (Billett *et al.* 1995; Ross 2010). Ross (2010) presents evidence of loans from larger banks are associated with higher abnormal returns, whereas I present results that suggest loans from banks that are the largest within an industry are associated with higher abnormal returns. Thus, overall market leadership, and industry leadership, may both be important in explaining loan announcement returns.

6.8 Robustness testing

To ensure that the reported results are robust to research design choices, I rerun tests using different research design choices as outlined below. Tables of results are displayed in Appendix B.

6.8.1 Abnormal returns calculation

Equation 1 displays the abnormal return calculation used in the main analysis, in which the All Ordinaries index is used as a proxy for the expected return of the market. The All Ordinaries is a value-weighted index comprising of the largest 500 firms listed on the ASX. A broad based index such as the All Ordinaries index may not be an appropriate measure of expected returns amongst the sample of MDSEs analysed in this study. Alternate measures of expected returns are investigated. I first rerun tests calculating abnormal returns relative to a mining industry specific index. Equation 1 is altered to:

$$AR_{i,t} = ln\left[\frac{P_{i,t}}{P_{i,t-1}}\right] - ln\left[\frac{P_{mining,t}}{P_{mining,t-1}}\right] \quad (14)$$

where all variables are defined as previously outlined in Equation (1) in Section5.2.1, except for $P_{mining,t}$, which is the index value of the Datastream General Mining index at time *t*.

The Datastream General Mining index may better reflect the idiosyncratic return characteristics of the mining industry relative to the broad based All Ordinaries. The Datastream General Mining index correlates more closely with factors influencing mining firm valuation, such as commodity price fluctuations.

Appendix B, Table B.1 displays the CAAR of the total, initial and subsequent samples of loan announcements using the Datasteam Mining index as a measure of expected returns. Panel A, Panel B and Panel C all show statistically significant returns surrounding the event day. Additionally, pre- and post- event returns in the -5 to -2 and +2 to 5 event windows are all insignificant. These results are broadly consistent with the results presented in table Table 6.10 in which CAAR is calculated using the All Ordinaries as a measure of expected returns. These results suggest that event-day abnormal returns are robust across both expected return measures.

Other alternate measures of expected returns are analysed. Barber and Lyon (1996) show that event study returns are better specified when utilising a matched firm approach. Due to the small size of sample firms, and the known association between firm size and firm returns (Fama & French 1992), a size- matched firm approach is utilised. Additionally, Tufano (1998) finds a strong correlation between resource company stock returns and underlying commodity prices. Consequently, matched firms are chosen based on the closest size- matched firm within the Industry Classification Benchmark (ICB) level 6 industry codes. ICB level 6 industry classifications take into account the type of commodity the MDSE is associated with. Abnormal returns are calculated as:

$$AR_{i,t} = ln\left[\frac{P_{i,t}}{P_{i,t-1}}\right] - ln\left[\frac{P_{f,t}}{P_{f,t-1}}\right] \quad (14)$$

where all variables are defined as previously outlined in Equation (1) in Section5.2.1, except for $P_{f,t}$, which is the share price of a size and industry matched firm at time *t.*

Unreported results using an industry and size matched firm approach are qualitatively consistent with results presented in Table 6.10 and Table B.1. Bank loan announcements for both Initial and Subsequent loans are responded to in a significantly positive manner on the event day.

6.8.2 Global financial crisis

Sample years within this study fall within the global financial crisis (GFC). The GFC impacted on bank lending, and the resulting recession caused commodity prices to fall sharply. Both mining and banking firms were heavily impacted by macroeconomic factors in the years after 2007. Sub-sample analysis is conducted to ensure results presented are not sensitive to loans issued in the pre- or post-GFC period. Additionally, Fields *et al.* (2006) observe a reduction in abnormal returns throughout their sample period, and suggest that the information content of bank loan announcements has declined through time.

Table B.2 displays the CAAR over the 0 to +1 event window surrounding the total sample of bank loan announcements, grouped by the year of the announcement. Positive CAARs are observed following bank loan announcements in the years 1999 to 2012. The year 1998, in which only three loan announcement observations occur, results in a negative abnormal return. Tests of significance report significantly positive abnormal returns in the majority of the years, however small sample sizes make statistical tests inaccurate. To better analyse if abnormal returns differ during different periods of the sample, announcements are grouped into three samples spanning five years each. The time periods 1998 to 2002, 2003 to 2007, and 2008 to 2012 are analysed. All three samples experience a significantly positive CAAR of 2.95%, 2.30%, and 2.57% respectively. Thus bank loan announcements are able to provide information

signals regarding a borrowing firm's value across the different time periods observed. Finally, a subsample of the GFC years 2007 to 2009 is analysed. A significantly positive CAAR of 2.82% is observed in the GFC period.[28] Consistent with the descriptive statistics provided in Table 6.2, banks and miners continued lending and borrowing during the tough economic times, and the information content of loans issued during this period was still significantly positive.

6.8.3 Non-parametric test-statistics

Results presented in this thesis are based upon the parametric student's *t*-test to determine if abnormal returns are significantly different from zero. Parametric significance tests are dependent upon the assumption that observations are normally distributed. However, daily stock prices are not normally distributed. Therefore, the use of non-parametric test-statistics, which do not required the assumption of normality, may be useful in providing a less biased test of abnormal return significance. Barber and Lyon (1996) provide evidence that the Wilcoxon signed rank test is a better specified test-statistic to use when conducting event studies relative to parametric tests.

Reported results are robust to the use of parametric and non-parametric, test statistics. Table B.3 replicates Table 6.9 and Table 6.10, with the inclusion of the non-parametric Wilcoxon signed rank test, p-values. Panel A of Table B.3 reports the event day zero abnormal return of 2.051% is statistically significant (p-value 0.000) using both the parametric student's t-test, and the non-parametric Wilcoxon signed rank test. Panel B reports that cumulative average abnormal returns over the -5 to +5 event window are statistically significant, at $p<0.001$, using both the Wilcoxon signed rank test and student's *t*-test.

[28] In unreported results, the CAAR observed in the GFC period is not significantly different from the CAAR observed in the periods either before, or after, the GFC.

Overall, Table B.3 presents evidence that both student's *t*-tests and Wilcoxon signed rank tests are consistent in showing abnormal returns surrounding bank loan announcements are statistically significant. Further, in unreported results, Wilcoxon signed rank tests are calculated for abnormal turnover, and abnormal spread results, with results staying qualitatively the same.

6.8.4 Returns calculations

Corrado and Truong (2008) show that tests based on logarithmic returns generally produce better test specification than tests based on arithmetic returns. Thus, the main results reported in this thesis are based on logarithmic returns. For sensitivity tests, event studies are re-run using arithmetic returns, calculated as:

$$AR_{i,t} = \left[\frac{(P_{i,t} - P_{i,t-1})}{P_{i,t-1}}\right] - \left[\frac{(P_{m,t} - P_{m,t-1})}{P_{m,t-1}}\right] \quad (15)$$

where all variables are defined as previously outlined in Equation (1) in Section5.2.1.

Table B.4 presents the abnormal returns surrounding bank loan announcements calculated using arithmetic returns. Abnormal returns are in general, larger in magnitude, than the results calculated using logarithmic returns, presented in Table 6.10. This is consistent with arithmetic returns having a positive bias.

6.8.5 Sequence of announcements

Continuous disclosure requires firms to provide updates regarding their bank loan negotiations. Table 6.4 provides descriptive statistics on whether bank loan announcements are classified as either initial, mandates, approvals and drawdowns.[29]

[29] Section 6.1contains definitions and descriptions of loan announcements that are classified into the four categories: initial, mandates, approvals and drawdowns.

Regression results presented in Table 6.13, show that *FirstAnn* is a significant determinant of bank loan announcement abnormal returns. The information content of each loan announcement in a sequence will vary dependent upon how much new information is released to the market. Each type announcement within a sequence of announcements has the potential to contain a differing level of information.

Table B.5 presents results which suggest that announcements containing the most 'new' information have the strongest abnormal reaction relative to follow-up announcements. Panel A shows that announcements that come first in a sequence of announcements (*FirstAnn*), are associated with significantly positive abnormal returns of 3.405%, and 3.402% in the -5 to 5, and 0 to 1 day event day windows respectively. However, Panel B shows that announcements classified as follow-up announcements, that is, secondary, tertiary, or later announcements (non-first announcements) have an insignificant abnormal reaction across both the -5 to 5, and 0 to 1 event windows.

Further, Table B.5 presents results partitioned on the loan announcement sequence classification. Panel C, Panel D, and Panel E, present results showing that initial mentions, mandates, and approval announcements are all associated with positive abnormal returns. However, Panel F presents results showing that drawdown announcements have an insignificant abnormal return. This result is consistent with the sample of follow-up announcements (Panel B), as the majority of drawdown observations are classified as follow-up announcements. Relatively few firms announce a drawdown without having previously alerted the market to their bank loan negotiations.

The results presented in Table B.5 have potential implications for prior bank loan announcement event studies. Prior loan announcement samples drawn from

newspaper articles and bank loan databases may potentially be unable to observe early stage bank negotiations in which a significant level of information is signalled to the market. Both newspaper and bank loan databases may be more likely to report on loans that have been completed, with prior information leakage a considerable concern.

6.8.6 Firm cash balance

Firms with low levels of cash reserves may obtain a larger benefit from a bank loan, as potential cash-flow difficulties may be alleviated. Thus firms with a low cash balance may have a positive association with abnormal market reactions surrounding bank loan announcements.

Equation 4 is augmented to include the independent variable *Cash*. Where *Cash* is the amount of cash reported in the borrowing firm's previous annual balance sheet. Table B.6 presents regression results including the independent variable *Cash*. A firm's prior cash balance (*Cash)* is insignificant in explaining bank loan announcement abnormal returns. The market response to bank loan announcements is not associated with cash-strapped firms improving their cash position. In unreported results, *Cash*, is included as a variable in all prior regressions, and is insignificant in explaining abnormal turnover, abnormal spread, or CAAR over different event windows.

6.8.7 Development Stage Enterprises (DSEs)

A Development Stage Enterprise (DSE) is an entity that devotes substantially all of its efforts to establishing a new business and for which planned principal operations have not commenced, or planned principal operations have commenced, but there has been no significant revenue therefrom. Bank loans announced by DSE's may be associated with significantly larger positive market reactions, and reductions in information

asymmetry than for mature operations, as the bank loan decision provides independent verification of the expected positive future cash flows of the DSE. Following (Ferguson and Pundrich 2013), a firm is designated as a DSE if their revenue is equal to less than 5% of their total market capitalisation.

Subsample analysis of bank loan announcement returns is conducted on a sample of firms classified as DSEs. Analysis of this sample is designed to better indicate if bank loan announcements help signal banker's private information to investors in situations in which information asymmetry is higher due to the early stage nature of the project receiving a loan. Equation 4 is augmented to include the independent variable *DSE*, where *DSE* is a binary variable equal to one if the firm's most recent annual revenue is greater than 5% of the their market capitalisation at t-15.

Table B.7 Panel A presents regression results including the independent variable *DSE*. A firm's status as a *DSE* is significant in explaining bank loan announcement abnormal returns with a negative coefficient of -0.026 and significant at $p<0.019$. These results suggest that firms with established revenues benefit more from the signal of creditworthiness implied in a bank loan announcement, relative to earlier stage projects that are still classified as DSEs. Table B.7 Panel B presents regression results analysing the subsample of loan announcements issued by firms classified as DSEs. Results remain qualitatively similar to the primary results presented.

6.8.8 Seed loans

In the mining industry, seed loans are often issued to exploration firms to complete definitive feasibility studies in which the economic viability of a proposed mine is investigated. Seed loans are often relatively small loans, issued as a pre-cursor to larger project finance deals if the feasibility study proves project economics are viable. As

seed loans are small in magnitude, and issued to fund project feasibility studies, they may represent loans that signal a relatively low level of project screening and monitoring by the lender. Robustness testing is conducted in which seed financing deals are removed from the sample of initial loans. Furthermore, project finance deals that were signed subsequent to seed financing deals are re-classified into the initial loan sample.[30] These sample changes are conducted in order to better test the ability of bank loan announcements to signal private project information to equity investors, by investigating loan announcements in which a higher level of screening has been conducted, relative to small seed financing deals. A loan is classified as a seed loan if it is mentioned that the primary purpose of the loan is to fund a feasibility study, or to be a small temporary loan while a larger project finance deal is established.

Table B.8 Panel A presents regression results including the independent variable *Seed*. As expected, *Seed* has a negative coefficient of -0.012, however it is insignificant at $p<0.489$. Panel B presents regression results on a sub-sample of announcements excluding seed loans. A sample of 339 non-seed loans are analysed, results remain broadly consistent with Panel A, with a minor incremental increase in model predictability with the Adjusted R-Squared increasing from 0.043 to 0.058.

6.8.9 Project location

Firms with mining projects in foreign locations may experience higher levels of information asymmetry amongst investors relative to firms with local operations. Thus firms with mining projects based in foreign locations may potentially benefit more from the positive signals associated with independent verification of project economics from an information intermediary such as a bank.

[30] In this case, firms may be included in the initial loan sample if they have previously received a seed loan.

Equation 4 is augmented to include the independent variable *Foreign.* Where *Foreign* is a binary variable equal to one if the borrowing firms project location is based outside of Australia. Table B.9 presents regression results including the variable *Foreign*. *Foreign* has a coefficient of 0.005 and $p<0.562$ suggesting that project location is not significantly associated with bank loan announcement abnormal returns.

6.8.10 Non-synchronous trading

Non-synchronous trading refers to stocks which may not trade in each day of an event study window. Brown and Warner (1985) outline the issues non-synchronous trading can cause in biasing the calculation of abnormal returns. Campbell and Wasley (1993) and Maynes and Rumsey (1993) both show that non-parametric rank tests are better specified test statistics when conducting event studies on samples with non-synchronous trading. Non-parametric tests are conducted in this thesis, with Section 6.8.3 reporting that results are robust to the use of the non-parametric Wilcoxon signed rank test.

Furthermore, reported results assume that a firm's return is equal to zero on days when no trade has taken place. Kallunki (1997) outlines two alternate procedures used to approximate prices for days when no stock trade has taken place. First, the bid quotation can be used as a proxy for price on days when there is no trade. Second, the uniform return procedure allocates returns equally between days during which there was no stock traded. In unreported results, event studies are conducted using the bid quotation, instead of price. Results are qualitatively similar when this specification is used. Additionally, to ensure non-synchronous trading does not bias results, unreported tests are conducted in which firms with limited trading in the event-window are removed from the sample. Results remain consistent when firms with thin trading are removed from the sample.

6.8.11 Industry specialisation

Table 6.22 presents OLS regression results showing that loans issued by the industry specialist lender Macquarie Bank are associated with larger abnormal market reactions relative to loans issued by other banks. This result is consistent with Hypothesis 4, in that industry specialist banks are associated provide a larger signal regarding the quality of the borrowing firm. To test the sensitivity of industry specialisation results, other measures of bank specialisation are utilised. Equation 13 is modified to include the variable *LenderRank. LenderRank* represents the bank's ranking in regards to the number of loans it is observed issuing within the sample. E.g. Macquarie Bank is ranked number 1, followed by ANZ as outlined in Table 6.7. Table B.10 presents OLS regression results in which the variable *LenderRank* replaces *Macquarie.* As predicted, a significant negative associated is observed between *LenderRank*, and abnormal returns over the -5 to +5, and -10 to +10 event day window surrounding loan announcements. Banks with a lower lender rank, issue more loans within the industry, and are associated with larger abnormal returns. However, *LenderRank* is insignificant over the 0 to +1 event day window. This result is consistent with *Macquarie*, also appearing insignificant over short event-windows.

Table B.11 splits lenders into subsamples, *HighRank*, represents lenders who are in the top 10 in terms of loan frequency. *LowRank*, represents firms who are observed issuing two, or fewer, loans in the sample. Results appear as predicted in the -5 to +5, and -10 to +10 event windows. *HighRank* has a positive and significant coefficient of 0.032 (p =0.060) in the -5 to +5 event window. Additionally, *LowRank* has a negative coefficient, although statistical significance is limited. This test provides further evidence that abnormal market reactions surrounding bank loan announcements are

larger when the lender is identified as an industry specialist, relative to lenders who are relatively inactive in the industry.

6.9 Tables and figures

Table 6.1 Sample size

	Companies	Announcements	Period
Initial loans	126	216	25/02/1998 to 02/04/2013
Subsequent loans	96	191	23/03/1998 to 16/07/2013
Total sample	163	407	25/02/1998 to 16/07/2013

Table 6.1 displays the number of observations in the Initial loans and Subsequent loans sample and the period in time in which the loan announcement are observed. 'Companies' represents the number of unique companies in the sample. 'Announcements' represents the number of different announcements observed.

Table 6.2 Loan announcements by year

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	Total
Initial loans	2	5	3	9	3	11	9	13	24	16	24	19	20	26	28	5	217
Subsequent loans	1	5	1	3	10	11	3	11	18	17	12	12	12	28	36	10	190
Total sample	3	10	4	12	13	22	12	24	42	33	36	31	32	54	64	15	407

Table 6.2 displays the number of loan announcements observed each year.

Table 6.3 Loan announcements by day of the week

Day of Week	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Total
Initial loans	52	43	42	43	37	0	0	217
Subsequent loans	43	32	35	48	32	0	0	190
Total sample	95	75	77	91	69	0	0	407

Table 6.3 displays the number of loan announcements observed on each day of the week.

