THE INTERRELATIONSHIPS BETWEEN RATING AGENCIES, BANKS AND INVESTORS

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Abstract

Bank loan ratings are employed to investigate the interrelationship between the rating agencies and banks. Valuation effects of rating announcements on investors in the market are also examined. Similar functions are performed by rating agencies and banks, however, it is found that investors perceive information provided by rating agencies and banks differently. In the first essay, the results indicate that investors recognise the value of rating agencies in the presence of banks as information providers and monitors. The value of rating agencies relies on their recognition of deteriorating prospects in a firm's financial position, as the market reacts significantly to bank loan rating announcements of placement on *CreditWatch* with negative implications and downgrades. In the second essay, the results indicate that investors recognise the value of high quality banks in the presence of rating agencies as information providers and monitors. When the deteriorated firms are associated with high quality banks, the negative reaction toward announcements of negative placement and downgrade is mitigated. This indicates that investors are willing to trust high quality banks' speciality in information and monitoring, and reassess the value of deteriorated firms. In the third essay, the results show that the value of rating agencies; via announcements of negative placement and downgrade; also expands to non-rated firms smaller than the rated firms, in the same industry. Announcements of negative placement indicate firm-specific deterioration and, therefore, smaller rival firms benefit from the change in competitive balance. From the announcements of downgrade, however, smaller rival firms experience contagion effect.

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CHAPTER ONE

INTRODUCTION

This chapter provides a brief introduction to bank/syndicated loan ratings, followed by an overview of the three essays contained in this thesis. The objectives of this research and the contributions of each essay to the existing literature are addressed in this chapter.

1. INTRODUCTION TO BANK LOAN RATINGS AND DEFINITIONS[1]

Rating agencies, such as Standard and Poor's and Moody's, issue their ratings on the issuer, and/or to the specific issue, such as a bank loan to the marketplace. The borrower's fundamental creditworthiness, measured by financial risk and business strength, is captured in the corporate credit rating. Corporate credit ratings reflect a current evaluation regarding a firm's overall capacity to pay its financial obligations. They indicate the issuer's ability and willingness to meet its financial commitment. A bond, for example, is subject to a corporate credit rating.

In addition to the fundamental analysis of the firm, further analyses are conducted for a bank loan rating, topping up from the corporate credit rating. The additional analyses include the loan structure, capital structure (including discrete asset value analysis on an orderly liquidation scenario and enterprise value analysis on a reorganisation scenario), collateral security (the characteristics of the assets used as collateral and their value under different post-default scenarios), bankruptcy-related legal issues and covenants. Therefore, a bank loan rating not only measures the fundamental risk of default for timely interest payments and principals, it focuses more on the likelihood of ultimate recovery of a bank loan in the event of default. It is commonly expected that a bank loan rating be at the same level, or notched up from, the corporate credit rating. Nevertheless, rating agencies claim the expectation may not be precise and the notch-up may not be necessary until additional analysis is done.

[1] This section is mainly adapted from the *Corporate Ratings Criteria* (Standard and Poor's, 2002), and *Moody's Bank Loan Ratings: Pricing Implications and Approach* (Moody's, 1996).

The rating process of a bank loan rating is similar to the standard process of giving any type of rating by a rating agency. Rating agencies maintain that they provide a rating only when the information is available and complete enough to form a credible opinion. In addition to quantitative tools, such as accounting variables and financial ratios, rating agencies also take qualitative and legal analyses into consideration. Specifically, a team of analysts who are specialised in one industry will meet and discuss any necessary details with the managers. After review and discussion in a rating committee meeting, a rating is then assigned to the bank loan. In this thesis, the first announcements to the public about the decision of a bank loan rating are referred to as *assignment announcements of bank loan ratings*, or, in short, *assignment announcements.*

After the ratings have been assigned, rating agencies maintain that they monitor the ratings on an ongoing basis. When they recognise any potential that future performance will be different from the initial expectation, the ratings may be put on a *CreditWatch*[2]. This means an event or deviation is expected but additional information is necessary before taking further actions. When placed, a direction will be given. Such directions can include negative, positive and developing implications, indicating that the possible later action may be lowered, raised, or uncertain. In this thesis, the announcements of bank loan ratings placed on the *CreditWatch* with negative/positive/developing implication are called *placement announcements of bank loan ratings on CreditWatch with negative/positive/developing implication*, or in short, *announcements of negative/positive/developing placement.*

[2] *CreditWatch* is terminology used by Standard and Poor's. This term is hereafter used in this thesis to refer to the list compiled by any rating agencies of ratings under review for future actions. The term used by Moody's is *Watchlist.*

Rating action in this thesis indicates any rating changes by rating agencies toward a bank loan rating, which includes downgrades (rating lowered), upgrades (rating raised), and affirmations (rating unchanged)[3]. In this thesis, the announcements of a bank loan rating being downgraded/upgraded/affirmed by the rating agencies are referred to as *downgrade/upgrade/affirmation announcements of bank loan ratings*, or in short, *downgrade/upgrade/affirmation announcements*. Notably, rating actions can occur without placement on *CreditWatch.* In addition, a single event may have a different impact on corporate credit ratings and bank loan ratings (although in most cases, the direction of the impact is expected to be the same). The magnitude of the influence may also vary.

2. OVERVIEW OF THE THREE ESSAYS

Three independent, yet related essays are contained in this thesis. The sample data for these three essays is bank loan ratings[4]. It is an instrument which relates rating agencies and banks to each other, and therefore, provides a unique opportunity to investigate interrelationship between these two institutions. This section provides an overview of each of the three essays. The first essay "The Valuation Effect of Bank Loan Ratings in the Presence of Multiple Monitors" examines the value of rating agencies in the presence of lending banks as the first-occurring informational providers and monitors. The second essay "The Role of Bank Quality in Mitigating the Market Reactions to Adverse Rating Agency Announcements Concerning Bank Loans" examines the value of lending relationship in the presence of rating agencies as reputable informational providers and

[3] As rating affirmation, although it is unchanged, is still a result of re-evaluation, the term *rating action* is more appropriate than *rating change*.

[4] The announcements of bank loan ratings used in this thesis are obtained from multiple resources; therefore the issuers of the bank loan ratings are not identical. Nevertheless, the issuers are mainly Standard and Poor's and Moody's.

monitors. The third essay "The Intra-industry Effect of Bank Loan Rating Announcements" re-examine the value of rating agencies from the aspect of intra-industry effect to other non-rated firms. In particular, the contribution to the existing body of literature will be addressed.