Table 6.4 Loan announcements by stage of announcement

	Initial	Mandate	Approval	Drawdown	Total
Initial loans	6	50	123	38	217
Subsequent loans	4	24	143	19	190
Total	10	74	266	57	407

Table 6.4 displays the number of loan announcements classified as either Initial, Mandate, Approval or Drawdown. An announcement is classified as an *initial* mention if the firm announces that it is trying to negotiate a bank loan, but no loan details are yet agreed upon or released. An announcement is classified as a *mandate* if the firm has entered into an agreement with the lender to arrange financing. Indicative terms may be announced; however, significant conditions still need to be agreed before the loan is signed. An announcement is classified as an *approval* when the firm and bank have both agreed either conditionally on the terms of the loan or have signed-off on the loan. An announcement is classified as a *drawdown* if the firm has already been granted access to the funds borrowed.

Table 6.5 Borrowing firm descriptive statistics

Panel A: Initial loans sample firm descriptive statistics

Continuous variables	Mean	Median	Std. Dev.	Min	Max
MCAP	190,290,424.53	79,270,000.00	249,688,105.04	4,380,000.00	1,113,540,000.00
Total Assets	68,041,264.43	30,433,001.00	94,500,611.18	25,244.00	812,924,000.00
Short Term Debt	-	-	-	-	-
Long Term Debt	-	-	-	-	-
Total Equity	57,911,514.43	27,564,170.00	79,022,679.98	16,828,451.00	642,125,000.00
Net Profit After Tax	–4,869,309.04	–2,068,000.00	29,044,846.81	–285,292,000.00	169,996,000.00
AvgTurnover	0.26%	0.20%	0.22%	0.00%	1.01%
AvgSpread	4.11%	3.01%	3.66%	0.71%	23.82%
Age	1,868.78	2,600.00	3,042.11	0.00	16,218.00
NumAnalyst	0.82	0.00	1.51	0.00	13.00

Binary Variable	yes	% yes
Loss	178	84.36%
Analyst	85	39.53%
Big4	127	59.07%

Panel B: Subsequent loans sample firm descriptive statistics

Continuous variables	Mean	Median	Std. Dev.	Min	Max
MCAP	890,162,928.18	195,050,000.00	2,916,446,307.42	5,200,000.00	32,201,200,000.00
Total Assets	502,489,017.83	115,157,417.00	1,652,763,281.91	2,866,022.00	19,070,464,767.00
Long Term Debt	111,605,280.13	4,351,820.00	513,637,813.78	-	4,336,296,675.00
Short Term Debt	19,158,828.21	1,459,955.00	43,340,105.72	-	267,139,157.00
Total Equity	297,755,172.70	79,277,533.00	990,957,329.47	24,441,000.00	12,685,021,125.00
Net Profit After Tax	14,447,878.17	–2,273,139.00	137,895,463.13	–207,521,651.00	956,794,330.00
AvgTurnover	0.27%	0.20%	0.32%	0.00%	3.31%
AvgSpread	2.91%	2.40%	2.09%	0.45%	13.09%
Age	4,749.78	3,984.00	3,567.65	9.00	18,018.00
NumAnalyst	2.44	1.00	4.24	0.00	20.00

Binary Variable	yes	% yes
Loss	124	65.61%
Analyst	104	55.03%
Big4	130	68.78%

Table 6.5 Panel A provides descriptive statistics for Initial loan observations; Panel B provides descriptive statistics for Subsequent loan observations. *MCAP* is the market capitalization of firm *i* as on day *t*-15 in dollars. *Total Asset* is the reported total assets of firm *i* in the annual report released prior to the bank loan announcement measured in dollars. *Long Term Debt* is the reported long-term debts of firm *i* in the annual report released prior to the bank loan announcement measured in dollars. *Short Term Debt* is the reported short-term debts of firm *i* in the annual report released prior to the bank loan announcement measured in dollars. *Total Equity* is the reported total equity of firm *i* in the annual report released prior to the bank loan announcement measured in dollars. *Net Profit After Tax* is the reported net profit after tax of firm *i* in the annual report released prior to the bank loan announcement measured in dollars. *AvgTurnover* is the average turnover of firm *i* in the period –100 to –15 days before a loan announcement. *AvgSpread* is the average bid-ask spread of firm *i* in the period –100 to –15 days before a loan announcement. *Age* is measured in days, and is calculated as the number of days between a firms listing date and loan announcement. *NumAnalyst* is the number of analysts following firm *i* on the day it made a loan announcement. *Loss* is a binary variable equal to one if the firm had a net profit after tax of less than zero. *Analyst* is a binary variable equal to one if the firm had an analyst covering them on the date of their bank loan announcement. *Big4* is a binary variable equal to one if the annual report released of firm *i* was audited by a big four auditing firm in the period prior to their bank loan announcement.

Table 6.6 Loan descriptive statistics

Panel A: Initial loan sample loan descriptive statistics

Continuous variables	Mean	Median	Std. Dev.	Min	Max	Count Disclosed	% Disclosed
Amount	76,384,201.42	31,000,000.00	163,693,587.21	1,000,000.00	1,200,000,000.00	211	97%
Maturity	53.57	48.00	37.48	2.00	156.00	100	46%
Number of lenders	1.42	1.00	0.87	1.00	6.00	212	98%

Binary Variable	Yes	% Yes
Interest rate	41	18.89%
Hedging	56	25.81%
BankEquity	61	28.11%
EquityRaising	23	10.60%

Panel B: Subsequent loan sample descriptive statistics

Continuous variables	Mean	Median	Std. Dev.	Min	Max	Count Disclosed	% Disclosed
Amount	159,140,351.07	58,750,000.00	389,775,642.92	1,000,000.00	4,500,000,000.00	188	99%
Maturity	44.49	36.00	30.17	3.00	144.00	109	57%
Number of lenders	1.78	1.00	1.18	1.00	7.00	181	95%

Binary Variable	Yes	% Yes
Interest rate	44	23.16%
Hedgin	35	18.42%
BankEquity	43	22.63%
EquityRaising	11	5.79%

Table 6.6 Panel A provides descriptive statistics regarding the loans issued to the initial loan sample. Panel B provides descriptive statistics regarding the loans issued to the subsequent loan sample. *Amount* represents the disclosed amount to be borrowed by the firm measured in dollars. *Maturity* represents the number of months until the loan must be paid back in full. *Number of lenders* represents the number of lenders that are disclosed to be providing the loan. *Interest Rate* is a binary variable equal to one if the interest rate payable on the loan is disclosed in the bank loan announcement. *Hedging* is a binary variable equal to one if the bank loan announcement discloses that the borrowing firm is required to undertake commodity or foreign exchange hedging. *BankEquity* is a binary variable equal to one if the bank loan announcement discloses that the lending firm has a stock or option position in the borrowing firm. *EquityRaising* is a binary variable equal to one if the bank loan announcement discloses that the borrowing firm is required to undertake an equity issuance.

Table 6.7 Lender descriptive statistics

	Mean	Median	Std. Dev.	Min	Max
Obs per lender	5.25	2.00	9.33	1.00	70.00
Amount	335,664,754.79	70,000,000.00	685,412,119.26	1,000,000.00	3,694,519,047.62

Number of bank observations	635
Number of unique lenders	121

Table 6.7 provides descriptive statistics regarding the lenders mentioned in the bank loan announcements. *Obs per lender* represents the number of times a lender is observed in the bank loan announcement sample. *Amount* is the amount loaned by lenders measured in dollars. *Number of bank observations* represents the total number of bank observations in all announcements, with a single announcement potentially having numerous banks mentioned as part of a syndicate of lenders. *Number of unique lenders* refers to the number of unique banks mentioned in the total sample.

Table 6.8 Lender frequency

Bank	Number of loans	Aggregate value of loans ($)
Macquarie Bank	70	3,198,550,001.00
ANZ Bank	33	3,694,519,047.62
Commonwealth Bank of Australia	30	1,089,325,000.00
Standard Bank	28	1,151,133,333.33
Investec	27	1,253,952,380.95
Rand Merchant Bank	27	509,350,000.00
Bank of Scotland	25	848,666,666.67
Societe Generale	24	697,366,666.67
Credit Suisse	21	3,196,000,000.00
BNP Paribas	21	1,456,400,000.00
Barclays Bank	20	590,785,714.29
Standard Chartered Bank	18	1,101,766,666.67
China Development Bank	13	3,468,000,000.00
Westpac	13	283,091,666.67
Deutsche Bank	12	479,000,000.00
National Australia Bank	12	398,000,000.00
Rothschild Australia	12	79,666,666.67
Nedbank	11	112,000,000.00
WestLB	10	236,000,000.00
ABN Amro	8	204,000,000.00
European Investment Bank	7	320,700,000.00
Bank West	7	130,416,666.67
Caterpillar Financial Services	7	76,000,000.00
Bank of China	5	818,000,000.00
Sumitomo Mitsui Banking Corporation	5	362,500,000.00
International Finance Corp	5	282,500,000.00
HSBC	5	121,333,333.33
Beyerische Hypo-und Vereinsbank	5	34,000,000.00
Industrial and Commercial Bank of China	4	305,000,000.00
ABSA Bank South Africa	4	75,616,500.00
Resource Capital Funds	4	20,000,000.00
Dresdner Bank	3	160,033,333.33
EIG Global Energy Partners	3	1,000,000,000.00
Goldman Sachs	3	404,166,666.67
Korea Exchange Bank Australia	3	265,000,000.00
Raiffeisen Zentrallbank Osterreich	3	260,000,000.00
Royal Bank of Scotland	3	134,200,000.00
Sprott Resource Lending	3	26,000,000.00
Trafigura	3	127,000,000.00

Table 6.8 displays the top 40 banks sorted by the number of loans issued. Aggregate value of loans is calculated as the sum of all the loans issued by a particular bank in the sample.

Table 6.9 Daily average abnormal returns (AAR) surrounding bank loan announcements

Panel A: Daily AAR surrounding the total sample of bank loan announcements

Event Day	AAR	*t*-statistic	N	Count Positive	% Positive
–10	–0.286%	–0.906	394	180	46%
–9	–0.527%	**–2.117****	394	173	44%
–8	–0.199%	–0.856	394	164	42%
–7	0.307%	1.493	394	198	50%
–6	–0.028%	–0.131	395	188	48%
–5	0.229%	1.035	395	189	48%
–4	0.000%	–0.001	395	193	49%
–3	–0.088%	–0.444	396	180	45%
–2	0.116%	0.599	396	179	45%
–1	–0.108%	–0.550	396	178	45%
0	2.051%	**7.273*****	396	252	64%
+1	0.469%	1.489	396	201	51%
+2	0.041%	0.174	395	167	42%
+3	0.306%	1.359	395	191	48%
+4	–0.349%	–1.641	395	177	45%
+5	–0.150%	–0.691	395	192	49%
+6	–0.637%	**–3.203*****	395	169	43%
+7	0.010%	0.044	395	187	47%
+8	–0.404%	–1.643	394	169	43%
+9	0.316%	1.325	394	185	47%
+10	–0.295%	–1.305	394	180	46%

Panel B: Daily AAR surrounding initial bank loan announcements

Event Day	AAR	*t*-statistic	N	Count Positive	% Positive
–10	0.101%	0.279	212	102	48%
–9	–0.386%	–0.997	212	95	45%
–8	0.111%	0.351	212	90	42%
–7	0.151%	0.503	212	97	46%
–6	0.018%	0.054	212	100	47%
–5	0.421%	1.273	212	100	47%
–4	0.103%	0.298	212	95	45%
–3	0.073%	0.258	213	97	46%
–2	0.233%	0.866	213	101	47%
–1	–0.208%	–0.749	213	87	41%
0	2.480%	**5.755*** **	213	136	64%
1	0.481%	1.019	213	102	48%
2	–0.055%	–0.174	212	96	45%
3	0.154%	0.431	212	97	46%
4	–0.615%	**–2.348** **	212	88	42%
5	–0.337%	–1.042	212	102	48%
6	–0.657%	**–2.219** **	212	91	43%
7	0.313%	0.915	212	104	49%
8	–0.327%	–0.895	212	89	42%
9	0.399%	1.102	212	104	49%
10	–0.835%	**–2.575** **	212	82	39%

Panel C: Daily AAR surrounding subsequent bank loan announcements

Event Day	AAR	*t*-statistic	N	Count Positive	% Positive
–10	–0.738%	–1.372	182	78	43%
–9	–0.691%	**–2.338****	182	78	43%
–8	–0.561%	–1.647	182	74	41%
–7	0.488%	**1.778***	182	101	55%
–6	–0.081%	–0.307	183	88	48%
–5	0.006%	0.021	183	89	49%
–4	–0.119%	–0.395	183	98	54%
–3	–0.276%	–1.011	183	83	45%
–2	–0.019%	–0.069	183	78	43%
–1	0.009%	0.034	183	91	50%
0	1.551%	**4.495*****	183	116	63%
1	0.456%	1.123	183	99	54%
2	0.153%	0.423	183	71	39%
3	0.482%	**1.876***	183	94	51%
4	–0.041%	–0.119	183	89	49%
5	0.067%	0.240	183	90	49%
6	–0.613%	**–2.371****	183	78	43%
7	–0.340%	–1.059	183	83	45%
8	–0.494%	–1.539	182	80	44%
9	0.219%	0.734	182	81	45%
10	0.334%	1.091	182	98	54%

Table 6.9 Panel A presents the daily average abnormal returns (AAR) surrounding the total sample of bank loan announcements. Panel B presents the daily AAR surrounding the sample of initial bank loan announcements. Panel C presents the daily AAR surrounding the sample of subsequent bank loan announcements. AAR is calculated as outlined in Equation (1). Student *t*–statistics are presented to show if the AAR is significantly different from zero. N is the number of observations. Count Positive is the number of announcements with a positive AAR. % Positive is calculated as Count Positive divided by N, to represent the % of firms with a positive abnormal reaction on the event day. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table 6.10 Cumulative average abnormal returns (CAAR) surrounding bank loan announcements

Panel A: CAAR surrounding the total sample of bank loan announcements

Event Day	CAAR	*t*-statistic	N	Count Positive	% Positive
–5 to 5	2.518%	**3.552*****	396	222	56.06%
–3 to 3	2.787%	**4.657*****	396	226	57.07%
–1 to 1	2.412%	**5.840*****	396	244	61.61%
0 to 1	2.520%	**6.285*****	396	259	65.40%
–5 to –2	0.257%	0.658	396	188	47.47%
2 to 5	–0.151%	–0.371	396	188	47.47%

Panel B: CAAR surrounding initial bank loan announcements

Event Day	CAAR	*t*-statistic	N	Count Positive	% Positive
–5 to 5	2.732%	**2.728*****	213	120	56.33%
–3 to 3	3.158%	**3.587*****	213	122	57.27%
–1 to 1	2.753%	**4.696*****	213	131	61.50%
0 to 1	2.961%	**5.131*****	213	143	67.13%
–5 to –2	0.828%	1.448	213	105	49.29%
2 to 5	–0.849%	–1.494	213	87	40.84%

Panel C: CAAR surrounding subsequent loan announcements

Event Day	CAAR	*t*-statistic	N	Count Positive	% Positive
–5 to 5	2.268%	**2.269****	183	102	55.73%
–3 to 3	2.355%	**2.969*****	183	104	56.83%
–1 to 1	2.015%	**3.488*****	183	113	61.74%
0 to 1	2.006%	**3.659*****	183	116	63.38%
–5 to –2	–0.409%	–0.792	183	83	45.35%
2 to 5	0.661%	1.147	183	101	55.19%

Table 6.10 Panel A presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements. Panel B presents the CAAR surrounding the initial bank loan sample of announcements. Panel C presents the CAAR surrounding the subsequent bank loan sample of announcements. CAAR is calculated as outlined in Equation (2). Student *t*-statistics are presented to show if the CAAR is significantly different from zero. N is the number of observations. Count Positive is the number of announcements with a positive AAR. % Positive is calculated as Count Positive divided by N, to represent the % of firms with a positive cumulative abnormal reaction on the event day. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table 6.11 Differences in the abnormal return surrounding initial loan and subsequent loan samples

Event Day	mean diff.	*t*-statistic	p-value
–3	0.35%	0.886	0.188
–2	0.25%	0.649	0.258
–1	–0.22%	–0.557	0.289
0	0.93%	**1.684****	**0.046**
1	0.02%	0.040	0.484
2	–0.21%	–0.433	0.332
3	–0.33%	–0.749	0.227
–1 to 1	0.88%	1.077	0.141
–5 to 5	0.95%	0.328	0.372

Table 6.11 presents student *t*-tests on differences in the abnormal return surrounding initial bank loan and subsequent bank loan samples; p-values are provided based on a one-tailed test of significance.

Table 6.12 Correlation matrix

	Macquarie	Initial	FirstAnn	LnAmount	Lenders	Hedge	BankEquity	EquityRaise	LnMCAP	Loss	NumAnalyst
Macquarie	1	0.055	–0.070	0.037	–0.059	0.228**	0.218**	0.052	–0.046	–0.080	–0.021
Initial	0.055	1	–0.052	0.113*	–0.156**	0.089	0.058	0.087	–0.284**	0.180**	–0.253**
FirstAnn	–0.070	–0.052	1	–0.029	–0.143**	–0.159**	–0.056	–0.031	–0.093	–0.051	0.025
LnAmount	0.033	0.092	–0.039	1	0.037	0.082	–0.101*	0.062	–0.473**	0.072	–0.113*
Lenders	–0.045	–0.148**	–0.156**	0.002	1	0.012	–0.246**	–0.029	0.334**	–0.098	0.314**
Hedge	0.228**	0.089	–0.159**	0.079	0.066	1	–0.070	0.093	–0.042	0.073	–0.118*
BankEquity	0.218**	0.058	–0.056	–0.087	–0.293**	–0.070	1	0.150**	–0.238**	0.073	–0.111*
EquityRaise	0.052	0.087	–0.031	0.062	–0.036	0.093	0.150**	1	–0.048	0.063	–0.041
LnMCAP	–0.041	–0.268**	–0.111*	–0.459**	0.371**	–0.035	–0.232**	–0.048	1	–0.227**	0.496**
Loss	–0.080	0.180**	–0.051	0.063	–0.081	0.073	0.073	0.063	–0.201**	1	–0.210**
NumAnalyst	0.002	–0.195**	–0.015	–0.090	0.230**	–0.058	–0.066	0.022	0.504**	–0.137**	1

Table 6.12 presents a correlation matrix for the variables used in Equation (8). Pearson correlations are presented in the top half of the table. Spearman correlations are presented in the bottom half of the table. ** represents two-tailed significance at the 0.01 level, * represents two-tailed significance at the 0.05 level.