2.1 Essay One: The Valuation Effects of Bank Loan Ratings in the Presence of Multiple Monitors

The value of rating agencies has been a continually debated topic. Previous studies have used bond ratings, preferred stock rating and commercial ratings to analyse the informational value of the rating agencies. The first essay uses data from bank loan ratings to add a contribution to this debate. Nevertheless, the objective of this essay is not only to test whether bank loan ratings provide additional information. Bank loan ratings are different from bond ratings or commercial paper ratings because they connect rating agencies and lending banks together. All the firms in the sample are certified and monitored by the lending banks (when and thereafter the bank loans are granted) and by the rating agencies (when and thereafter the bank loan ratings are assigned). These two institutions perform common services in many ways, including; accessing inside information which is not available to the general investors in the market, gathering information at lower cost, providing certification of the creditworthiness of their clients and monitoring clients during the on-going relationship. The question is whether the rating agencies provide additional value to the market in the presence of lending banks; given that bank loan rating is determined after the loan has been granted and monitored by the banks.

Empirical results in this essay show that the equity market has significantly negative abnormal returns to the placement announcements on *CreditWatch* with negative implications and downgrade announcements. These findings indicate that the information provided by rating agencies must be different from that developed by the lending banks, as otherwise there would be no significant abnormal market reaction to any type of announcements of bank loan ratings. This is due to the fact that the bank loans have already been certified and monitored by the lending banks. Furthermore, these findings indicate that the value of rating agencies depends mostly on recognising, and conveying to the equity market, the deterioration in firms' prospective financial position.

2.2 Essay Two: The Role of Bank Quality in Mitigating the Market Reaction to Adverse Rating Agency Announcements Concerning Bank Loans

The first essay provides evidence that rating agencies do not duplicate the certification, or monitoring roles carried out by lending banks. The second essay, on the other hand, answers the question of whether lending banks, in the presence of rating agencies, are valuable in providing inside information to the equity market. This essay also examines the different impact of lending banks with different quality. To my knowledge, this essay is the first which examines the influence of the lending banks on market reaction toward rating announcements. Therefore, it adds a contribution to the literature concerning the interrelationship between these two institutions, and gives insight into the advantages of banking relationships.

Banks are recognised as having access to private information because of the prior lending activities and ongoing relationship with their clients. Therefore, investors in the market

trust the speciality of banks in evaluating firm value. This speciality, due to access to private information from continuous relationships may be, however, no longer unique as rating agencies also develop their interaction with their clients over time. This essay examines whether investors still trust the banks' ability in evaluating firms; or, to be specific, whether the investors reassess firms' value on downside news. In particular, when downside news is released by rating agencies, the value of such announcements lies in conveying firms' deterioration via announcements of negative placements and downgrades. If investors still believe the monitoring function and loan portfolio management from good-quality lending banks, then the negative impact from the announcements of negative placements and downgrades should be mitigated.

The empirical results in this essay demonstrate that the negative market reactions from announcements of negative placements and downgrades of bank loan ratings are mitigated when the bank loans are granted and monitored by high quality lenders. These findings indicate that investors still trust the speciality of lending banks in having access to unique private information which is not available to the market and the rating agencies. When this private information is conveyed by trustworthy banks, investors are more willing to sustain their confidence and reassess the judgement of bad news. This essay also examines whether negative placement and downgrade announcements of bank loan ratings influence the share price of the lead lending banks. It is found that lead lending banks are not significantly affected by the borrowers' bad rating news.

2.3 Essay Three: The Intra-industry Effect of Bank Loan Rating Announcements

This essay re-investigates the value of rating agencies, by examining whether the announcements of bank loan ratings have intra-industry effects. Most of the studies of intra-industry effects employ events, or announcements released by the firms, which indicate firms' willingness to convey inside information to the market. The announcements used in this essay are, in contrast, released by outside parties; that is, by rating agencies. Therefore, this essay contributes to the literature of intra-industry effects and adds new evidence concerning the value of rating agencies. As rating agency analysts specialise in evaluating specific industries and banks have a tendency to specialise in lending to specific industries, it is hypothesised that the announcements of bank loan ratings may also contain information regarding the industry as a whole. This will, as a result, impact the share price of other firms in the same industry.

The empirical results in this essay show that announcements of bank loan ratings have intra-industry effects and, similar to the conclusion of the first essay, the informational value of rating agencies depends on their recognition of deteriorated prospects in financial position. Only announcements of placement on *CreditWatch* with negative implications, and downgrades will cause significant impacts on other firms in the same industry. Furthermore, this impact occurs only for rivals whose market value is smaller than the firms included in the announcements (the announcing firms). In addition, the directions of impact from these two types of announcements are different. Announcements of negative placement exhibit competitive effects, indicating that the deterioration of the announcing firms change the competitive balance in the industry, and benefit other rivals who are smaller than them. In contrast, downgrade announcements have contagion

effects, indicating the deterioration of announcing firms could be applied to the whole industry, so that investors spontaneously devalue other rivals in the same industry.

These three independent, yet related, essays are presented in Chapters Two to Four. Conclusions and areas for further research are discussed in Chapter Five.

3. PUBLICATIONS ARISING FROM THE THESIS

The essays contained in this thesis have been submitted to journals or conferences. To date the first essay was been presented at the 2004 Financial Management Association, 9th New Zealand Finance Colloquium, Otago University Seminar and Massey University Seminar. It also has been submitted to and is being revised by and resubmitted to the Journal of Economics and Finance. The second essay was presented at the 2005 Asian Financial Association Conference and has been accepted for presentation at the 2005 Academy of Financial Services Conference.

This thesis has been proofread, including a check of spelling, grammatical and syntax errors, and an improvement of the overall sentence structure and readability by Ms. Susan Moyle.

CHAPTER TWO

Essay One

The Valuation Effects of Bank Loan Ratings in the Presence of Multiple Monitors

Abstract

This essay examines the informational value of bank loan ratings, providing further evidence on whether rating agencies duplicate the certifying and monitoring roles played by banks. Studies have shown that when two information providers or outside auditors exist, the value provided by the second one will be decreased by the actions of the first one. This study finds a significant market reaction to downside bank loan rating announcements, however, which suggests that these rating actions convey information to the capital market beyond that provided via the bank loan approval and renewal process.

1. INTRODUCTION

The value of the ratings provided by credit rating agencies, such as Standard and Poor's or Moody's, is a topic of continuing debate. This essay uses bank loan ratings to examine two different, but interrelated, issues. First, investor reaction to bank loan rating announcements is specifically examined to determine whether the bank loan rating itself provides new information to the market. Second, the question of whether rating agencies merely provide duplicate information already made available through the bank certification provided by the granting, or renewal, of the loan is addressed. Significant market reactions are found to announcements of rating placement on *CreditWatch,* with negative implications and rating downgrade. This indicates that the value of rating agencies relies on their recognition of a firm's deteriorated performance. It also indicates that rating agencies convey information to the capital market beyond that provided via the bank loan approval and renewal process.

It has been argued that credit ratings contain no more than publicly available information (Wakeman, 1984), and that rating agencies exist only because of regulatory requirements (Partnoy, 1999 and 2002; White, 2001). Some early empirical studies supported the view that ratings do not provide any additional information (Weinstein, 1977; Wakeman, 1978; Pinches and Singleton, 1978). Other empirical studies found that the capital markets do react to rating news of a deteriorated position (Wansley and Clauretie, 1985; Holthausen and Leftwich, 1986; Glascock, Davidson and Henderson, 1987; Hand, Holthausen and Leftwich, 1992; Nayar and Rozeff, 1994; Elayan, Maris and Young, 1996). Most of the above studies used bond ratings or commercial paper ratings, which implied that the number of security holders is large. If the costs of collecting information or providing

monitoring services are high due to the large number of security holders; as suggested by Wakeman (1984) and Boot, Milbourn and Schmeits (2004); then rating agencies may provide value by reducing these costs.

Theoretical studies of financial intermediaries support the signalling power of banks as information providers; either through certification due to specialised information (Leland and Pyle, 1977; Campbell and Kracaw, 1980; Kanatas, 1987), or from monitoring due to an ongoing relationship (Ramakrishnan and Thakor, 1984; Diamond, 1984 and 1996; Fama, 1985). Empirical studies, in general, support the findings of theoretical studies. The finding is that of abnormal market reactions to the initiation, or renewal of bank loans (Mikkelson and Partch, 1986; James, 1987; Lummer and McConnell, 1989; Slovin, Johnson and Glascock, 1992).

Information about a firm's financial position is signalled to the capital market by banks through announcements of loan initiations and/or renewals. Furthermore, during the life of a bank loan, the borrower is also monitored by the bank. A question of interest is whether the subsequent bank loan rating provides duplicate information and is, therefore, unlikely to generate market reaction.

Banks and rating agencies have many common functions and operate in a similar manner. These common functions include: information collection through their access to private information due to their relationships with clients, certification of client creditworthiness to the capital market, and monitoring of their clients on an ongoing basis. Evidence presented by Ederington, Yawitz and Roberts (1987), Hsueh and Liu (1992) and Best and Zhang (1993) suggests that, when more than one information provider exists, the initial

indication will weaken the power of the second one. It is, therefore, possible that the value of rating agencies will be reduced because the signalling and monitoring roles are already provided by financial intermediaries. Nevertheless, some research (Nayar and Rozeff, 1994; Stover, 1996; Schweitzer, Szewczyk and Varma, 1992) found that rating agencies perform their certifying and monitoring roles in a different way to banks. In addition, Diamond (1984) and Seward (1990) suggested that the recent trend of securitisation; which is designed to make illiquid bank loans marketable; transfers the intermediated contracts into direct contracts. Monitoring by banks may, therefore, be dampened and transferred to the second auditors; that is, the rating agencies.

The principal hypothesis in this work postulates that the market will react significantly to announcements of bank loan ratings with negative implications. An abnormal reaction is found for bad news events only, which is consistent with most previous empirical studies. Specifically, these announcements are rating placements on *CreditWatch* with a negative implication, and rating downgrade actions. The greatest value of rating agencies seems to be the conveyance of information regarding deterioration in financial position, rather than identifying improvements. Further, rating agencies and banks do not provide duplicate information since bank loan rating announcements generate significant abnormal market returns.

2. REVIEW OF LITERATURE

The literature covered in this section reviews theoretical and empirical studies of the certifying and monitoring roles by banks and the functions of rating agencies. It can be found that banks and rating agencies perform a similar function. Therefore, the studies of relations between these two institutions are also included, as they support the development of hypotheses in this essay.

2.1 The Function of Financial Intermediaries

Two important roles of financial intermediaries are those of certification and monitoring. The certification role indicates that the lending activity of a bank is a signal of a firm's quality and creditworthiness. This theory suggests that banks have access to inside information not available to the market, giving them a competitive advantage in evaluating firm value. Campbell and Kracaw (1980) stated that, in a market with asymmetric information where direct signals by the owners of assets are difficult to convey, the purchase of those assets can produce information about their value, and serve as a signal to the capital market. Kanatas (1987) noted that corporations often procure a loan commitment just before selling dealer-placed commercial paper. He explained that obtaining a loan commitment can reduce borrowing costs, as it reveals to the commercial paper market the private information which the bank has concerning the issuing company's credit risk.

The other source of signalling power comes from a bank's monitoring role, and is based on its continuing relationship and interaction with its corporate clients. Ramakrishnan

and Thakor (1984) discussed the roles of information production and internal monitoring of financial intermediaries. Diamond (1984; 1996) developed the delegated monitoring model, which states that diversification within an intermediation minimises the cost of monitoring information and solves the incentive problem between borrowers and lenders. Fama (1985) contended that the ongoing history of a borrower as a depositor gives banks inside information and a comparative advantage in initiating and monitoring such loans at lower cost. This is especially so for repeated short-term loans (Fama, 1985). Furthermore, signals from short-term bank loans about firm creditworthiness avoid the duplication of information costs and lower costs from other sources. Rajan and Winton (1995) further suggested that both covenants and collateral can be used for structuring loan contracts in order to increase the banks' monitoring incentives. Finally, Diamond (1991) made a case that, because of information asymmetry and moral hazard, a new borrower will seek a loan from financial intermediaries first and that, after gaining a reputation through monitoring, it will switch to directly-placed debt.

Mikkelson and Partch (1986) and James (1987), found significant market reactions to new bank loan agreements. These results are consistent with the theories of financial intermediation and attest to the uniqueness of bank loans. Lummer and McConnell (1989), however, differentiated the announcements into new loans versus loan renewals and only found significantly positive reactions to renewals. Their finding regarding loan renewals is consistent with Fama's (1985) theory that information is transmitted through the continuing lending relationship with a company, and not in making the initial lending decision.

Slovin, Sushka and Hudson (1990) examined the market reaction to announcements of seasoned stock offerings in the presence of outside agents. They concluded that the use of extensive bank financing by the stock-issuing company reflects its willingness to be monitored by a reputable outsider. Slovin et al. (1992) examined the effect of bank loan announcements by companies of varying sizes. The results of their study support the hypothesis that banks have no comparative advantage in monitoring large, well-established firms. They concluded that small firms receive the greatest benefit from bank certification and monitoring, as had already been proposed by Diamond (1991). Johnson (1997a) and Krishnaswami, Spindt and Subramaniam (1999) also found evidence of benefits resulting from bank monitoring. In summary, it is clear that the issue and renewal of bank loans send signals to the capital market. Obtaining bank loans provides a certification signal to the market regarding firms' true creditworthiness. The renewal process provides monitoring benefits.