Table 6.13 Determinants of market reaction around bank loan announcements

	Predicted	Panel A: 0 to +1			Panel B: –5 to +5			Panel C: –10 to +10		
		Coeff	*t*-statistic	p-value	Coeff	*t*-statistic	p-value	Coeff	*t*-statistic	p-value
(Constant)		0.003	0.042	0.967	0.019	0.153	0.879	–0.033	–0.184	0.854
Initial	+	0.005	0.588	0.557	–0.012	–0.829	0.408	–0.011	–0.517	0.606
FirstAnn	+	0.028	**3.200*** **	**0.001**	0.026	**1.670***	**0.096**	0.045	**2.064****	**0.040**
LnAmount	+	0.018	**4.338*** **	**0.000**	0.018	**2.447****	**0.015**	0.011	1.099	0.272
Lenders	–	–0.001	–0.319	0.750	0.011	1.433	0.153	0.002	0.199	0.842
Hedge	?	–0.015	–1.578	0.115	–0.006	–0.340	0.734	–0.022	–0.899	0.369
BankEquity	+	0.016	**1.637***	**0.100**	0.024	1.368	0.172	0.041	**1.637***	**0.100**
EquityRaise	–	–0.007	–0.510	0.610	0.061	**2.444****	**0.015**	0.063	**1.759***	**0.079**
LnMCAP	–	0.001	0.314	0.754	–0.001	–0.153	0.879	0.000	0.047	0.963
Loss	+	0.001	0.148	0.882	0.022	1.313	0.190	0.028	1.211	0.227
NumAnalyst	–	–0.001	–0.383	0.702	–0.005	**–2.026****	**0.043**	–0.009	**–2.303****	**0.022**
F-stat		4.203		**0.000*** **	3.198		**0.001*** **	2.544		**0.006*** **
Adjusted R2		0.079			0.056			0.040		
N		374			374			374		

Table 6.13 presents Ordinary Least Squares regressions on the determinants of the cumulative average abnormal return around the release of a bank loan announcement. Panel A reports results over the event windows 0 to +1, Panel B reports results over the event window –5 to +5, and Panel C reports results over the event window –10 to +10. Regression variables are defined as: *Initial* represents a binary variable capturing if the loan is an initial loan; *FirstAnn* is a binary variable equal to one if the announcement is the first in a sequence of announcements; *LnAmount* is calculated as the dollar amount of borrowed funds scaled by the borrowing firm's total assets in the period prior to the loan announcement; *Lenders* is the number of lenders mentioned in the bank loan announcement; *Hedge* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank requires the borrowing to hedge its commodity or foreign exchange exposure before a loan agreement can be completed; *BankEquity* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank owns shares, warrants or options of the borrowing firm; *EquityRaise* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank requires the borrowing firm to raise further equity before a loan agreement can be completed; *LnMCap* is the natural logarithm of the firm's market capitalisation 15 days before the bank loan announcement; *Loss* is a binary variable equal to 1 if the firm reported a net profit after tax of less than zero in the annual report prior to the bank loan announcement; *NumAnalyst* is the number of analysts following firm *i* on the announcement date. p-values are provided based on two-tailed tests of significance.

Table 6.14 Average abnormal turnover (AATO) surrounding bank loan announcements

	Total sample (n=362)		Initial sample (n=193)		Subsequent sample (n=169)	
Event Day	**AATO**	**t-stat**	**AATO**	**t-stat**	**AATO**	**t-stat**
–10	0.007%	0.372	0.020%	0.794	–0.008%	–0.310
–9	0.005%	0.230	0.011%	0.348	–0.002%	–0.101
–8	0.039%	1.066	0.011%	0.382	0.073%	0.997
–7	0.016%	0.685	0.034%	1.003	–0.005%	–0.142
–6	–0.024%	**–1.970****	–0.015%	–0.902	–0.034%	**–1.932***
–5	–0.012%	–0.674	0.015%	0.516	–0.044%	**–2.594****
–4	0.017%	0.630	0.024%	0.571	0.008%	0.274
–3	0.011%	0.458	0.034%	0.820	–0.014%	–0.569
–2	0.022%	0.934	0.047%	1.251	–0.007%	–0.241
–1	–0.001%	–0.030	–0.004%	–0.175	0.004%	0.159
0	0.123%	**4.735*****	0.142%	**3.621*****	0.102%	**3.069*****
+1	0.080%	**3.261*****	0.129%	**3.128*****	0.024%	1.049
+2	0.060%	**1.955***	0.069%	**1.706***	0.050%	1.054
+3	0.011%	0.511	0.055%	1.563	–0.039%	–1.506
+4	0.012%	0.473	0.045%	1.047	–0.026%	–1.120
+5	–0.021%	–1.187	–0.020%	–1.063	–0.021%	–0.690
+6	–0.022%	–1.457	–0.023%	–1.362	–0.021%	–0.793
+7	–0.003%	–0.149	0.011%	0.393	–0.019%	–0.669
+8	–0.002%	–0.126	–0.001%	–0.027	–0.005%	–0.134
+9	0.019%	0.878	0.035%	1.105	0.001%	0.033
+10	–0.004%	–0.166	0.024%	0.530	–0.038%	–1.476
–10 to –1	0.077%	0.633	0.171%	0.932	–0.031	–0.201
0 to +10	0.256%	**1.718***	0.314%	**2.149****	0.001%	0.044

Table 6.14 presents the daily average abnormal turnover (AATO) surrounding the total sample of bank loan announcements, the initial sample of bank loan announcements, and the subsequent sample of bank loan announcements. AATO is calculated as outlined in Equation (11). Cumulative average abnormal turnover is presented for the –10 to –1 and 0 to +10 day event window and calculated as the sum of the AATO of each day during the event window outlined in Equation (12). Student *t*-statistics are presented to show if the AATO is significantly different from zero. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table 6.15 Differences in the average abnormal turnover (AATO) between initial loan and subsequent loan announcements

Event Day	mean diff.	*t*-statistic	p-value
–3	0.048%	0.997	0.160
–2	0.053%	1.121	0.125
–1	–0.008%	–0.235	0.407
0	0.040%	0.775	0.219
+1	0.105%	**2.231****	**0.013**
+2	0.019%	0.312	0.378
+3	0.094%	**1.699****	**0.016**
–1 to +1	0.135%	**1.372***	**0.085**
–3 to +3	0.343%	**1.699****	**0.045**

Table 6.15 presents student *t*-tests on differences in the average abnormal turnover surrounding initial bank loan and subsequent bank loan samples. p-values are provided based on a one-tailed test of significance. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table 6.16 Cumulative average abnormal turnover in the pre- and post-loan announcement window

Pre/Post Turnover	mean diff	*t*-statistic	p-value
Full Sample	0.173%	0.889	0.187
Initial	0.289%	1.008	0.157
Subsequent	0.037%	0.145	0.443

Table 6.16 presents the mean difference between the cumulative abnormal turnover in the –10 to –1 day event window and the +1 to +10 day event window; p-values are provided based on a one-tailed test of significance. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table 6.17 Average abnormal spread (AASPREAD) surrounding bank loan announcements

	Total sample (n=362)		Initial sample (n=193)		Subsequent sample (n=169)	
Event Day	**AASPREAD**	***t*-statistic**	**AASPREAD**	***t*-statistic**	**AASPREAD**	***t*-statistic**
–10	–0.312%	–1.624	–0.716%	**–2.313****	0.149%	0.719
–9	0.205%	0.716	0.440%	0.862	–0.063%	–0.325
–8	–0.053%	–0.219	–0.141%	–0.347	0.047%	0.200
–7	0.195%	0.808	0.276%	0.674	0.102%	0.461
–6	0.100%	0.408	0.277%	0.737	–0.103%	–0.343
–5	–0.011%	–0.049	0.032%	0.085	–0.060%	–0.307
–4	–0.124%	–0.453	–0.219%	–0.449	–0.016%	–0.085
–3	0.223%	0.736	0.312%	0.589	0.121%	0.509
–2	0.126%	0.504	0.230%	0.556	0.007%	0.027
–1	0.010%	0.040	0.188%	0.465	–0.194%	–0.864
0	–0.136%	–0.613	–0.146%	–0.381	–0.124%	–0.686
+1	–0.524%	**–2.495****	–0.546%	**–1.652***	–0.499%	**–2.030****
+2	–0.244%	–1.123	–0.240%	–0.650	–0.249%	–1.245
+3	–0.188%	–0.720	0.101%	0.227	–0.518%	**–2.298****
+4	–0.205%	–0.696	–0.206%	–0.422	–0.205%	–0.683
+5	0.027%	0.101	0.236%	0.516	–0.212%	–0.887
+6	–0.572%	**–2.137****	–0.377%	–1.178	–0.795%	**–1.797***
+7	–0.605%	**–2.403****	–0.360%	–1.205	–0.884%	**–2.118****
+8	–0.460%	**–1.938***	–0.170%	–0.481	–0.793%	**–2.552****
+9	–0.182%	–0.791	–0.150%	–0.374	–0.220%	–1.155
+10	–0.211%	–0.877	–0.204%	–0.480	–0.219%	–1.244
–10 to –1	0.358%	0.197	0.679%	0.210	–0.010%	–0.008
1 to +10	–3.165%	**–1.915***	–1.914%	–0.693	–4.593%	**–2.854*****

Table 6.17 presents the average abnormal spread (AASPREAD) surrounding the total sample of bank loan announcements, the initial sample of bank loan announcements, and the sample of subsequent loan announcements. Abnormal spread is calculated as outlined in Equation (7). Cumulative average abnormal spread is presented for the event window –10 to –1 and +1 to +10 and calculated as outlined in Equation (8). Student *t*-statistics are presented to show if the AASPREAD is significantly different from zero. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table 6.18 Differences in the average abnormal spread (AAS) between initial loan and subsequent loan announcements

Event Day	mean diff.	*t*-statistic	p-value
–3	0.18%	0.290	0.772
–2	0.23%	0.463	0.644
–1	0.33%	0.684	0.494
0	0.01%	0.021	0.983
+1	–0.13%	–0.313	0.754
+2	0.05%	0.114	0.909
+3	0.59%	1.127	0.260
–1 to +1	0.21%	0.190	0.850
–3 to +3	1.26%	0.489	0.625

Table 6.18 presents student *t*-tests on differences in the average abnormal spread (AAS) surrounding initial bank loan and subsequent bank loan samples; p-values are provided based on a two-tailed test of significance.

Table 6.19 Average cumulative abnormal spread in the pre- and post-loan announcement window

	mean diff.	*t*-statistic	p-value
Full sample	–3.730%	–1.497*	0.067
Initial sample	–2.594%	–0.609	0.271
Subsequent sample	–4.583%	–2.260**	0.012

Table 6.19 presents the mean difference between the cumulative abnormal spread in the –10 to –1 day event window and the +1 to +10 day event window. p-values are provided based on a one-tailed test of significance.

Table 6.20 Determinants of abnormal turnover and abnormal spread

	Panel A: Abnormal turnover –10 to +10			Panel B: Abnormal spread –10 to +10		
	Coeff	***t*-statistic**	**p-value**	**Coeff**	***t*-statistic**	**p-value**
(Constant)	–0.007	–0.283	0.777	–0.545	**–2.305****	**0.022**
Initial	0.002	0.710	0.478	0.019	0.700	0.485
FirstAnn	0.008	**2.644*****	**0.009**	–0.045	–1.559	0.120
LnAmount	0.002	1.163	0.246	–0.010	–0.713	0.476
Lenders	0.001	0.902	0.368	–0.031	**–2.168****	**0.031**
Hedge	0.000	0.137	0.891	0.005	0.164	0.870
BankEquity	–0.008	**–2.313****	**0.021**	0.016	0.489	0.625
EquityRaise	0.013	**2.809*****	**0.005**	0.034	0.766	0.444
LnMCAP	0.000	0.043	0.966	0.033	**2.567****	**0.011**
Loss	0.004	1.286	0.199	–0.056	**–1.835***	**0.067**
NumAnalyst	0.000	–0.764	0.445	–0.002	–0.440	0.660
F-stat	2.804		**0.002*****	2.517		**0.006*****
Adjusted R2	0.046			0.042		
N	370			345		

Table 6.20 Panel A presents an Ordinary Least Squares regression on the determinants of the cumulative average abnormal turnover over the –10 to +10 day event window. Panel B presents an Ordinary Least Squares regression on the determinants of the cumulative average abnormal spread over the –10 to +10 day event window. Regression variables are defined as: *Initial* represents a binary variable capturing if the loan is an initial loan; *FirstAnn* is a binary variable equal to one if the announcement is the first in a sequence of announcements; *LnAmount* is calculated as the dollar amount of borrowed funds scaled by the borrowing firm's total assets in the period prior to the loan announcement; *Lenders* is the number of lenders mentioned in the bank loan announcement; *Hedge* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank requires the borrowing to hedge its commodity or foreign exchange exposure before a loan agreement can be completed; *BankEquity* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank owns shares, warrants or options of the borrowing firm; *EquityRaise* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank requires the borrowing firm to raise further equity before a loan agreement can be completed; *LnMCap* is the natural logarithm of the firm's market capitalisation 15 days before the bank loan announcement; *Loss* is a binary variable equal to 1 if the firm reported a net profit after tax of less than zero in the annual report prior to the bank loan announcement; *NumAnalyst* is the number of analysts following firm *i* on the announcement date. p-values are provided based on two-tailed tests of significance.

Table 6.21 Cumulative average abnormal returns (CAAR) for loans issued by the leading industry specialist or non-industry specialist lenders

	Macquarie Bank (n=69)		Non-specialist lender (n=327)		Difference		
Event Day	**CAAR**	***t*-statistic**	**CAAR**	***t*-statistic**	**mean difference**	***t*-statistic**	**p-value**
–5 to +5	5.053%	**3.063*** **	1.89%	**2.167** **	3.167%	**1.745** **	**0.042**
–3 to +3	4.125%	**2.884*** **	2.45%	**3.599*** **	1.677%	1.071	0.143
–1 to +1	2.564%	**2.518** **	2.32%	**5.336*** **	0.242%	0.219	0.414

Table 6.21 presents the cumulative average abnormal return (CAAR) surrounding loans issued by Macquarie Bank, and loans issued by other lenders. *t*-statistics test if the CAAR is significantly different from zero. The mean difference shows the difference between the two sample CAARs. *t*-statistics are provided to test if the two sample means are significantly different. p-values are provided based on a one-tailed test of significance.

Table 6.22 Determinants of market reaction around bank loan announcements testing for industry specialisation

	Predicted	Panel A: 0 to +1			Panel B: –5 to +5			Panel C: –10 to +10		
		Coeff	*t*-statistic	p-value	Coeff	*t*-statistic	p-value	Coeff	*t*-statistic	p-value
(Constant)		0.002	0.029	0.977	0.024	0.190	0.849	–0.022	–0.122	0.903
Macquarie	+	–0.006	–0.539	0.590	0.032	**1.636***	**0.100***	0.078	**2.804*****	**0.005**
Initial	+	0.005	0.600	0.549	–0.013	–0.868	0.386	–0.012	–0.587	0.558
FirstAnn	+	0.028	**3.175*****	**0.002**	0.027	**1.732***	**0.084**	0.048	**2.186****	**0.029**
LnAmount	+	0.018	**4.363*****	**0.000**	0.017	**2.313****	**0.021**	0.009	0.879	0.380
Lenders	–	–0.001	–0.343	0.732	0.011	1.508	0.132	0.003	0.329	0.742
Hedge	?	–0.014	–1.400	0.162	–0.013	–0.722	0.471	–0.038	–1.557	0.120
BankEquity	+	0.018	**1.697***	**0.091**	0.016	0.895	0.371	0.022	0.854	0.393
EquityRaise	–	–0.007	–0.517	0.606	0.061	**2.470****	**0.014**	0.064	**1.811***	**0.071**
LnMCAP	–	0.001	0.342	0.732	–0.002	–0.240	0.810	–0.001	–0.104	0.917
Loss	+	0.001	0.083	0.934	0.025	1.498	0.135	0.036	1.544	0.123
NumAnalyst	–	–0.001	–0.372	0.710	–0.006	**–2.064****	**0.040**	–0.009	**–2.382****	**0.018**
F-stat		3.840		0.000***	3.160		0.000***	3.072		0.001***
Adjusted R2		0.077			0.060			0.057		
N		374			374			374		

Table 6.22 presents Ordinary Least Squares regressions on the determinants of the cumulative average abnormal return around the release of a bank loan announcement. Panel A reports results over the event windows 0 to +1, Panel B reports results over the event window –5 to +5 and Panel C reports results over the event window –10 to +10. Regression variables are defined as: *Macquarie* represents a binary variable equal to one if the loan is issued by industry leader Macquarie Bank; *Initial* represents a binary variable capturing if the loan is an initial loan; *FirstAnn* is a binary variable equal to one if the announcement is the first in a sequence of announcements; *LnAmount* is calculated as the dollar amount of borrowed funds scaled by the borrowing firm's total assets in the period prior to the loan announcement;. *Lenders* is the number of lenders mentioned in the bank loan announcement; *Hedge* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank requires the borrowing to hedge its commodity or foreign exchange exposure before a loan agreement can be completed; *BankEquity* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank owns shares, warrants or options of the borrowing firm; *EquityRaise* is a binary variable equal to 1 if it is disclosed within the bank loan announcement that the bank requires the borrowing firm to raise further equity before a loan agreement can be completed; *LnMCap* is the natural logarithm of the firm's market capitalisation 15 days before the bank loan announcement; *Loss* is a binary variable equal to 1 if the firm reported a net profit after tax of less than zero in the annual report prior to the bank loan announcement; and *NumAnalyst* is the number of analysts following firm *i* on the announcement date. p-values are provided based on two-tailed tests of significance.

Figure 6.1 Bank loan announcements by year

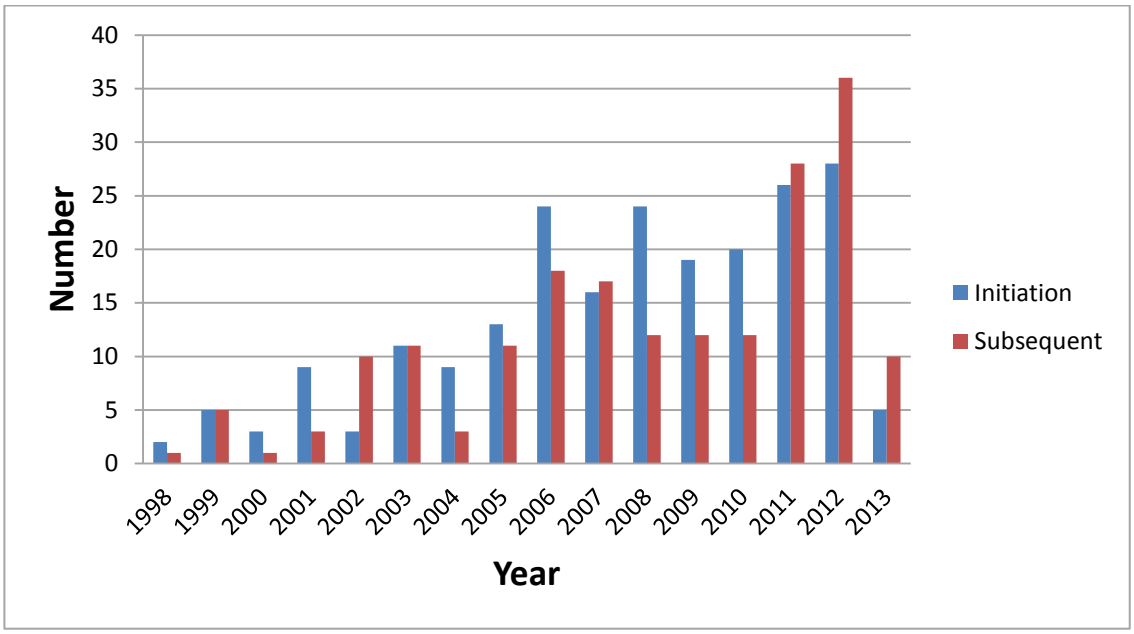


Figure 6.1 displays the number of loan announcements observed in each year of the sample period.

Figure 6.2 Metals and banking index returns over the sample period

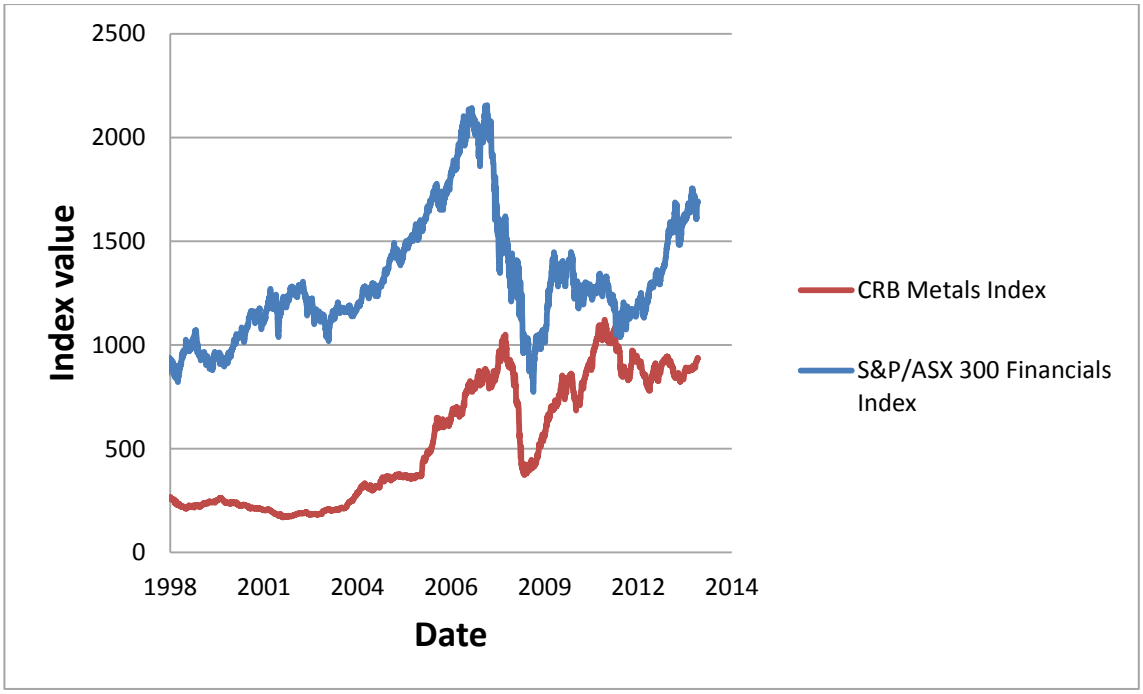
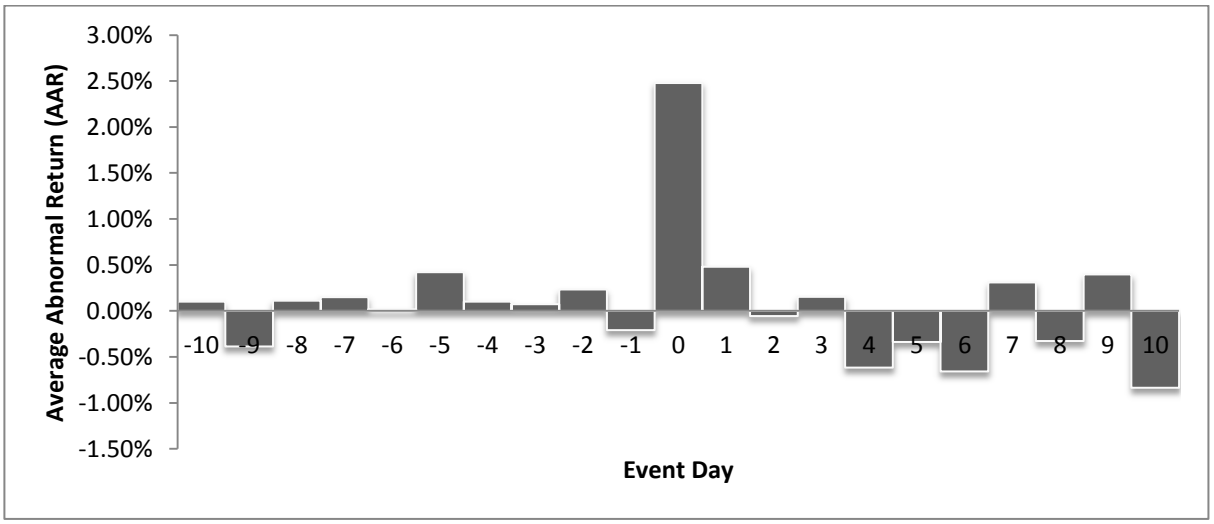


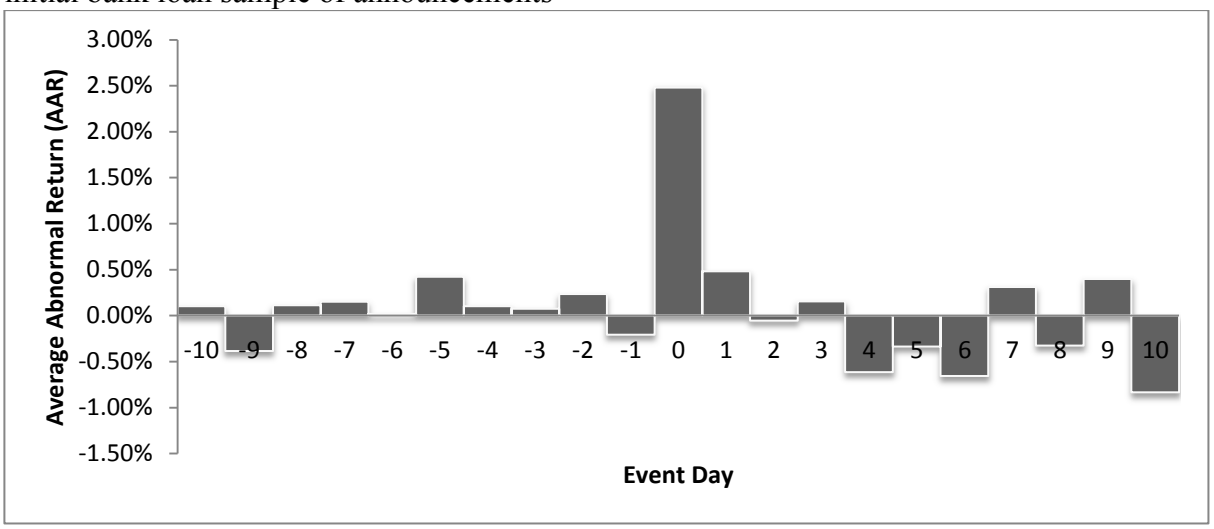
Figure 6.2 displays the index returns of the S&P/ASX 300 financials index, and the CRB metals index over the sample period.

Figure 6.3 Daily average abnormal returns (AAR) over the -10 to +10 day event window

Panel A: Daily average abnormal returns over the –10 to +10 day event window for the total sample of bank loan announcements



Panel B: Daily average abnormal returns over the –10 to +10 day event window for the initial bank loan sample of announcements



Panel C: Daily average abnormal returns over the –10 to +10 day event window for the subsequent bank loan sample of announcements

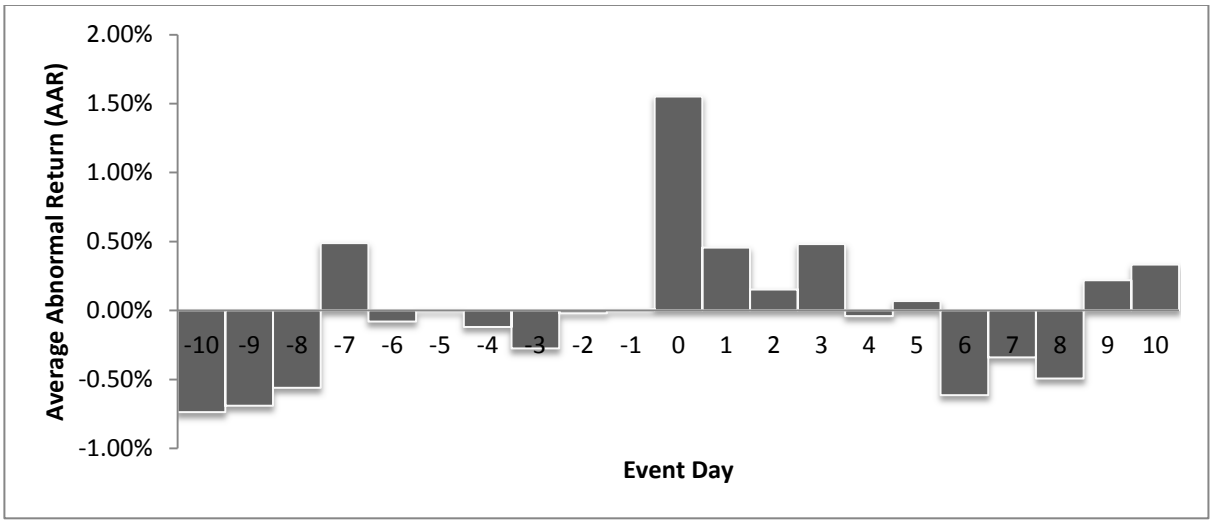


Figure 6.2 Metals and banking index returns over the sample period

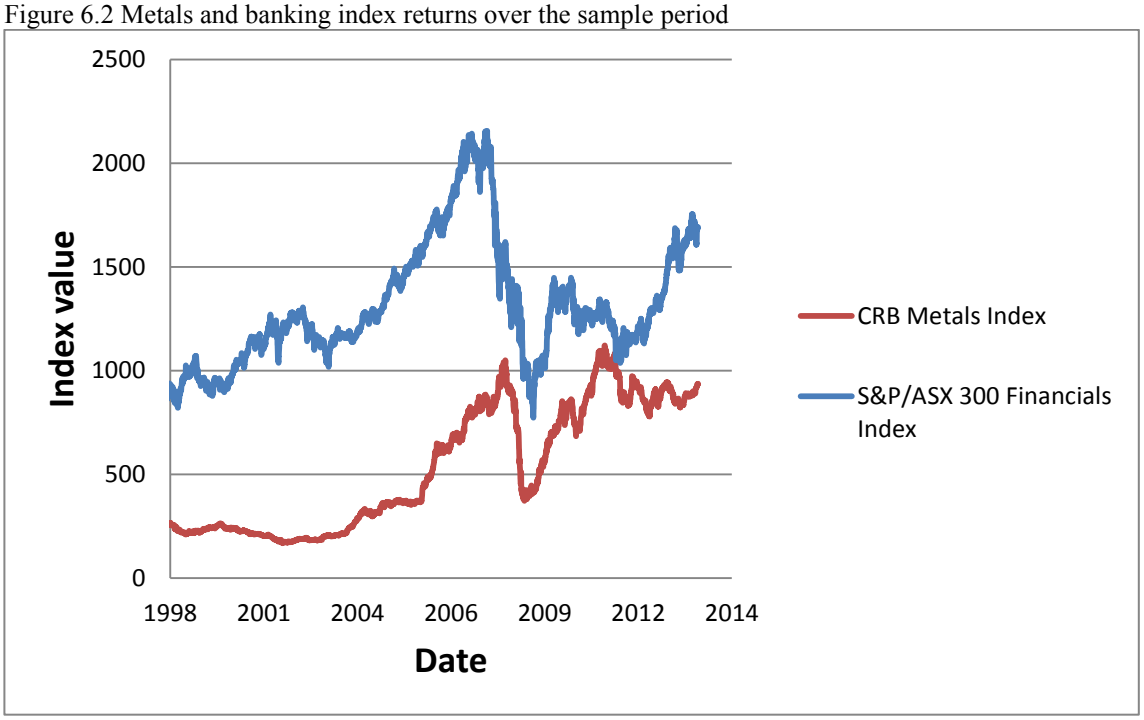
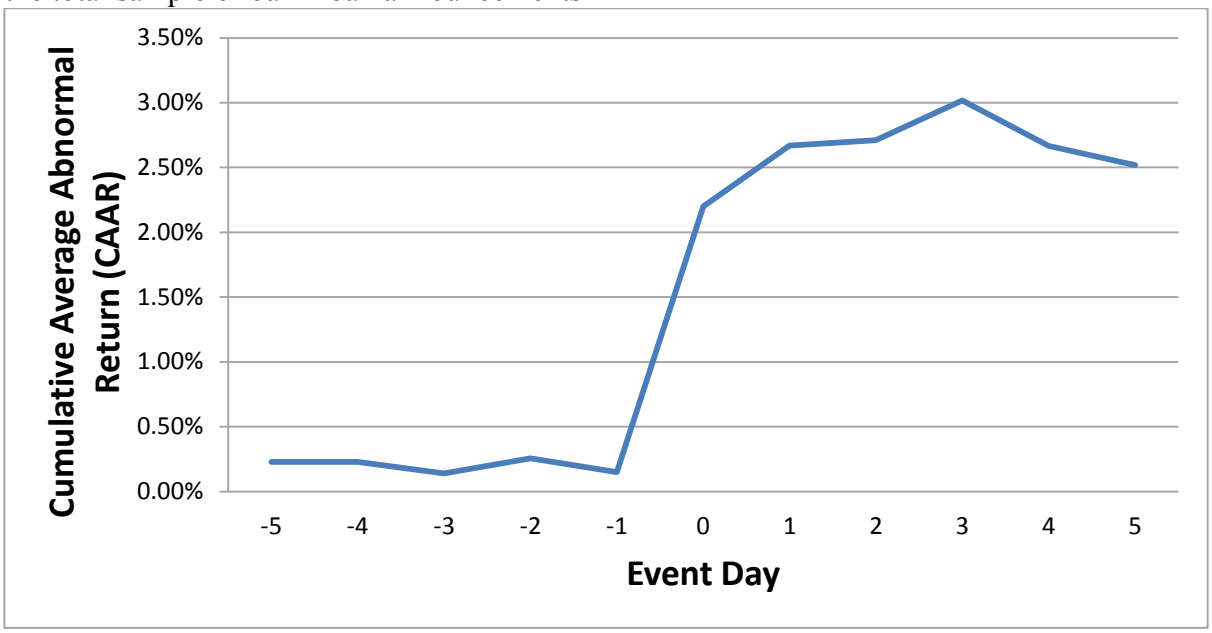


Figure 6.2 displays the index returns of the S&P/ASX 300 financials index, and the CRB metals index over the sample period.