2.2 Information Effects of Credit Ratings

The function of rating agencies and the value of the information they provide has long been debated, with the conclusion remaining unclear. Rating agencies may provide an initial, low-cost assessment of the creditworthiness of the issuing company by analysing the company's statements and forming an independent judgment. They may also act to monitor the issuing company over the life of the bond. Wakeman (1984) argued that bond rating changes only provide information already reflected in the bond price, but that investors demand the ratings due to the role played by rating agencies as *reputable auditors*. Partnoy (1999; 2002) and White (2001) suggested that regulatory dependence on credit ratings is the explanation for the paradox of the credit rating industry; that is, the

continuing usage of rating agency services in the face of declining informational value. Boot and Milbourn (2002) stated that credit ratings serve to coordinate the agencies' monitoring role with the regulatory requirements, and that this function is significant even if the ratings contain little information.

While the theoretical studies have generally argued that ratings provide only that information already publicly available, most empirical studies tend to show that rating agencies provide additional information to the capital market in some way. In general, there are three kinds of rating agency actions; namely, rating assignments, placement on the *CreditWatch* and rating actions.[1] The following empirical review is presented in that order.

Nayar and Rozeff (1994) provided evidence that the equity market responds favourably to superior rating assignments, but that it does not respond to those with lower quality ratings. Barron, Clare and Thomas (1997) found no evidence that; for United Kingdom (UK) firms; assignment of a new long-term rating has a significant impact on stock return volatility, or systematic risk. Conversely, Elayan, Hsu and Meyer (2003) did find significant positive market reaction to credit rating assignments for New Zealand (NZ) firms. This is because NZ firms are neglected due to their smaller size, hence the certifying and informational value from rating agencies is stronger than for well-followed, large and/or US firms.

The *CreditWatch* was introduced to provide timely information indicating the possible direction of future company rating changes. Wansley and Clauretie (1985) found

[1] The word *action* is exchangeable with the word *change* in this essay. The former is preferable because rating action includes rating affirmation, which means the rating is confirmed, but with no change.

marginally significant reactions to those *CreditWatch* placement announcements with subsequent rating downgrades (upgrades), while they found there was no market reaction to those with a subsequent rating affirmation. Holthausen and Leftwich (1986) detected significantly negative abnormal performances for placements with a negative implication, and marginally significant positive abnormal returns for placements with a positive indication. Hand et al. (1992) found that placements with negative implications caused significantly negative abnormal equity returns, but found no significant response to placements with positive implications. Elayan et al. (1996) developed a similar result regarding commercial paper. Barron et al. (1997), however, examined *CreditWatch* placements with negative implications for UK firms and found insignificant market reactions. Elayan et al. (2003) found significant negative reactions to placements with negative implications for NZ firms. Unlike previous studies, they also found significant positive reactions to placements with positive implications.[2]

Rating actions should not cause any abnormal market reaction if rating agencies only have access to publicly available information. Weinstein (1977) examined monthly bond returns, and found no significant price reaction, either during the month of the change, or six months prior to and following the change. Similarly, insignificant price reactions were found by Wakeman (1978), using weekly bond returns and monthly stock returns, and also by Pinches and Singleton (1978), who used monthly stock returns.

In contrast, some empirical studies support the conclusion that rating agencies do provide information to the capital market. For example, Holthausen and Leftwich (1986) found that only announcements of rating downgrades are associated with significantly negative

[2] The sample for positive placements is, however, small and the abnormal returns mainly accrue to firms not cross-listed in the US market.

abnormal returns. Glascock et al. (1987) and Hand et al. (1992) found statistically significant, negative (insignificant, positive) stock returns for rating downgrades (upgrades). Matolcsy and Lianto (1995) used Australian data, and Barron et al. (1997) used UK data. Both studies confirmed that only bond rating downgrades provide additional information to the equity market. Elayan et al. (2003) found not only negative reactions to downgrades, but also significant positive reactions to upgrades for NZ firms. They concluded that this was because the informational value of rating agencies is stronger for small markets. Dichev and Piotroski (2001) investigated long run returns following bond rating changes, and found significant, negative (insignificant, positive) reactions to downgrades (upgrades). Nayar and Rozeff (1994), Elayan et al. (1996), and Chandra and Nayar (1998) all found results for commercial paper which are similar to previous studies concerning bond ratings. That is, they found statistically significant, negative stock price reactions to rating downgrades, but not to rating upgrades. These results suggest that rating downgrades convey valuable new information to the market, while upgrades do not.

In summary, theoretical studies about rating agencies place emphasis on their monitoring and regulatory roles, and empirical studies provide the result that rating agencies do convey additional information to the capital market in a certain way; mostly through the examination of deteriorated news.

2.3 The Interaction between Financial Intermediaries and Rating Agencies

From the above literature review it can be seen that banks and rating agencies perform common services and function similarly in many instances. A question which requires

further examination is whether these information sources provide redundant information to the capital market. Best and Zhang (1993) examined announcements of bank loan agreements and financial analysts' earnings forecast error percentages. They concluded that banks provide little information to the capital market, where the other sources of information are reliable and are provided in advance. Ederington et al. (1987) and Hsueh and Liu (1992) similarly concluded that the announcement effect of rating changes depends on the quantity and quality of existing information available in the market.

Nayar and Rozeff (1994) found that companies which have both higher credit ratings, and letters of credit have significantly greater market reaction than those with lower ratings, and no letters of credit. They concluded that the certification role of rating agencies is different from that of banks. Subsequently, Stover (1996) investigated the interaction between banks and rating agencies by examining standby letters of credit and bond ratings for newly issued tax-exempt bonds. The certification effect of the banks was confirmed, as the market reacts positively to the employment of a standby letter of credit and, also, to the quality of the banks.

Monitoring is another common role of both rating agencies and banks. Arguing that bank holding companies are monitored by both bank regulators and rating agencies, Schweitzer et al. (1992) used ninety-five announcements of debt rating changes for bank holding companies between 1977 and 1987 to examine whether rating agencies produce additional information. They found that announcements of downgrades (upgrades) were associated with statistically significant, negative (marginally significant, positive) abnormal returns. There is no evidence of any differential market reaction to the rating changes between bank holding companies and unregulated industrial firms. They

concluded that rating agencies do provide information to the capital market, and that monitoring services are not dampened by bank regulators' monitoring activities.

3. TESTABLE HYPOTHESES

This section presents the hypotheses for the event study of assignment, placement on *CreditWatch* and action announcements of bank loan ratings. The control variables used in the univariate tests and the regression analyses are also discussed.

3.1 Rating Announcement Effects

The granting, or renewal of bank loans has been hypothesized as providing new information (see, for example Leland and Pyle, 1977; Campbell and Kracaw, 1980; Fama, 1985; Kanatas, 1987, among others) regarding borrower creditworthiness; as well as being empirically shown to generate abnormal market reactions (see, for example Mikkelson and Partch, 1986; James, 1987; Lummer and McConnell, 1989, among others). The limited evidence (Nayer and Rozeff, 1994; Barron et al., 1997; Elayan et al., 2003) regarding market reaction to the assignment of a bond or commercial paper issue rating is mixed, and it is unclear as to whether new information is provided. Furthermore, a signal which essentially duplicates an earlier one has typically been shown to have a lesser impact (Ederington et al., 1987; Hsueh and Liu, 1992; Best and Zhang, 1993). Therefore, bank loan rating assignments occurring subsequent to a bank loan initiation or renewal may be thought to provide both duplicate and potentially superseded information. This leads to the first hypothesis considered in this research.