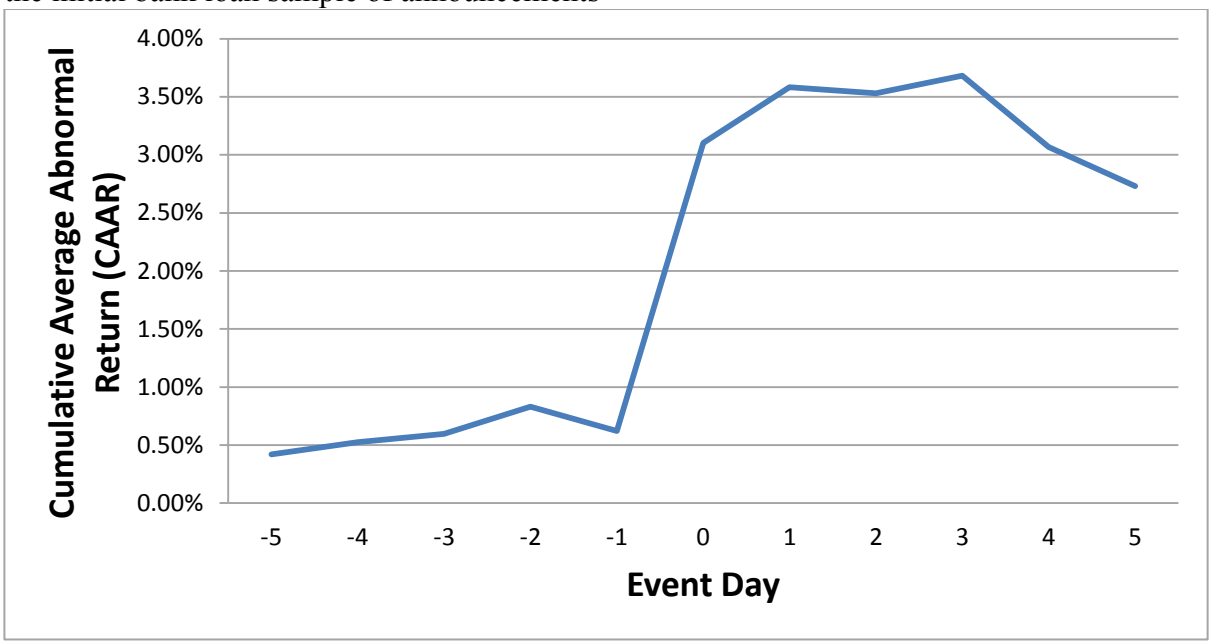
Figure 6.3 Panel A shows the average abnormal return for each event day in the –10 to +10 day event window, using the full sample of bank loan announcements. Panel B shows the average abnormal return for each event day in the –10 to +10 day event window, surrounding the sample of initial bank loan announcements. Panel C shows the average abnormal return for each event day in the –10 to +10 day event window, surrounding the sample of subsequent bank loan announcements. Abnormal return is calculated as per equation 1. Event day 0 represents the date of the bank loan announcement.

Figure 6.4 Cumulative average abnormal returns (CAAR) over the –5 to +5 day event window

Panel A: Cumulative average abnormal returns over the –5 to +5 day event window for the total sample of bank loan announcements



Panel B: Cumulative average abnormal returns over the –5 to +5 day event window for the initial bank loan sample of announcements



Panel C: Cumulative average abnormal returns over the –5 to +5 day event window for the subsequent bank loan sample of announcements

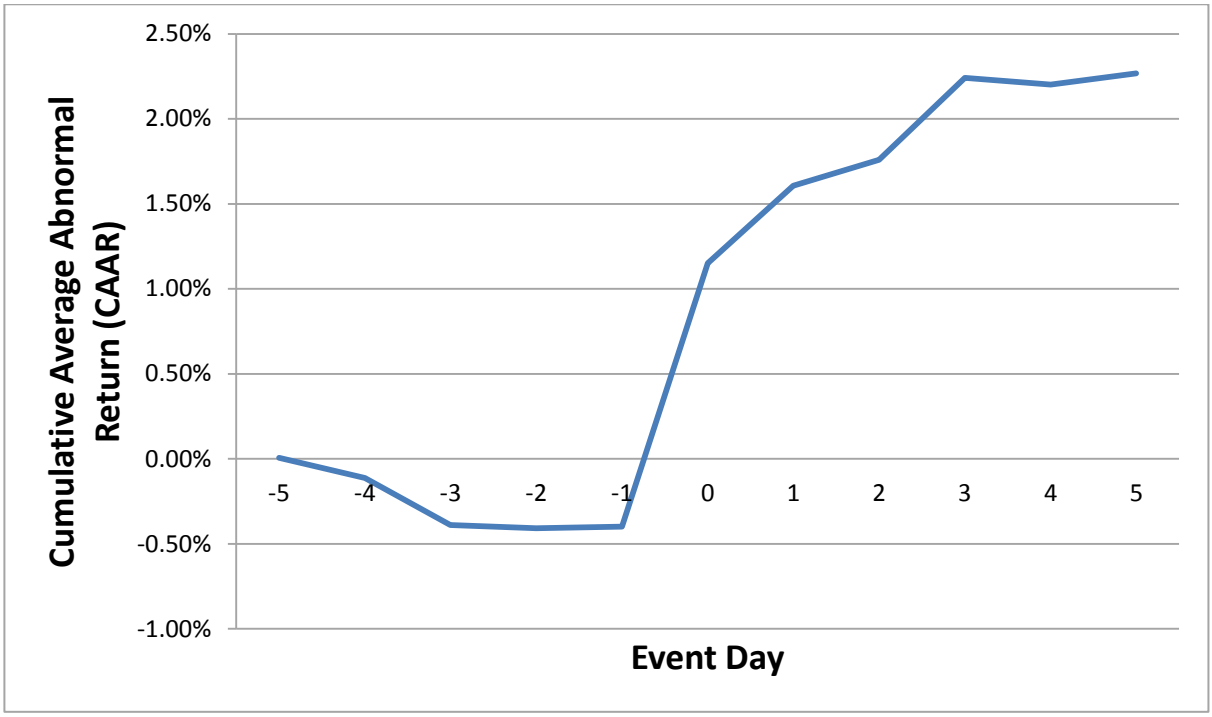
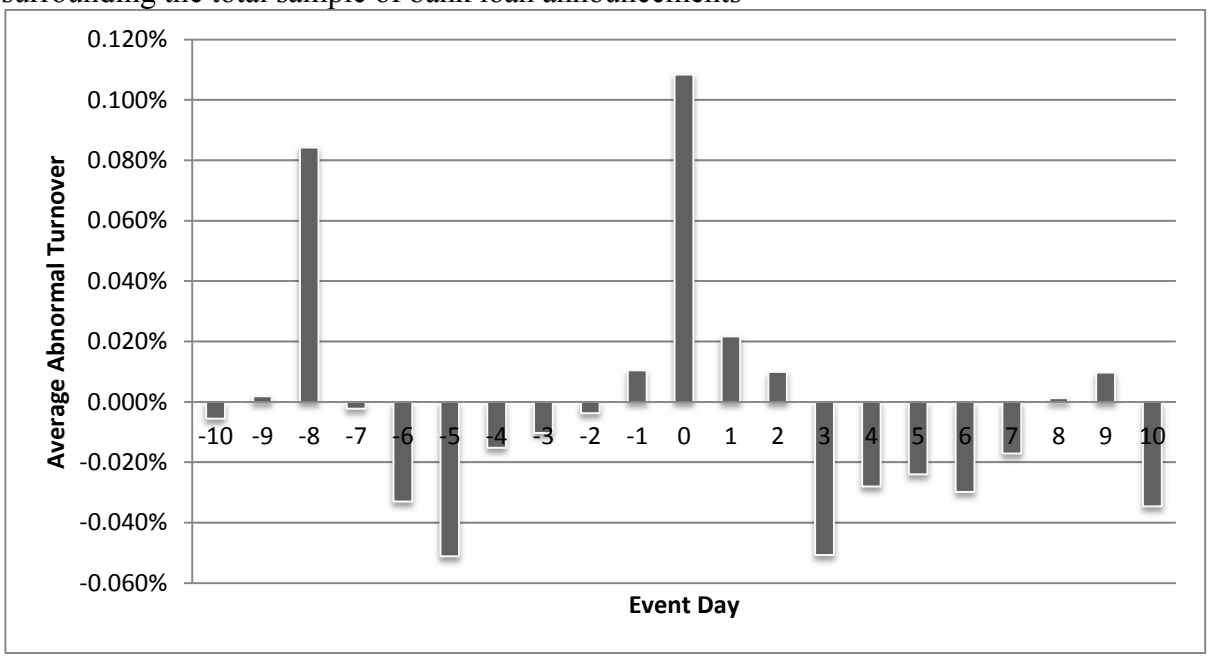


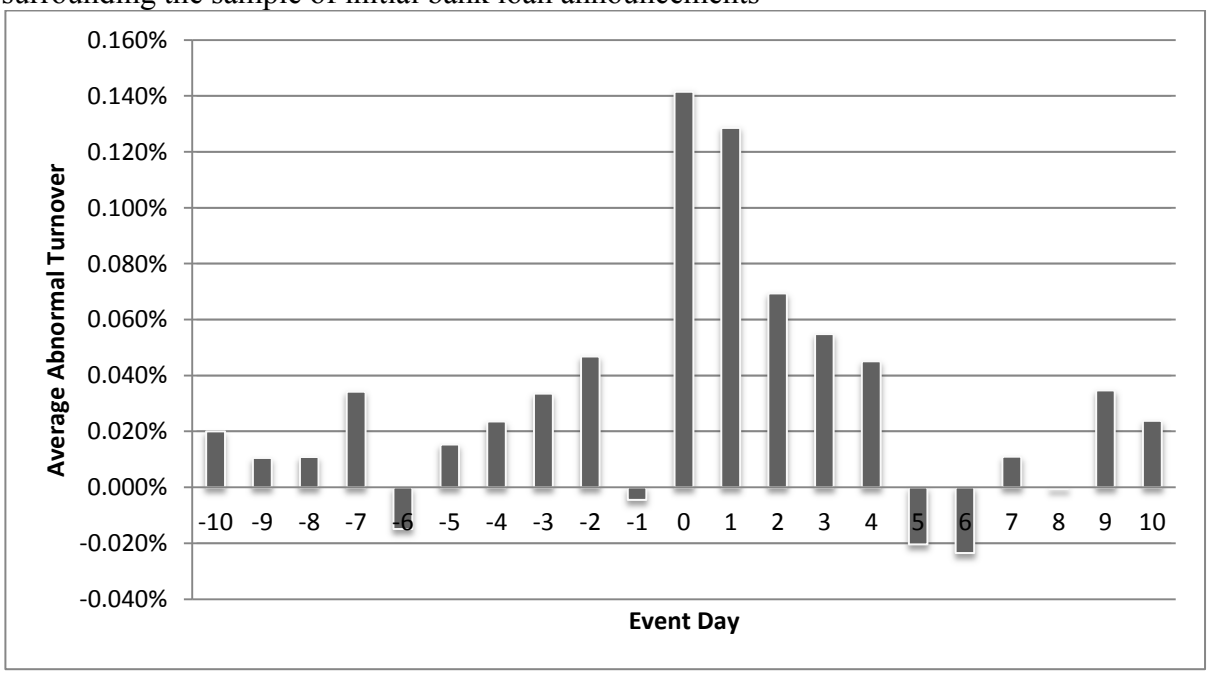
Figure 6.4 Panel A shows the cumulative average abnormal return over the –5 to +5 day event window, using the full sample of bank loan announcements. Panel B shows the cumulative average abnormal return over the –5 to +5 day event window, using the sample of initial bank loan announcements. Panel C shows the cumulative average abnormal return over the –5 to +5 day event window, using the sample of subsequent bank loan announcements. CAR is calculated as per equation 2.Event day 0 represents the date of the bank loan announcement.

Figure 6.5 Average abnormal turnover (AATO) over the –10 to +10 day event window

Panel A: Average abnormal turnover over the –10 to +10 day event window surrounding the total sample of bank loan announcements



Panel B: Average abnormal turnover over the –10 to +10 day event window surrounding the sample of initial bank loan announcements



Panel C: Average abnormal turnover over the –10 to +10 day event window surrounding the sample of subsequent bank loan announcements

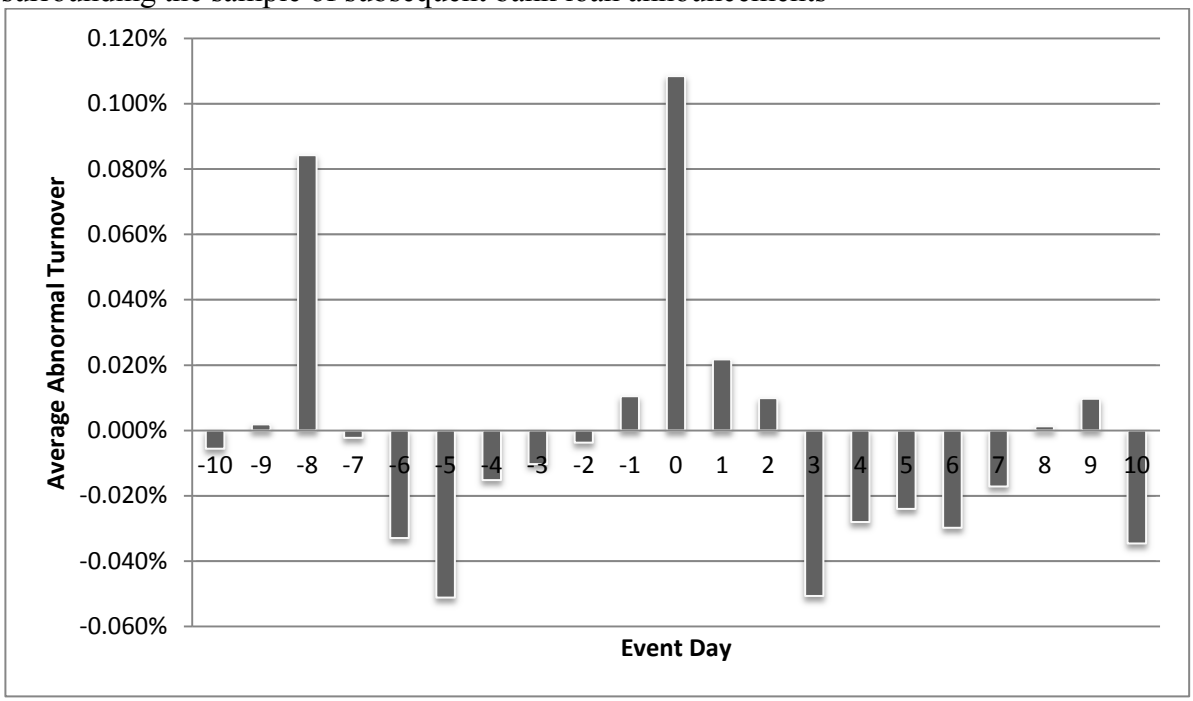
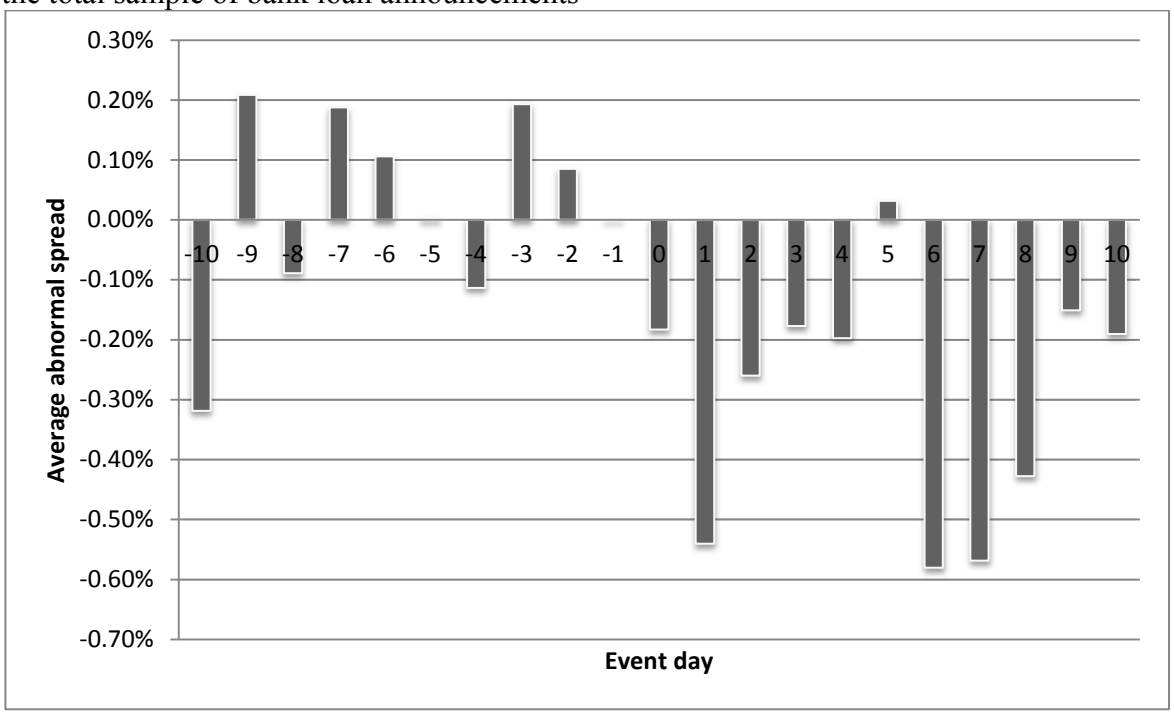


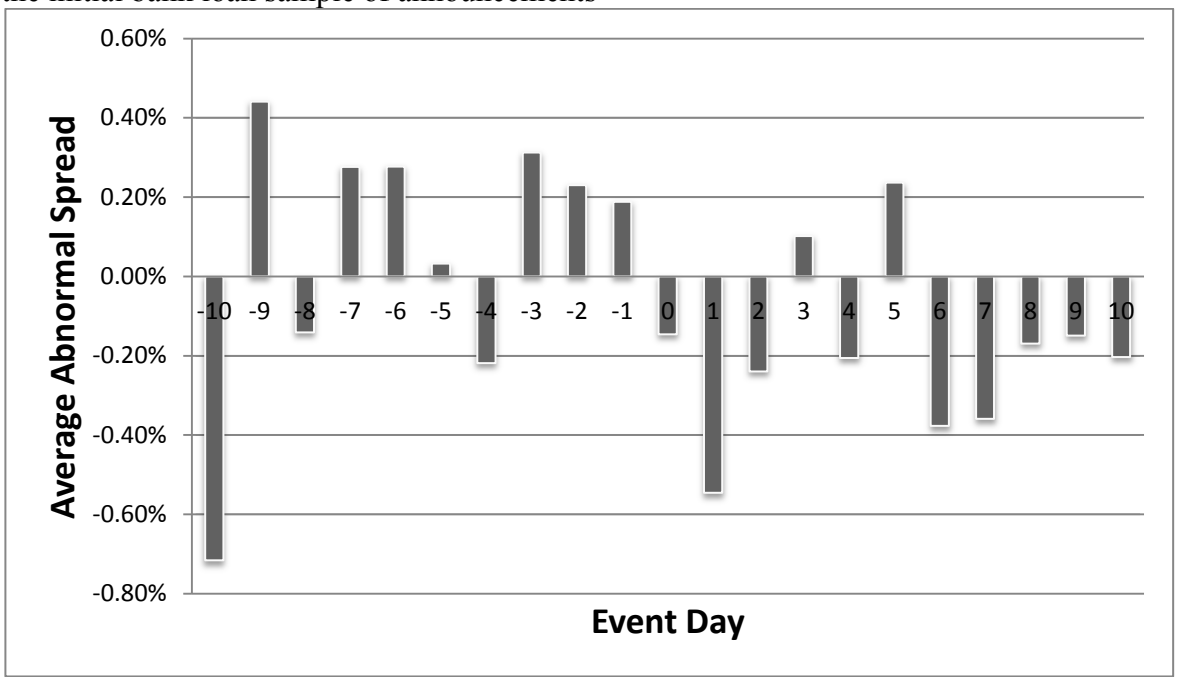
Figure 6.5 Panel A shows the average abnormal turnover for each event day in the –10 to +10 day event window, using the full sample of bank loan announcements. Panel B shows the average abnormal turnover for each event day in the –10 to +10 day event window, surrounding the sample of initial bank loan announcements. Panel C shows the average abnormal turnover for each event day in the –10 to +10 day event window, surrounding the sample of subsequent bank loan announcements. Abnormal turnover is calculated as per equation 11. Event day 0 represents the date of the bank loan announcement

Figure 6.6 Average abnormal spread over the –10 to +10 day event window

Panel A: Average abnormal spread over the –10 to +10 day event window surrounding the total sample of bank loan announcements



Panel B: Average abnormal spread over the –10 to +10 day event window surrounding the initial bank loan sample of announcements



Panel C: Average abnormal spread over the –10 to +10 day event window surrounding the sample of subsequent bank loan announcements

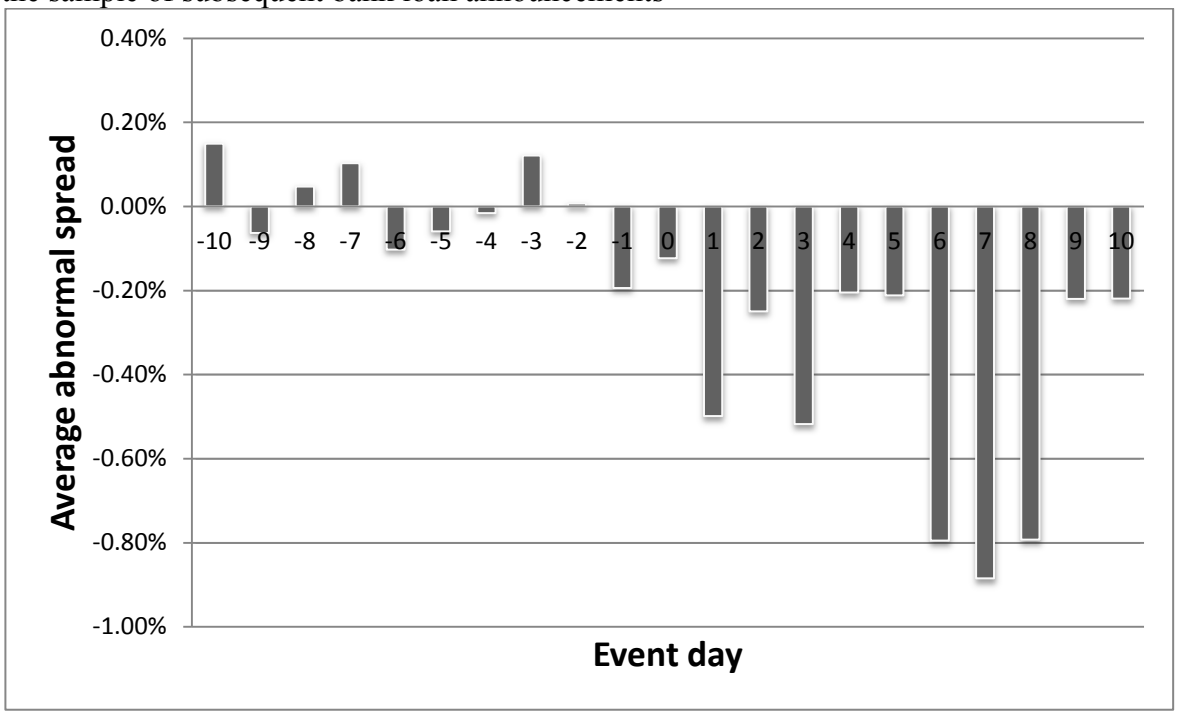


Figure 6.6 Panel A presents the average abnormal spread surrounding the total sample of bank loan announcements. Panel B presents the average abnormal spread surrounding the sample of initial bank loan announcements. Panel C presents average abnormal spread surrounding the sample of subsequent bank loan announcements. Abnormal spread is calculated as in Equation (7). Event day '0' represents the date of the bank loan announcement.

Figure 6.7 Cumulative average abnormal return over the –5 to +5 day event window; comparing Macquarie Bank and non-industry specialist lenders

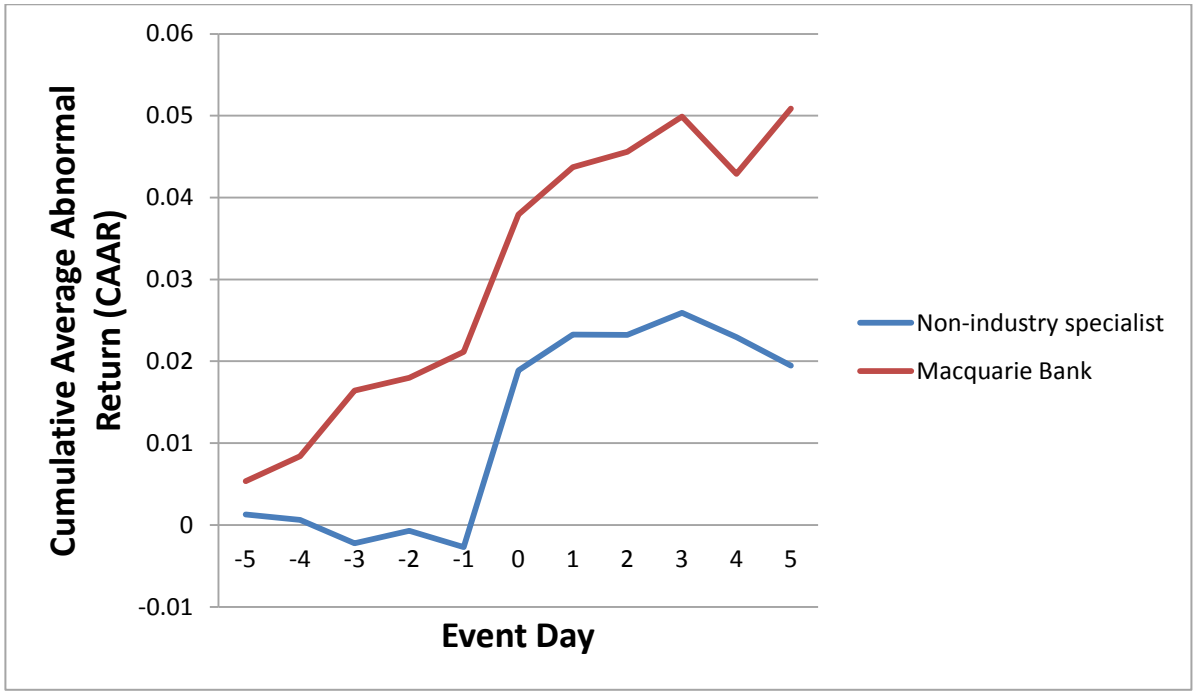


Figure 6.7 presents the cumulative average abnormal return as calculated in Equation (2) for a sample of loans issued by Macquarie Bank, and a sample of loans issued by non-industry specialist lenders.

Chapter 7. Summary and conclusions

7.1 Summary

This thesis empirically examines the market reaction to bank loan announcements. Using a hand-collected sample of bank loan announcements, I provide evidence that bank loan announcements can signal important price sensitive inside information about the borrowing firm. Zero-leverage firms initiating a banking relationship experience a significant and positive abnormal return of 2.480% on the day a loan announcement is released, and experience a positive cumulative average abnormal return of 2.732% during the –5 to +5 day event window surrounding loan announcements. These findings provide support for Hypothesis 1, which predicts initial loans to be associated with a positive share price reaction.

Further tests analyse the market reaction to a sample of subsequent loans issued by firms with existing debt. Subsequent loans experience a positive and significant average abnormal return of 1.551% on the day a loan announcement is released. Returns of 2.268% are observed in the –5 to +5 day event window surrounding the loan. Both initial loans and subsequent loans are associated with a positive abnormal reaction. Tests of significance between the initial loan sample and subsequent loan sample provide univariate support for Hypothesis 2, which predicts that initial loans will experience abnormal returns of a higher magnitude than subsequent loan announcements. Multivariate analysis shows that firm and loan characteristics are significant in explaining the abnormal returns surrounding bank loan announcements. The first announcement in a sequence of loan announcements, the amount borrowed, the bank having an equity position in the borrowing firm, and the number of analysts covering the firm, are all important predictors of announcement returns. However, the variable of interest *Initial* is not a significant predictor of abnormal returns. Thus, in a

multivariate setting, there is no support for Hypothesis 2. It is concluded that both initial and subsequent loans can signal important information regarding the borrowing firm.

Following the results that both initial and subsequent loan announcements are positively associated with significant market returns, tests are conducted using samples of firms with initial and subsequent loans to determine if loan announcements are also associated with a reduction in firm information asymmetry. Results show that bank loan announcements are associated with an increase in abnormal trading turnover and a decrease in abnormal bid-ask spread. An increase in turnover and a decrease in spread are consistent with a reduction in the borrowing firm's information asymmetry. It is concluded that banks successfully signal their private information regarding the borrowing firm to other capital market participants, resulting in an improved information environment. These results provide support for Hypothesis 3.

Finally, I investigate whether loans issued by the leading industry specialist signal more credible information to equity investors. Descriptive statistics show Macquarie Bank to be a clear leader in lending to MDSEs. Macquarie Bank is observed in more than double the number of loan announcements relative to their nearest competitor. Univariate results show that firms obtaining a loan from Macquarie Bank experience a significantly larger cumulative average abnormal return in the –5 to +5 day event window relative to loans issued by non-leaders. Multivariate results provide evidence that Macquarie Bank loans are associated with larger abnormal returns, even after controlling for other firm and loan characteristics. Thus, it is concluded that industry specialists are able to signal more private information regarding the borrowing firm's private information and creditworthiness to equity investors.

7.2 Contributions and implications

This thesis contributes to the bank loan announcement literature by providing evidence that banks provide signals of the borrowing firm's creditworthiness to outside investors, even when they have no prior lending relationship. This result builds on prior literature which finds banks only provide credible signals of their private information during loan renewals, and possess no information advantage at loan initiation (Lummer & McConnell 1989). Using a sample of zero-leverage firms for which loan initiation is observable, prior results are re-examined. Results suggest that banks are able to produce significant signals regarding the borrowing firm's private information at loan initiation. I conclude that both initial loans and subsequent loan announcements can provide important signals regarding the borrowing firm. Banks are important information intermediaries and produce superior private information regarding borrowing firms, both during screening of initial loans and during subsequent lending decisions.

Prior research shows that firms with bank debt in their capital structure have an improved information environment (James & Wier 1990; Datta *et al.* 1999). However, prior research has not investigated changes in a borrowing firm's information asymmetry surrounding bank loan announcements. This thesis contributes to an understanding of the role of banks in providing information, by showing that, subsequent to bank loan announcements, borrowing firms experience capital market reactions that are consistent with a decrease in information asymmetry. Banks act as important information intermediaries, and provide credible signals regarding the borrowing firm's reputation and creditworthiness. These signals are of increasing importance when other information intermediaries are not present. Results are consistent with Fama (1985), that firms can benefit from maintaining bank loans due to

the positive reputation and information signals provided – even when funds are not utilised.

Finally, this thesis provides evidence that banks who invest in industry specialisation signal more credible information regarding the borrowing firm's private information relative to non-industry specialist lenders. Prior research has suggested that bank lender characteristics are associated with bank loan announcement returns, with bank size used as a measure of lender quality (Ross 2010; Bushman & Wittenberg-Moerman 2012). I provide evidence suggesting lender industry specialisation is also of importance. This result is consistent with research suggesting that banks that specialise within an industry improve their information production and monitoring ability, and have lower risk and lower adverse selection costs (Almazan 2002; Acharya *et al.* 2006). Thus, loans issued by an industry specialist lender can provide a larger signal regarding the borrowing firms' quality. The implications of these findings is consistent with Ross (1977); in that managers seek to signal to investors that their firm is of high quality. High-quality firms would benefit more from the signal of creditworthiness provided by obtaining a loan from high-quality lenders with superior screening and monitoring capabilities.

7.3 Potential limitations

Despite the numerous advantages of conducting a bank loan announcement study in the Australian institutional setting, certain limitations are present. Due to the sample being limited to mining development stage enterprises, findings from this study may lack generalizability to a wider range of listed firms. ASX-listed firms are required to disclose announcements to the stock market consistent with the continuous disclosure regulation outlined in Section 2.1. However, the delay between financing negotiations,

and loan announcement could result in information leakage before the event study date. Information leakage during lengthy negotiations may bias against results, and lead to weaker conclusions regarding information signally by banks. As displayed in Table 6.6, the characteristics of announced loans are not disclosed in a uniform manner. Variables of importance, such as loan maturity and interest rate, are disclosed in fewer than half of the observed announcements. Maturity and interest rate variables are used as predictors of loan announcement returns in prior studies; they cannot be replicated in this study due to sample restrictions. Additionally, prior studies have examined loan renewals classified as either positive or negative renewals. Classification of positive or negative renewals is determined based on increases or decreases in loan maturity and interest rates. Due to the inability to observe interest rate and maturity in the majority of loans observed, the subsequent loan sample cannot be split into positive or negative renewals. In fact, no loans are observed in this sample with a clear decline in lending terms that could be classified as a negative renewal.

This study is limited in the measures of information asymmetry that can be used to show loan announcements are associated with a reduction in information asymmetry. Abnormal spread and abnormal turnover are used to proxy for changes in a firm's information asymmetry surrounding a loan announcement. Other variables used to proxy for changes in a firm's information asymmetry in the accounting and finance literature are inappropriate to use in this setting. Table 6.5 displays descriptive statistics for sample firms showing the majority of firms are loss-making firms with no analyst coverage. Therefore, other common measures of information asymmetry, such as accuracy of analyst forecasts, revisions of analyst forecasts, and volatility of firm earnings, are inappropriate for use in this setting. Furthermore, these other measures of

information asymmetry are unable to show changes in a firm's information asymmetry over a short-term window.

Results support Hypothesis 4, with loans issued by the industry leader Macquarie Bank being associated with larger cumulative average abnormal returns relative to loans issued by other banks. The industry leadership results presented in this thesis refer to only the resource extraction industry and the external validity of the results may be limited. As outlined in Section 2.2, the mining industry observed in this study has high levels of information asymmetry. Industry specialisation is predicted to occur in settings with high information asymmetry (Bonaccorsi di Patti & Dell'Ariccia 2004), as banks overinvest in information acquisition, to enhance lending efficiency, leading to excess information production (Hauswald & Marquez 2006). In settings with low levels of information asymmetry the benefits of specialisation obtained by banks are reduced, and a differential return between leaders and non-leaders may not be present. In settings with low information asymmetry, competing banks will have equivalent monitoring and screening capabilities and loans issued by industry leader banks may not provide more informative signals.