Hypothesis 1: The announcement of a bank loan rating assignment is not expected to generate a significant equity market reaction.

After assigning ratings, rating agencies will examine the client firms regularly and respond to any events which may influence the firms' financial position. A significant change from the original expectation of financial position may lead to placement on *CreditWatch.* This event may, or may not, then lead to the action of a change in rating. Where the loan is held by the issuing bank throughout its life and is already being monitored by the bank, then the rating agency; as the secondary auditor; may provide a less important signal to the capital market through rating placements or rating action announcements. This has been suggested by Ederington et al. (1987), Hsueh and Liu (1992) and Best and Zhang (1993). On the other hand, Schweitzer et al. (1992), Nayar and Rozeff (1994) and Stover (1996) have suggested that rating agencies provide different services to banks. Thus, the placement of bank loans on *CreditWatch,* or the occurrence of rating actions would still provide additional information to the capital market. Which of these two effects will be dominant is an empirical question. Given the findings of most previous researchers, however, there is no particular reason to suspect that there will be a significant reaction to anything other than news of a deteriorating position; that is, placements with a negative implication or rating downgrade. This logic leads to the following hypotheses regarding *CreditWatch* placements.

Hypothesis 2a: The announcement of a CreditWatch placement with a negative implication for a bank loan rating is expected to be associated with a significantly negative equity market reaction.

Hypothesis 2b: The announcement of a CreditWatch placement with a positive implication for a bank loan rating is not expected to be associated with a significant market reaction.

Hypothesis 2c: The announcement of a CreditWatch placement with a developing implication for a bank loan rating is not expected to be associated with a significant equity market reaction.

In like manner, and for essentially the same reasons, the hypotheses in regard to rating actions are developed as follows.

Hypothesis 3a: The announcement of a bank loan rating downgrade is expected to be associated with a significantly negative equity market reaction.

Hypothesis 3b: The announcement of a bank loan rating upgrade is not expected to be associated with a significant equity market reaction.

Hypothesis 3c: The announcement of an affirmation of a bank loan rating is not expected to be associated with a significant equity market reaction.

The summary of the hypotheses, expected results and empirical results are presented in Appendix 2-1 at the end of this essay.

3.2 Control Variables

The variables discussed below are used in the univariate tests and the multivariate regressions. Each sample is split into above- and below-median groups for discrete

variables, or into different groups as described for the dummy variables. The expected signs for each variable in the multivariate regressions are also discussed in this section.

Information asymmetry is measured by Tobin's Q (TQ), and is calculated as long-term debt plus the market value of equity divided by the (book value of) the total assets. Higher TQ ratios are taken to indicate greater information asymmetry. Hsueh and Liu (1992) found that rating change announcements have a stronger impact for firms which have less information available to the market. Krishnaswami et al. (1999) found that the benefits from monitoring accrue more to the firms with greater information asymmetry. In univariate tests the group with higher (above median) TQ ratios are, therefore, expected to be associated with stronger market reaction. The difference between the above- and below-median groups should be statistically significant. This difference should, therefore, have a negative (positive) sign for bad (good) news (for example, *CreditWatch* placements with negative (positive) implications and rating downgrades (upgrades)). In multivariate regressions it is expected that TQ should have a negative (positive) relationship with market reactions to bad (good) news announcements.

Size (SIZE) is a common variable included in the cross-sectional tests in previous studies, due to the well-known size effect. This variable is measured by the log of the total assets. Large companies are usually followed by a large group of analysts and investors, which will reduce information asymmetry. Therefore, the market reaction associated with large firms should be less than that associated with smaller firms (Slovin et al., 1992; Fama, 1985; *both cited in* Dichev and Piotroski, 2001). In the univariate tests the below-median size group should be associated with significantly stronger market reaction. The difference should be positive (negative) for bad (good) news. In multivariate regressions

the relationship between market reaction and firm size is expected to be positive (negative) for bad (good) news.

Leverage (LEV) is typically thought to be an important measurement of a firm's financial position. A company with more leverage faces greater financial risk, and this increases the probability of default. Kliger and Sarig (2000) found that the impact of rating information is greater for highly-leveraged firms, than it is for firms with a low level of leverage. LEV is proxied by long-term debt divided by total equity. In the tests the group with above-median leverage is thereby expected to be associated with stronger market reactions. The expected univariate and regression results are, therefore, the same as described above for TQ.

Interest coverage is one major area of difference between bank loan ratings and corporate credit ratings (Bailey, 1999). In addition to the evaluations done via corporate credit ratings, bank loan ratings take into account the characteristics of loans, such as collateral, covenants and term structures. Therefore, bank loan ratings expressly evaluate the flow of earnings or cash available to repay the interest on outstanding obligations. Times interest earned (TIE) describes a company's ability to pay interest from operating income, and is used in this study to measure coverage. It is calculated as, earnings before interest and taxes (EBIT) divided by total debt interest. A lower TIE ratio suggests a greater probability that a company will fail to meet its obligation to creditors. Thus, the below-median TIE group should be associated with a stronger market reaction and, therefore, the expected univariate and regression results are the same as those described above for SIZE.

Liquidity is particularly important in evaluating short-term financial position, or short-term security. Usually bank loans are viewed as shorter-term instruments (Preece and Mullineaux, 1994). Elayan et al. (1996) found a strong positive relationship between the current ratio (CRATIO) and the commercial paper ratings. CRATIO, unlike leverage and TIE ratios used to measure long-term debt management, is specifically used to measure a firm's ability to meet its short-term obligations. The CRATIO is calculated as, current assets divided by current liabilities. A higher CRATIO indicates greater liquidity and, therefore, a smaller probability that the company will fail to meet its obligations to short-term creditors. Here again, the below-median CRATIO should be associated with a stronger market reaction. The expected univariate and regression results are the same as those described above for SIZE.

Profitability ratios show the combined effects of liquidity, asset and debt management. Return on equity (ROE) is used in this essay and is calculated as, net income divided by the market value of equity. Investors are theorised to be more sensitive to those companies with lower levels of profitability. The below-median ROE group should, therefore, generate a stronger market reaction. The expected univariate and regression results are the same as those described above for SIZE.

Rating points (RATP) are used for the sample of rating assignments and placements on *CreditWatch*. A number is assigned to each rating, from 28 (AAA) to 1 (D). Diamond (1991) suggested that firms with middle or lower ratings are most able to take advantage of acquiring reputational capital from outside auditors. The below-median RATP group should then be associated with greater market reaction. Again, the expectations for the univariate and regression tests are the same as those for SIZE.