The value of tax shields provided by increasing debt levels associated with bank loan announcements is unable to be separated from the value provided by banks signalling private information regarding loan announcements. The literature on bank loan announcement event studies is quiet on the value of the future tax shields provided by debt. This is a limitation within this study, and a limitation within all other studies within the field.

7.4 Suggestions for further research

Zero-leverage firms are interesting economic phenomena, with capital structure prediction models unable to predict their existence. Recent research suggests that zero-leverage firms could obtain significant valuation benefits from moving towards an optimal capital structure. Korteweg (2010) finds that the median firm is valued 5.5% more at its value-maximising leverage level compared to a firm with no leverage. Similarly, Strebulaev and Yang (2013) estimate that if dividend paying zero-leverage firms were to adopt an optimal leverage ratio, they would increase their market value of equity by approximately 7%. Further empirical research into zero-leverage firms increasing their leverage would be of interest to further test these predictions. A sample of zero-leverage firms announcing bank loans compared to a sample of zero-leverage firms announcing public debt issuances would provide an interesting setting in which to split out the taxation benefits and the signalling benefits of the different debt choices.

Further research into other institutional and industry settings would be valuable. Tests of whether bank leadership is associated with loan announcement returns could be tested across more industries. Other settings in which information asymmetry is high, and in which bank loans would likely provide important price signals, would be in high-tech industries such as pharmaceuticals and technology companies. Testing whether the importance of industry leadership is associated with proxies for industry information asymmetry would be an interesting extension of the research.

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Appendix A: Bank loan announcement examples

Appendix A.1 Base Resources appoints lead arranger

BASE RESOURCES LTD

ASX and Media Release
30 March 2011

WESTLB AG, LONDON BRANCH APPOINTED MANDATED LEAD ARRANGER FOR US$150 MILLION SENIOR DEBT FACILITY

Base Resources Limited (ASX:BSE) ("Base") is pleased to announce the appointment of WestLB AG, London Branch ("WestLB") as the mandated lead arranger for a US$150 million syndicated project finance facility.

This facility, combined with an equity capital raising to be undertaken once formal credit approval is received, will provide the funding required for the development of the Kwale Project.

WestLB has received in-principle confirmation of the proposed terms of syndicate participation from a number of other lenders, with combined indicative commitment levels exceeding the US$150 million required to complete the facility.

The key terms of the facility as agreed with WestLB are:

- A term of 6 years for a US$80 million tranche and 8 years on the remaining US$70 million.
- Interest to be at a margin of 4.5% above LIBOR pre-project completion and 4.0% post-project completion (plus a premium for political risk insurance).
- A 2.5% upfront fee payable in various stages with the first being 60 days following the receipt of credit approval.

Base will complete its enhanced definitive feasibility study for the Kwale project by the end of April 2011. SRK Consulting has been appointed as the Independent Engineer for the banking syndicate and it is expected that the SRK review will be completed by the end of May 2011.

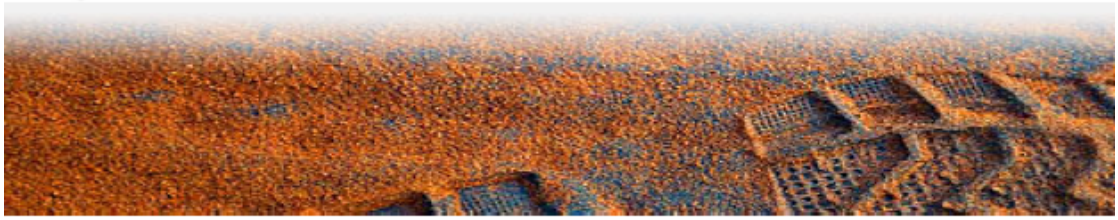
Formal credit approvals for the facility are expected to be received during June and documentation during July 2011. Closing and funding will be subject to conditions precedent typical of project finance facilities.

The majority of lenders from whom indicative commitments have been received, SRK and the legal teams have substantial prior experience with the Kwale Project, having previously been involved in the establishment of a similar facility in 2006 for the prior owners, Tiomin Resources Inc., which was not ultimately drawn down. This pre-existing familiarity allows for a more rapid and efficient process than is usual, as well as giving a greater level of confidence in the implementation of the new facility through WestLB.

The planned completion of financing activities by the end of August 2011 will see the commencement of construction at Kwale in September 2011 and first production in the 3rd quarter of 2013.

Appendix A.2 Base Resources agreement

BASE RESOURCES LTD



ASX and Media Release
23 November 2011

PROJECT FINANCING UPDATE

AGREEMENTS SIGNED FOR US$170 MILLION DEBT FACILITIES

Base Resources Limited (ASX:BSE) ("Base") is pleased to advise that the project finance facility agreements for the previously announced US$170 million debt facilities (**Project Finance Facility**) for the development of the Kwale Project have now been executed.

Together with funds from the recently completed equity capital raisings, the Project Finance Facility, which is comprised of a US$150 million senior debt facility and a US$20 million cost overrun facility, provides all of the required funding for the progression of the Kwale Project through development and to positive cashflow.

The providers of the Project Finance Facility, for which WestLB AG has acted as the Co-ordinating Mandated Lead Arranger and Bookrunner, are:

- WestLB AG, Caterpillar Structured Finance, DEG Deutsche Investitions und Entwicklungsgesellschaft mbH, The Standard Bank of South Africa Limited and Nedbank Capital (all as Mandated Lead Arrangers); and
- FMO – Nederlandse Financierings-Maatschappij Voor Ontwikkelingslanden N.V and PROPARCO - Socéité De Promotion Et De Participation Pour La Coopération Economique S.A..

There have been no changes to the key terms of the facilities as previously advised to the market. General terms and conditions of the facilities are consistent with those typical of project finance facilities of this nature. All conditions precedent to utilisation are considered readily achievable, the principal being:

- The execution of security documentation, the form of which has been agreed, including Government of Kenya consent to the security interests;
- The execution of offtake agreements covering 70% of projected revenue, significant progress towards which has been made with announcements expected in the near future; and
- Gazetting of the taxation concessions that the Government of Kenya has committed to through the Investment Agreement.

Under the terms of the Project Finance Facility, Base is able to commence utilisation within six months of requiring the funds. This is expected to be during the 2nd quarter of 2012. The ability to drawdown early and concurrent with equity funds being available significantly reduces risks associated with funding continuity.

Appendix A.3 Base Resources Credit Approval

BASE RESOURCES LTD

ASX and Media Release
27 July 2011

PROJECT FINANCING UPDATE

CREDIT APPROVALS RECEIVED FOR US$170 MILLION SYNDICATED PROJECT DEBT FINANCE FACILITIES

Base Resources Limited (ASX:BSE) is pleased to advise that it has received confirmations of formal credit approval from a syndicate of banks sufficient to complete the US$170 million syndicated project finance facilities (**Debt Finance Facility**).

The Debt Finance Facility forms part of the overall funding package for development of the Kwale Project, which includes the Debt Finance Facility together with a proposed equity capital raising. Further details of the Debt Finance Facility are set out below, and further details of the proposed equity capital raising will be released in due course.

The Debt Finance Facility comprises a US$150 million of senior debt facility (**Senior Debt Facility**) (US$5 million of which is currently subject to final board approval from one bank's board, expected to be received in August 2011) and a US$20 million cost overrun facility (**Cost Overrun Facility**).

The Senior Debt Facility has the following key terms:

- A US$80 million 6 year term loan (**Tranche A**) and a US$70 million 8 year term loan (**Tranche B**).
- Interest at a margin of approximately 6.0% per annum above LIBOR pre-project completion and 5.5% per annum post-project completion (inclusive of a premium for political risk insurance).
- A 2.5% upfront fee payable in various stages with the first being 60 days following the receipt of credit approvals.
- Commitment fees of 1.5% per annum payable on undrawn amounts from the signing date of the loan documents.

The Cost Overrun Facility has the following key terms:

- To be repaid (if drawn) pro-rata with Tranche A.
- To carry an additional 0.5% per annum margin over the Senior Debt Facility on drawn amounts.
- The same upfront fee as the Senior Debt Facility (being a 2.5% upfront fee payable in various stages, the first being 60 days following the receipt of credit approvals).
- Commitment fees of 2.0% per annum payable on undrawn amounts from the signing date of the loan documents.

The finalisation of the Debt Finance Facility is subject to the agreement and execution of final documentation, which is expected to be concluded during September 2011.

This announcement is **not** intended to lift the trading halt on the company's securities.

Appendix A.4 Base Resources Drawdown

BASE RESOURCES LTD

ASX and Media Release
21 November 2012

BASE MAKES FIRST DRAWDOWN ON DEBT FACILITY

Base Resources Limited (ASX:BSE) ("Base") is pleased to advise that financial close has been achieved on the US$170 million project debt facilities (**Project Finance Facility**) and that the first drawdown of US$52 million has been completed.

This is a critical milestone in the development of the Kwale Project as Base now has access to the full funding required to complete the development of the Kwale Project and bring it to positive cashflow. Achieving financial close on the debt facility is the product of a strong collaborative effort between Base and a very supportive group of Lenders with co-operation from the Government of Kenya. Endeavour Financial, a London based debt advisory firm, have played a crucial role in coordinating the process to achieving first drawdown.

Under the terms of the debt facility, subsequent drawdowns will be made on a quarterly basis with the next scheduled for February 2013.

Project construction continues to be on schedule for practical completion in Q3 2013 and first shipment in Q4 2013.

Update on Minimum Local Equity Participation Regulations

As previously advised, we have clear legal advice from two leading Kenyan law firms that the regulation recently introduced by the Minister of Environment and Mineral Resources that seeks to mandate a 35% minimum Kenyan equity participation in mining licenses cannot be legally applied to the Special Mining Lease No. 23 covering the Kwale Project. This advice has been corroborated by the Lender's legal advisers.

Appendix A.5 Antares Energy Limited loan announcement

ANTARES ENERGY LIMITED

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ASX/NEWS RELEASE **31 October 2011**

200,000,000 USD TERM DEBT FACILITY, EXECUTED COMMITTED LETTER OF OFFER TO SUPPORT THE DEVELOPMENT OF OIL AND GAS PROPERTIES LOCATED IN THE PERMIAN BASIN, WEST TEXAS

The Board of Directors advise that they have executed a Committed Letter of Offer for a 200,0000,000 USD Term Debt Facility to support the development of Oil and Gas properties located in the Permian Basin, West Texas.

Antares announced its Permian Basin focus at the beginning of the Second Quarter after having successfully sold the Eagle Ford Shale projects, Yellow Rose and Bluebonnet, for 200,000,000 USD resulting in a Net Profit after income tax of 75,379,000 AUD. Since commencing the Permian Basin focus Antares has undertaken 15 wells during the last two Quarters creating a new record level of drilling activity for the company.

Antares will now undertake a not less than 30 well drilling program which will be completed by the 31st December 2012. By the conclusion of 2012, Antares will have drawn down 50,000,000 USD to facilitate this fully funded drilling program, which will consist of 24 wells in Southern Star and 6 wells in Big Star and Northern Star combined. The conclusion of the Southern Star drilling program will result in the entire Southern Star project being held by production.

The Macquarie Bank Limited, 36 month facility attracts an interest rate of LIBOR + 4.00% per annum, payable on a quarterly basis in arrears. Antares intends to draw upon the facility in multiples of 10,000,000 USD as the not less than 30 well drilling program progresses.

The Board of Directors would like to thank Macquarie for their professionalism, time efficiency and vision in providing this Term Debt Facility which will be utilized to enhance; reserves, production, revenue and earnings per share. The Board looks forward to a long and mutually rewarding relationship.

The Southern Star 24 well continuously committed single rig drilling program is structured as below, based on a 1,935,000 USD completed cost per well.

Appendix A.5 displays a bank loan announcement released by Antares Energy Limited. A relatively high level of disclosure is provided, with the lending bank, loan amount, loan maturity, interest rate, payment schedule and drawdown schedule all disclosed.

Appendix A.6 CGA Mining loan announcement

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Email: info@cgamining.com
www.cgamining.com

ABN: 88 009 153 128

ANNOUNCEMENT TO THE AUSTRALIAN SECURITIES EXCHANGE AND TORONTO STOCK EXCHANGE

EXECUTION OF US$80.3m PROJECT FINANCE FACILITY
26 MAY 2008

CGA Mining Limited (ASX Code : CGX, TSX Code : CGA) ("CGA") is pleased to announce that the US$80.3m project finance facility documentation has been signed with BNP Paribas and Standard Chartered Bank. The funds available under the BNP Paribas arranged facility will be applied to the continued development of the Masbate Gold Project in the Philippines including a 32mw power plant, which is currently ahead of schedule. Drawdown under the facility documentation is subject to conditions precedent typical for a facility of this nature including necessary regulatory approvals; our equity contribution, receipt of credit approval from one further bank and execution of formal documentation for the power plant. These matters are presently on track to be satisfied within approximately 4 weeks.

Appendix A.6 displays a bank loan announcement released by CGA Mining Limited. A relatively low level of disclosure is provided, with the loan maturity, interest rate, payment schedule and drawdown schedule all withheld.

Appendix A.7 Seed loan example

Allegiance Mining N.L.
ACN 059 676 783
ABN 38 059 676 783

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49 - 51 York Street
Sydney, NSW, 2000
AUSTRALIA
Tel: 61-2-9299 1771
Fax: 61-2-9299 1817
email: mining@allegiance-mining.com.au
web: www.allegiance-mining.com.au

STOCK EXCHANGE ANNOUNCEMENT
Friday, 7 November 2003

FUNDING FROM SG AUSTRALIA LIMITED

Allegiance Mining NL is pleased to announce that SG Australia Limited ("SG", a member of the Societe Generale Group) has agreed to provide Allegiance with funding of A$3 million, for a 3 year term, for the completion of the Feasibility Study and related costs for the Company's Avebury nickel project. The agreement is subject to finalisation of legal documentation. The funding is in the form of a secured loan facility at a margin of 3.5% per annum over the Australian Bank Bill Rate, with Allegiance having the right to capitalise interest. In consideration of providing the loan facility, SG will be issued 13.5 million, 3 year options exercisable at 22.35 cents. The loan facility will be directed to the construction of the Avebury decline and Feasibility Study, and to assist the Company in making the transition from an explorer to nickel producer. SG has indicated it intends to work closely with the Company through the development phase on Avebury.

Following the successful shareholder placement plan which raised A$2.3 million, Allegiance now has well in excess of A$5 million on hand to commence the exploration decline and enhanced exploration program.

Appendix A.7 displays an example of a seed loan; in which Societe Generale provide Allegiance Mining $3 million to complete a feasibility study.

Appendix A.8 Project Finance subsequent to a seed loan

ASX ANNOUNCEMENT

13 December, 2007

Your directors are pleased to announce that, after satisfaction of all Conditions Precedent, Allegiance has now drawndown, on schedule, the first $US20m of the $AU73m facility provided by Societè Generale and the Australian & New Zealand Banking Group.

The Allegiance Team would like to convey their appreciation and thanks to our Banks in their support of the Avebury Project and the Construction of the Processing Facility.

We particularly appreciate the support of Societè Generale who provided a $AU3m loan to complete a feasibility study for the Mine and Plant way back in 2003.

Construction and Mining operations continue apace, and will continue over the Christmas/New Year break, albeit at a somewhat reduced level. The construction is expected to reach completion in the first quarter of 2008.

The Board wishes to convey their appreciation to all our onsite management team, consultants and contractors for their great work in overcoming the many hurdles inherent in any construction at this most extraordinary period.

Appendix A.8 displays an example of project finance loan announcement issued subsequent to a seed loan to fund a feasibility study.

Appendix B: Sensitivity tests

Table B.1 Cumulative average abnormal returns (CAAR) surrounding bank loan announcements – Datastream Mining index

Panel A: CAAR surrounding the total sample of bank loan announcements

Event Day	CAAR	*t*-statistic
–5 to 5	1.716%	2.652***
–3 to 3	1.849%	3.511***
–1 to 1	1.557%	4.151***
0 to 1	1.692%	4.531***
–5 to –2	0.352%	1.044
2 to 5	-0.193%	-0.530

Panel B: CAAR surrounding initial bank loan announcements

Event Day	CAAR	*t*-statistic
–5 to 5	1.119%%	1.219
–3 to 3	1.950%	2.548***
–1 to 1	1.702%	3.149***
0 to 1	1.893%	3.455***
–5 to –2	0.382%	0.745
2 to 5	-0.964%	-1.887*

Panel C: CAAR surrounding subsequent loan announcements

Event Day	CAAR	*t*-statistic
–5 to 5	2.315%	2.652***
–3 to 3	1.669%	2.424**
–1 to 1	1.340%	2.697***
0 to 1	1.407%	2.929***
–5 to –2	0.306%	0.751
2 to 5	0.669%	1.352

Table B.1 Panel A presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements. Panel B presents the CAAR surrounding the initial bank loan sample of announcements. Panel C presents the CAAR surrounding the subsequent bank loan sample of announcements. CAAR is calculated as outlined in Equation (2), where AR is calculated as outlined in Equation (14) using the Datastream Mining Index to measure market returns. Student *t*-statistics are presented to show if the CAAR is significantly different from zero. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table B.2 Cumulative Average Abnormal Returns by year of announcement

Year	CAAR 0 to 1	df	*t*-statistic	p-value	Wilcoxon
1998	-3.79%	2	-0.483	0.677	0.593
1999	3.44%	9	1.882*	0.093	0.074
2000	5.64%	3	1.447	0.244	0.144
2001	4.14%	10	2.483**	0.032	0.006
2002	2.30%	12	1.12	0.284	0.087
2003	2.02%	21	1.737*	0.097	0.108
2004	0.98%	11	0.503	0.625	0.347
2005	3.61%	23	2.581**	0.017	0.043
2006	2.87%	41	2.971***	0.005	0.01
2007	1.31%	32	1.255	0.219	0.078
2008	3.77%	33	1.546	0.132	0.005
2009	3.39%	30	1.643	0.111	0.299
2010	0.55%	31	0.417	0.68	0.217
2011	2.51%	53	2.944***	0.005	0.011
2012	2.61%	63	3.068***	0.003	0.004
1998-2002	2.95%	40	2.672**	0.011	0.002
2003-2007	2.30%	132	4.290***	0.000	0.000
2008-2012	2.57%	214	4.164***	0.000	0.000
GFC 2007-2009	2.82%	97	2.521**	0.013	0.002

Table B.2 presents the cumulative average abnormal returns (CAAR) over the 0 to +1 event window surrounding the total sample of bank loan announcements. Announcements are sorted by year of announcement. CAAR is calculated as outlined in Equation (2). Student *t*-statistics are presented to show if the CAAR is significantly different from zero. Wilcoxon signed rank test p-values are presented to show if median CAAR is significantly different from zero. df is the degrees of freedom used to calculate statistical significance. Event Day '0' represents the day of the bank loan announcement. Wilcoxon rank tests Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table B.3 Non-parametric tests of significance

Panel A: Daily AAR surrounding the total sample of bank loan announcements

Event Day	AAR	*t*-statistic	% Positive	Wilcoxon p-value
–5	0.229%	1.035	48%	0.804
–4	0.000%	–0.001	49%	0.979
–3	–0.088%	–0.444	45%	0.223
–2	0.116%	0.599	45%	0.420
–1	–0.108%	–0.550	45%	0.385
0	2.051%	**7.273*** **	64%	**0.000**
+1	0.469%	1.489	51%	0.154
+2	0.041%	0.174	42%	**0.063**
+3	0.306%	1.359	48%	0.388
+4	–0.349%	–1.641	45%	**0.016**
+5	–0.150%	–0.691	49%	0.707

Panel B: Cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements

Event Day	CAAR	*t*-statistic	% Positive	Wilcoxon p-value
–5 to 5	2.518%	**3.552*** **	56.06%	**0.001**
–3 to 3	2.787%	**4.657*** **	57.07%	**0.000**
–1 to 1	2.412%	**5.840*** **	61.61%	**0.000**
0 to 1	2.520%	**6.285*** **	65.40%	**0.000**
–5 to –2	0.257%	0.658	47.47%	0.396
2 to 5	–0.151%	–0.371	47.47%	0.918

Table B.3 Panel A presents the daily average abnormal returns (AAR) surrounding the total sample of bank loan announcements. AAR is calculated as outlined in Equation (1). Student *t*–statistics are presented to show if the AAR is significantly different from zero. % Positive is calculated as Count Positive divided by N, to represent the % of firms with a positive abnormal reaction on the event day. Wilcoxon p-value is the significance level of the Wilcoxon signed rank test. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10. Panel B presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements. CAAR is calculated as outlined in Equation (2). Student *t*-statistics are presented to show if the CAAR is significantly different from zero. % Positive is calculated as Count Positive divided by N, to represent the % of firms with a positive cumulative abnormal reaction on the event day. Wilcoxon p-value is the significance level of the Wilcoxon signed rank test. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table B.4 Cumulative average abnormal returns (CAAR) surrounding bank loan announcements - Arithmetic returns

Panel A: CAAR surrounding the total sample of bank loan announcements

Event Day	CAAR	*t*-statistic
–5 to 5	3.452%	4.520***
–3 to 3	4.520%	5.210***
–1 to 1	2.772%	6.193***
0 to 1	2.821%	6.466***
–5 to –2	0.594%	1.428
2 to 5	0.086%	0.199

Panel B: CAAR surrounding initial bank loan announcements

Event Day	CAAR	*t*-statistic
–5 to 5	4.055%	3.806***
–3 to 3	4.065%	4.353***
–1 to 1	3.301%	5.306***
0 to 1	3.448%	5.610***
–5 to –2	1.241%	2.057**
2 to 5	-0.487%	-0.842

Panel C: CAAR surrounding subsequent loan announcements

Event Day	CAAR	*t*-statistic
–5 to 5	2.652%	2.485**
–3 to 3	2.520%	2.921***
–1 to 1	2.072%	3.294***
0 to 1	1.990%	3.356***
–5 to –2	-0.264%	-0.505
2 to 5	0.844%	1.331

Table B.4 Panel A presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements. Panel B presents the CAAR surrounding the initial bank loan sample of announcements. Panel C presents the CAAR surrounding the subsequent bank loan sample of announcements. CAAR is calculated as outlined in Equation (2), where AR is calculated using arithmetic returns, as outlined in Equation (15). Student *t*-statistics are presented to show if the CAAR is significantly different from zero. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table B.5 Cumulative average abnormal returns (CAAR) surrounding bank loan announcements – Sequence of announcements

Panel A: CAAR surrounding the total sample of bank loan announcements classified as a first announcement (*FirstAnn*)

Event Day	CAAR	*t*-statistic
–5 to +5	3.405%	6.458***
0 to +1	3.402%	4.643***

Panel B: CAAR surrounding the total sample of bank loan announcements classified as a follow-up announcement

Event Day	CAAR	*t*-statistic
–5 to 5	0.021%	0.258
0 to 1	-0.016%	-0.095

Panel C: CAAR surrounding the total sample of bank loan announcements classified as an initial mention

Event Day	CAAR	*t*-statistic
–5 to 5	2.938%	0.564
0 to 1	4.571%	2.250**

Panel D: CAAR surrounding the total sample of bank loan announcements classified as a mandate

Event Day	CAAR	*t*-statistic
–5 to 5	5.654%	3.601***
0 to 1	4.171%	5.347***

Panel E: CAAR surrounding the total sample of bank loan announcements classified as an approval

Event Day	CAAR	*t*-statistic
–5 to 5	1.887%	2.190**
0 to 1	2.225%	4.181***

Panel F: CAAR surrounding the total sample of bank loan announcements classified as a drawdown

Event Day	CAAR	*t*-statistic
–5 to 5	1.113%	0.537
0 to 1	0.762%	1.169

Table B.5 Panel A presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements classified as a first announcement released by a firm concerning a particular loan. Panel B presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements classified as a follow-up announcement. A follow-up announcement is defined as being a loan announcement that is not a firm's first announcement relating to a particular loan. Panel C presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements classified as an initial mention. Panel D presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements classified as mandate announcements. Panel E presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements classified as an approval of a loan. Panel F presents the cumulative average abnormal returns (CAAR) surrounding the total sample of bank loan announcements classified as a draw-down announcement. Section 6.1provides definitions of the sequence terms. CAAR is calculated as outlined in Equation (2). Student *t*-statistics are presented to show if the CAAR is significantly different from zero. Event Day '0' represents the day of the bank loan announcement. Two-tailed tests of significance are reported as follows: *** less than 0.01, ** less than 0.05, and * less than 0.10.

Table B.6 Determinants of market reaction around bank loan announcements – controlling for cash

	Predicted	Panel A: 0 to +1		
		Coeff	*t*-statistic	p-value
(Constant)		0.001	0.011	0.991
Initial	+	0.005	0.574	0.567
FirstAnn	+	0.028	3.201***	**0.001**
LnAmount	+	0.018	4.335***	**0.000**
Lenders	–	-0.001	-0.319	0.750
Hedge	?	-0.015	-1.578	0.115
BankEquity	+	0.016	1.612	0.108
EquityRaise	–	-0.007	-0.520	0.604
LnMCAP	–	0.001	0.342	0.733
Loss	+	0.001	0.143	0.886
NumAnalyst	–	-0.001	-0.355	0.723
Cash	–	-0.000	-0.171	0.864
F-stat		3.813		**0.000*** **
Adjusted R2		0.076		
N		374		

Table B.6 presents Ordinary Least Squares regressions on the determinants of the cumulative average abnormal return around the release of a bank loan announcement over the event windows 0 to +1. Regression variables are defined as previously outlined in Table 6.13. *Cash* is the amount of cash reported in the borrowing firm's previous annual balance sheet. p-values are provided based on two-tailed tests of significance.

Table B.7 Determinants of market reaction around bank loan announcements – controlling for DSE status

	Panel A: 0 to +1			Panel B: 0 to +1		
	Coeff	***t*-statistic**	**p-value**	**Coeff**	***t*-statistic**	**p-value**
(Constant)	0.024	1.417	0.157	-0.018	-0.716	0.475
Initial	0.005	0.545	0.586	0.009	0.7805	0.421
FirstAnn	0.028	3.129***	**0.002**	0.027	2.427**	**0.016**
LnAmount	0.011	3.430***	**0.001**	0.014	3.722***	**0.000**
Lenders	-0.002	-0.484	0.629	0.004	0.691	0.490
Hedge	-0.015	-1.574	0.116	-0.015	-1.227	0.221
BankEquity	0.016	1.637*	**0.103**	0.025	2.087**	**0.038**
EquityRaise	-0.004	-0.256	0.798	0.006	0.326	0.744
LnMCap	-0.001	-0.682	0.496	0.000	-0.329	0.743
Loss	0.012	1.076	0.283	0.009	0.508	0.612
NumAnalyst	-0.001	-0.434	0.664	0.001	0.202	0.840
DSE	-0.026	-2.363	0.019			
F-stat	3.0411		0.001***	2.836		0.002***
Adjusted R2	0.056			0.066		
N	376			261		

Table B.7 Panel A presents Ordinary Least Squares regressions on the determinants of the cumulative average abnormal return around the release of a bank loan announcement over the event windows 0 to +1. Regression variables are defined as previously outlined in Table 6.13.*DSE* is a binary variable equal to 1 if the firms most recent reported revenue is less than 5% of market capitalisation at time t-15. Panel B: presents results on a sub-sample of loan announcing firms classified as *DSEs* .p-values are provided based on two-tailed tests of significance.

Table B.8 Determinants of market reaction around bank loan announcements – controlling for seed financing

	Panel A: 0 to +1			Panel B: 0 to +1		
	Coeff	***t*-statistic**	**p-value**	**Coeff**	***t*-statistic**	**p-value**
(Constant)	0.013	0.786	0.432	0.013	0.780	0.436
Initial	0.002	0.204	0.838	0.007	0.735	0.463
FirstAnn	0.030	3.360***	**0.001**	0.031	3.517***	**0.000**
LnAmount	0.008	2.601***	**0.010**	0.009	2.774***	**0.006**
Lenders	-0.001	-0.266	0.791	-0.001	-0.294	0.769
Hedge	-0.016	-1.583	0.114	-0.016	-1.667*	**0.096**
BankEquity	0.017	1.652*	**0.099**	0.013	1.203	0.230
EquityRaise	-0.004	-0.278	0.781	-0.003	-0.236	0.814
LnMCap	-0.001	-0.755	0.451	-0.001	-1.023	0.307
Loss	0.002	0.148	0.882	0.000	0.029	0.977
NumAnalyst	-0.001	-0.453	0.651	0.000	-.320	0.750
Seed	-0.012	-0.693	0.489			
F-stat	2.547		**0.004*** **	3.153		0.001***
Adjusted R2	0.043			0.058		
N	374			339		

Table B.8 Panel A presents Ordinary Least Squares regressions on the determinants of the cumulative average abnormal return around the release of a bank loan announcement over the event windows 0 to +1. Regression variables are defined as previously outlined in Table 6.13. *Seed* is a binary variable equal to 1 if the announced loan is classified as a seed loan. Panel B presents results for a sub-sample of announcements excluding seed financing loan announcements.

Table B.9 Determinants of market reaction around bank loan announcements – controlling for project location

	Predicted	Panel A: 0 to +1		
		Coeff	*t*-statistic	p-value
(Constant)		0.012	0.753	0.452
Initial	+	0.000	0.032	0.974
FirstAnn	+	0.029	3.289	**0.001**
LnAmount	+	0.008	2.831	**0.005**
Lenders	–	-0.002	-0.406	0.685
Hedge	?	-0.014	-1.392	0.165
BankEquity	+	0.014	1.393	0.165
EquityRaise	–	-0.002	-0.118	0.906
LnMCAP	–	-0.001	-0.749	0.454
Loss	+	0.001	0.071	0.943
NumAnalyst	–	-0.001	-0.387	0.699
Foreign	+	0.005	0.581	0.562
F-stat		2.547		0.004***
Adjusted R2		0.043		
N		374		

Table B.9 Panel A presents Ordinary Least Squares regressions on the determinants of the cumulative average abnormal return around the release of a bank loan announcement over the event windows 0 to +1. Regression variables are defined as previously outlined in Table 6.13. *Foreign* is a binary variable equal to 1 if the firm's operations are based outside of Australia.

Table B.10 Determinants of market reaction around bank loan announcements testing for industry specialisation – Lender rank

	Panel A: 0 to +1			Panel B: –5 to +5			Panel C: –10 to +10		
	Coeff	***t*-statistic**	**p-value**	**Coeff**	***t*-statistic**	**p-value**	**Coeff**	***t*-statistic**	**p-value**
(Constant)	-0.010	-0.138	0.890	0.056	0.443	0.658	0.044	0.242	0.809
LenderRank	0.000	1.370	0.172	-0.001	-2.216**	**0.027**	-0.001	-3.254***	**0.001**
Initial	0.005	0.591	0.555	-0.012	-0.837	0.403	-0.011	-0.529	0.597
FirstAnn	0.027	3.111***	**0.002**	0.028	1.816**	**0.070**	0.050	2.294**	**0.022**
LnAmount	0.018	4.412***	**0.000**	0.017	2.336**	**0.020**	0.010	0.935	0.350
Lenders	-0.001	-0.169	0.866	0.009	1.191	0.234	-0.002	-0.152	0.879
Hedge	-0.013	-1.325	0.186	-0.012	-0.712	0.477	-0.035	-1.448	0.148
BankEquity	0.017	1.638	0.102	0.023	1.338	0.182	0.040	1.603	0.110
EquityRaise	-0.009	-0.599	0.550	0.064	2.597***	**0.010**	0.070	1.990*8	**0.047**
LnMCAP	0.002	0.433	0.665	-0.002	-0.347	0.729	-0.002	-0.238	0.812
Loss	0.001	0.150	0.881	0.021	1.317	0.189	0.028	1.222	0.222
NumAnalyst	-0.001	-0.401	0.688	-0.005	-2.009**	**0.045**	-0.009	-2.291**	**0.023**
F-stat	4.001		0.000***	3.385		0.000***	3.336		0.000***
Adjusted R2	0.081			0.066			0.064		
N	374			374			374		

Table B.10 presents Ordinary Least Squares regressions on the determinants of the cumulative average abnormal return around the release of a bank loan announcement. Panel A reports results over the event windows 0 to +1, Panel B reports results over the event window –5 to +5 and Panel C reports results over the event window –10 to +10. Regression variables are defined as: *LenderRank* is the banks ranking within the sample, when sorted by the number of loans issued. Other regression variables are defined as previously outlined in Table 6.13. p-values are provided based on two-tailed tests of significance.

Table B.11 Determinants of market reaction around bank loan announcements testing for industry specialisation – Highest and lower lending frequency

	Panel A: 0 to +1			Panel B: –5 to +5			Panel C: –10 to +10		
	Coeff	***t*-statistic**	**p-value**	**Coeff**	***t*-statistic**	**p-value**	**Coeff**	***t*-statistic**	**p-value**
(Constant)	0.009	0.121	0.904	0.014	0.107	0.915	0.002	0.011	0.991
HighRank	-0.012	-1.243	0.215	0.032	1.885*	**0.060**	0.035	1.434	0.152
LowRank	0.000	0.019	0.985	-0.011	-0.455	0.649	-0.053	-1.554	0.121
Initial	0.004	0.512	0.609	-0.010	-0.688	0.492	-0.007	-0.323	0.747
FirstAnn	0.028	3.194***	**0.002**	0.026	1.703*	**0.089**	0.047	2.157**	**0.032**
LnAmount	0.018	4.205***	**0.000**	0.019	2.543**	**0.011**	0.011	1.079	0.281
Lenders	-0.001	-0.125	0.900	0.008	1.114	0.266	-0.001	-0.110	0.913
Hedge	-0.012	-1.248	0.213	-0.015	-0.864	0.388	-0.038	-1.535	0.126
BankEquity	0.017	1.692*	**0.091**	0.022	1.258	0.209	0.041	1.625	0.105
EquityRaise	-0.008	-0.540	0.589	0.064	2.557**	**0.011**	0.074	2.066**	**0.040**
LnMCAP	0.001	0.289	0.773	-0.001	-0.188	0.851	-0.002	-0.176	0.861
Loss	0.002	0.235	0.814	0.019	1.161	0.246	0.024	1.031	0.303
NumAnalyst	-0.001	-0.426	0.670	-0.005	-1.961	**0.051**	-0.009	-2.235**	**0.026**
F-stat	3.682		0.000***	3.225		0.000***	2.933		0.000***
Adjusted R2	0.079			0.067			0.058		
N	374			374			374		

Table B.11 presents Ordinary Least Squares regressions on the determinants of the cumulative average abnormal return around the release of a bank loan announcement. Panel A reports results over the event windows 0 to +1, Panel B reports results over the event window –5 to +5 and Panel C reports results over the event window –10 to +10. Regression variables are defined as: *HighRank* is a dummy variable equal to one, if the bank is a top ten lender, when sorted on the number of loans issued within the sample. is the banks ranking within the sample, when sorted by the number of loans issued. *LowRank* is a dummy variable equal to one, if the bank has issued only one, or two loans in the sample. Other regression variables are defined as previously outlined in Table 6.13. p-values are provided based on two-tailed tests of significance.