The change in rating points (ΔRATP) is used for the rating action sample. It is calculated as, new rating points minus old rating points. It is, therefore, negative (positive) for rating downgrades (upgrades), and is zero for affirmations. This variable is commonly employed in rating studies (see, for example Holthausen and Leftwich, 1986; Schweitzer et al., 1992; Hand et al., 1992; Matolcsy and Lianto, 1995; Elayan et al., 1996; Barron et al., 1997). In the tests the group with the larger absolute values of ΔRATP should be associated with the stronger market reaction.[3]

The lowest rating to qualify as investment grade (INVG) is BBB- from Standard and Poor's, or Baa3 from Moody's.[4] Many institutional investors; pension funds for example; are restricted to investing in above-investment-grade securities. If investment grade is viewed as a benchmark of bank loan credit quality, it can be expected that any effects from creditworthiness announcements will be stronger for firms with below-investment-grade ratings (see, for example Hand et al., 1992; Dichev and Piotroski, 2001). In the regressions, a dummy variable is set to one when the rating is below-investment, and is zero otherwise. The below-INVG group should be associated with a stronger market reaction. Therefore, the univariate and regression results are expected to be the same as those described above for SIZE.

Across, or within class (CLASS), is a control variable for the sample of rating downgrades and upgrades. A rating change is within class if the change occurs within

[3] Technically, the difference in the univariate tests is calculated as, the one-point change CAAR minus the two-point change CAAR. A more extreme bad (good) news change should be associated with a larger negative (positive) reaction. Thus, the expectations in the univariate and regression tests are the same as those for SIZE, discussed above.

[4] For notational convenience, the Standard and Poor's classification scheme is adopted for the remainder of this essay. Ratings given by other agencies are transformed and made equivalent to the levels employed by Standard and Poor's.

any of the three notches for a class; for example, AA+ to AA or AA-. A rating change is across class; for example, from AA- to A+. Holthausen and Leftwich (1986) detected abnormal negative excess returns only for the sub-sample of downgrade announcements that were across class, but not for those within class. This variable was also employed by Hsueh and Liu (1992) and Barron et al. (1997). In the tests, the group with rating changes across class are expected to be associated with a stronger market reaction. For the univariate tests the difference between cumulative average abnormal returns (CAARs) for rating changes across class; versus those within class; are expected to be significantly negative (positive) for bad (good) news announcements. In the multivariate regressions the dummy variable CLASS is set to one for the announcements of across-class changes, and is zero otherwise. It is expected that the relationship between CLASS and market reaction should be negative (positive) for bad (good) news.

Across investment grade (ACINV) is used for rating actions to test whether an upgrade (downgrade) action which moves a bank loan rating into (out of) investment grade is associated with a larger price response (Holthausen and Leftwich, 1986). This variable was also used by Hand et al. (1992) and Matolcsy and Lianto (1995). In univariate tests the group with rating changes across INVG should be associated with a stronger market reaction. The difference (ACINV minus non-ACINV) should be significantly negative (positive) for bad (good) news announcements. In the multivariate regressions, the dummy variable ACINV takes the value one for those rating changes across investment grades, and is zero otherwise. The relationship between ACINV and market reaction is expected to be negative (positive) for bad (good) news.

4. DATA DESCRIPTION AND METHOD OF ANALYSIS

4.1 Data Description

Daily announcements of rating assignments, *CreditWatch* placements and rating actions of bank loans[5] were collected from 1996 to 2002. A bank loan usually contains multiple tranches. For the purpose of the event study in this essay, the data is entered in the loan's level, which means that ratings from multiple tranches are still taken as one announcement.[6] The following procedure was employed to compile the final sample.

First, a list of bank loan rating announcements was complied from the following sources: 1) *Standard and Poor's Credit Analysis Reference Disc*; 2) Bank loan ratings announcements and lists from Standard and Poor's website (www.standardandpoors.com); 3) *Reuters' Business Briefing*; and 4*) Dow Jones Interactive.*[7] Second, daily returns around the announcement date were collected from the University of Chicago's Centre for Research in Security Prices (CRSP) daily file. Third, *Factiva* was also used to identify any confounding events[8] around the announcement date, specifically in the three-day window (from one day before to one day after the announcement date). Last, additional accounting information of each company was collected from: 1) *COMPUSTAT* database;

[5] In many cases the news from rating agencies contains multiple information, indicating that some actions are performed on other types of security used by the firm. For example, bank loan rating assignments and corporate credit rating downgrades are included in the same announcements. This kind of announcement is excluded to avoid the problem of contamination from other rating actions, particularly involving negative placements and downgrades.

[6] According to rating agencies, it is not necessary for multiple tranches to have one identical rating because of the unique structure and/or collaterals in each tranch. The data in this essay does not have this concern because, in a bank loan, the ratings assigned to each tranch, and the direction and magnitude of the actions of each tranch rating, are the same.

[7] *Reuters' Business Briefing* and *Dow Jones Interactive* were merged to *Factiva*. For the notion of convenience, *Factiva* is used in the following paragraphs to refer to the online database of these three resources.

[8] This essay adopts a strict definition of contaminated events. Contaminated events include mergers, acquisitions, dividend payments, security issues, leveraged buyouts, lawsuits, earning announcements, share buybacks, loan repayments or initiations and changes in top management, among others.

2) *DataStream* database for those companies not found in *COMPUSTAT*; and 3) the EDGAR database on the website of *U.S. Securities and Exchange Commission* www.sec.govt, for the companies, or missing variables not found in the previous two resources.

The primary data of an announcement is required to satisfy the following criteria:

1) The companies which have bank loan rating announcements in the study period are included in the CRSP database, or have a CUSIP number;
2) Daily returns are available for the period of 240 days before, to 15 days after, the announcement date; and
3) No other confounding announcements occurred within the three-day window, from one day before, to one day after, the announcement date of bank loan rating.

Table 1
Criteria for Data Deletion

Table 1 gives information on the process and results of the data clearance. The initial sample of 4,442 announcements of company bank loan ratings are reduced to the final sample of 571 announcements due to three reasons. There are 2,831 announcements deleted in total because the companies are not listed or do not have sufficient data available during the estimation period on the CRSP tape. Contaminated announcements refer to announcements which have other major announcements within three-day window around the announcement date.

Reason for Deletion	Number of Announcements
Total number of announcements	4,442
Less: Not listed	(2,323)
Less: Insufficient numbers of returns available	(508)
Less: Contaminated announcements	(1,040)
Final sample	571

Table 1 provides the process of data deletion. The initial sample of 4,442 announcements of bank loan ratings has been subjected to the above criteria to produce the final sample of 571 announcements. Of the initial sample, 2,323 announcements are dropped due to the firms being unlisted, 508 announcements are dropped due to the availability of

insufficient return data on CRSP during the estimation period and the announcement period, and 1,040 announcements are dropped because of contamination. Table 2 provides the breakdown of the sample by contamination. The finalised sample used in this report is the non-contaminated announcements, which reduces the number by nearly 65%, from 1,611 to 571. The advantage of imposing a strict definition of contamination is indicated by Goh and Ederington (1993), who stated that rating action changes concerning leverage; unlike changes in financial position or future performance; will have an opposite directional effect for shareholders. The data filters used by this essay produce a sample which isolates financial, or performance prospects as reasons for rating placement and action.[9] In the subset of placements, contamination eliminates more than half of the announcements, which results in a smaller sample size and completely eliminates the group concerning developing implications. As suggested by rating agencies, one of the reasons for listing ratings in *CreditWatch* is when an event is expected to occur. Such events can include, for example, merger and acquisition. This explains the high proportion of placement announcements which are regarded as being contaminated by confounding events.

Table 3 provides a breakdown by years. Most of the assignment announcements occurred in 1998 (31%), most of the negative placement announcements occurred in 1999 and 2000 (31%), and most of the rating downgrades; which dominate the action group (121 out of 267, or 45%); occurred in 2000 (38%). The sample size is particularly small in

[9] This essay also uses additional criteria when defining contaminated announcements. One such method is lengthening the verifying window to 15 days prior to the announcement date, instead of just one day. Another method is scrutinising the rating news to determine whether it has statement such as "this action follows..." or "this action reflects the [firm's] recent announcement of... ". The results from this are similar to the original verification used as the final method in this essay, which also looks at maintaining a testable sample size.

Table 2
Frequency Distribution of Announcements by Contamination

Any confounding announcements are identified within the three-day window from t-1 to t+1. The announcement is non-contaminated if no other major event occurred within the three-day window, otherwise it is contaminated and will be omitted. NON and CONT refer to non-contaminated and contaminated announcements. Announcements of placement and action are divided further into subsets: placement with negative, positive and developing implication; actions of downgrade, upgrade and affirmation. All are shown with the number (No.) of events and its percentage of the total number of each subset.

	Assignment		**Placement**						**Action**						**Total**	
			Negative		Positive		Developing		Downgrade		Upgrade		Affirmed			
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
NON	265	64.16	32	12.60	7	7.95	--	0.00	121	32.10	68	42.77	78	26.71	571	35.44
CONT	148	35.84	222	87.40	81	92.05	28	100.00	256	67.90	91	57.23	214	73.29	1040	64.56
Total	413	100.00	254	100.00	88	100.00	28	100.00	377	100.00	159	100.00	292	100.00	1611	100.00

Table 3
Frequency Distribution of Announcements by Years

Table 3 provides the frequency distribution by years for the announcements of bank loan ratings. The sample of 571 announcements have been collected during the period of 1996 to 2002. The sample size is particularly small in 1996 because the rating agencies only started to rate bank loans from the middle of 1996. All are shown with the number (No.) of events per year and the yearly percentage of the total for the period.

Year	Assignment		Placement				Action						Total	
			Negative		Positive		Downgrade		Upgrade		Affirmed			
	No.	%	No.	No.	%	%	No.	%	No.	%	No.	%	No.	%
1996	5	1.89	--	--	--	--	--	--	--	--	--	--	5	0.88
1997	76	28.68	--	--	--	--	1	0.83	6	8.82	3	3.85	86	15.06
1998	83	31.32	4	12.50	2	28.57	11	9.09	9	13.24	17	21.79	126	22.07
1999	45	16.98	10	31.25	3	42.86	25	20.66	18	26.47	11	14.10	112	19.61
2000	29	10.94	10	31.25	1	14.29	46	38.02	17	25.00	27	34.62	130	22.77
2001	13	4.91	6	18.75	--	--	24	19.83	13	19.12	15	19.23	71	12.43
2002	14	5.28	2	6.25	1	14.29	14	11.57	5	7.35	5	6.41	41	7.18
Total	265	100.00	32	100.00	7	100.00	121	100.00	68	100.00	78	100.00	571	100.00

1996, as the rating agencies only started rating bank loans from the middle of 1996.[10] Table 3 also shows the extremely large jump in sample size, in the assignment group, from 1996 through 1998. This increase matches the increasing trend in collateralised loan volume and debt obligations.[11]

Table 4 provides a breakdown of the groups of assignment and placement, by ratings.[12] In the sub-sample of assignment, 69% of the announcements have been assigned ratings below the investment, or so-called speculative, grade (of BBB-), with most being BB- (22%), B+ (18%), or BB (15%). Fully 81% of the ratings that are placed with negative implication, and the entire group with positive placement, are in the speculative grade. The rating distribution is consistent with Diamond (1991), which holds that it is usually the firms with middle, or lower ratings that rely on bank loans to acquire reputation.

Panel A in Table 5 provides the metrics of bank loan ratings before and after the action announcements. The number on the diagonal represents the number of rating affirmations, and the number above and below the diagonal represents the number of rating upgrades and downgrades, respectively. In addition to the changes of ratings, an announcement is also considered as a downgrade (upgrade) if its outlook is changed when no rating is provided, or the action of the rating is affirmed, as the outlook also reflect the long-term prospects in future performance.[13] Panel B provides the metrics of bank loan ratings outlook before and after the action announcements. There are three kinds of

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[10] The author thanks Mr. Steven Bavaria from Standard and Poor's and Mr. Neal Schweitzer from Moody's for confirming this information.

[11] The volume of collateralised loan and debt obligations is less than one billion US dollars (US$) before 1996, US$14 billion in 1996, US$50 billion in 1997, US$83 in 1998, US$90 billion in 1999 and US$120 billion in 2000 (Moody's Investors Service, cited in Estrella, 2000).

[12] Initially, Standard and Poor's used a scale of 1 through 10; where one is the highest; for bank loan ratings. The correlation of bank loan ratings with the traditional scale follows. AAA, AA+, AA, AA- = 1; A+, A, A- = 2; BBB+, BBB = 3; BBB-, BB+ = 3, 4, or 5; BB, BB- = 4, 5, or 6; B+, B = 5, 6, or 7; B- = 6, 7, or 8; CCC+, CCC, CCC- = 8; CC, C = 9; and D = 10. (*Dow Jones Interactive* June 5, 1996)

[13] The samples which only contain changes in ratings are also tested, with similar results.

outlook; negative positive and stable. Changes in outlook, from positive to stable and/or negative, and from stable to negative, are taken as downgrades, and vice versa. Of the bank loan ratings before the action, 85% of the downgrade sub-sample, and 90% of the upgrade sub-sample, are in the speculative grade. Due to the small number of ratings in the investment grade before actions, only 11% of the downgrade rated group moved out of investment grade. Of the rating changes in the downgrade (upgrade) group, 54% (17%) are across class.

Table 4
Frequency Distribution of Announcements of Assignment and Placement on *CreditWatch* by Bank Loan Ratings

Table 4 provides the frequency distribution, by ratings, for the sample of announcements of assignment and placement on *CreditWatch* of bank loan ratings. *Investment* refers to the ratings that are above BBB-, and *speculative* refers to the ones that are below BBB-. The categories of rating are from the format of Standard and Poor's, and ratings given by other agencies are transformed and made equivalent to the levels of Standard and Poor's. All are shown with the number (No.) of events by ratings and its percentage of the total.

Rating	Assignment		Placement			
			Negative		Positive	
	No.	%	No.	%	No.	%
A+	4	1.51	--	--	--	--
A	11	4.15	--	--	--	--
A-	8	3.02	--	--	--	--
BBB+	20	7.55	1	3.13	--	--
BBB	19	7.17	2	6.25	--	--
BBB-	21	7.92	3	9.38	--	--
BB+	27	10.19	3	9.38	2	28.57
BB	41	15.47	6	18.75	1	14.29
BB-	59	22.26	7	21.88	2	28.57
B+	49	18.49	4	12.50	2	28.57
B	5	1.89	3	9.38	--	--
B-	1	0.38	2	6.25	--	--
CCC+	--	--	1	3.13	--	--
Total	265	100.00	32	100.00	7	100.00
Investment	83	31.32	6	18.75	--	--
Speculative	182	68.68	26	81.25	7	100.00

Appendix 2-2 to 2-4 at the end of this essay present the descriptive statistics of selected financial variables for each sub-sample. These statistics include sales, net incomes, total assets, total liabilities, shareholder's equity and market value. The financial year-end

Table 5
Frequency Distribution of Action Announcements by Ratings, Outlooks and other Categories

Table 5, Panel A provides the metrics of bank loan ratings before and after the action announcement. Numbers on the diagonal represent the number of affirmation, while numbers above and below the diagonal represent the number of rating upgrades and downgrades, respectively. The categories of rating are from the format of Standard and Poor's, and ratings given by other agencies are transformed and made equivalent to the levels of Standard and Poor's.

Panel A: Frequency Distribution by Ratings

	Prior Rating																		
Revised	AA-	A+	A	A-	BBB+	BBB	BBB-	BB+	BB	BB-	B+	B	B-	CCC+	CCC	CCC-	CC	C	D	Tol
AA-	1																			1
A+		--	2																	2
A			5																	5
A-				5																5
BBB+				1	6		1													8
BBB				2	2	7	2													13
BBB-					3	6	3	2	1											15
BB+						1	3	10	9	1										24
BB						1	6	7	14	9	2									39
BB-								3	2	11	11									27
B+									3	22	9	3								37
B									3	2	11	6	3							25
B-											5	9	1	1						16
CCC+											1	4	2	--						7
CCC													1	1	--					2
CCC-															1	--				1
CC														1			--			1
C																		--		--
D																1			--	1
Total	1	0	7	8	11	15	15	22	32	45	39	22	7	3	1	1	--	--	--	229

Table 5
Frequency Distribution of Action Announcements by Ratings, Outlooks and other Categories (Cont.)

Table 5, Panel B provides the metrics of bank loan ratings outlooks before and after the action announcement. Outlook is categorised into positive, stable and negative. Numbers above and below the diagonal represent the number of outlook upgrades and downgrades. Panel C provides frequency distribution according to different categories. *Investment* and *speculative* refer to the ratings before action announcements are above, or below, BBB-, respectively. *Across investment* means that the upgrade (downgrade) announcements move the rating into (out of) BBB-. *Across class* means that the change makes the new rating across the class, instead of within any of the three notches for a class. The categories of rating are from the format of Standard and Poor's, and ratings given by other agencies are transformed and made equivalent to the levels of Standard and Poor's. All are shown with the number (No.) of events by ratings and its percentage of the total.

Panel B: Frequency Distribution by Outlooks

Revised	Prior Outlook			
	Positive	Stable	Negative	Total
Positive	--	10		10
Stable	5	--	11	16
Negative		12	--	12
Total	5	22	11	38

Panel C: Frequency Distribution by Categories

	Downgrade		Upgrade	
	N	%	N	%
Investment	18	14.88	7	10.29
Speculative	103	85.12	61	89.71
Across Investment	11	10.58	3	6.52
Across Class	54	51.92	17	36.96

variables of the year prior to the announcement year were also collected.[14] The median is smaller than the mean for all the variables, indicating that most of the announcements are associated with smaller firms. Nevertheless, some extremely large firms are also included.

4.2 Methods of Analysis

There are three types of test employed in this essay. First, an event study method is used to examine whether announcements of bank loan ratings generate abnormal excess returns. Second, univariate tests are used to determine whether there are significant differences between announcement-period returns; split on the basis of relevant variables

[14] Two non-industrial companies, Indymac Bancorp Inc. and Commercial Net Lease Realty Inc., are excluded.

into above- and below-median groups. Third, multivariate regression analysis is used to provide evidence on whether any of the hypothesized control variables offer significant explanatory value for equity returns in the announcement-period.

4.2.1 Event study tests for abnormal returns

Event study methodology is used to examine announcement effects of bank loan ratings. A market model is used to estimate the abnormal security returns associated with assignment, placement on *CreditWatch* and action announcements, of bank loan ratings. The intercept terms and slope used in the market model are estimated over a 150-day period; from day t-240 to day t-91; relative to the announcement day; t=0. The announcement date is defined as the date of first report of the announcement. The standardised abnormal return approach is used to generate Z-test statistics (SCS Z). The generalized sign test (GSIGN Z) is used to test for the fraction of positive and negative average abnormal returns. The null hypothesis for the GSIGN Z is that; the fraction of positive returns is the same as in the estimation period. An example of GSIGN Z is presented in Cowan (1992). The completed mathematics of the methodology is shown in Appendix A at the end of the thesis.

The announcement date (date 0 in event time) is defined as the earlier of: 1) the press released date supplied by Standard and Poor's; and 2) the date on which a news story about the bank loan ratings appeared on *Factiva.* When measuring the price response to the announcement, a three-day window is used as the announcement period. Day -1 is included, as it is reasonable to assume that the actual press release date by rating agencies may be one in advance of the earliest announcement date sourced for this study, if the

source of the announcement is *Factiva*. Day +1 is included to catch the announcement if it is released after the market close, or if the market reacts continuously over the day after the announcement.[15]

4.2.2 Univariate analysis of event study

Univariate tests are used to test for significant differences in CAAR between groups, split on the basis of the different variables described in the preceding section. The expected signs for the difference have also been discussed in the previous section. The t-statistic for the difference between the two means is presented in Appendix B at the end of the thesis.

4.2.3 Multivariate regression models

Multivariate regressions are used to determine whether the control variables already described offer any ability to explain the CAARs for the bank loan rating announcements[16]. In these regressions the dependent variable is the three-day (day t-1 to day t+1) CAAR. The expected signs for each variable have been discussed in the previous section. The models for rating assignments and placements, and rating actions, are given in Equations (1) and (2), respectively.

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[15] For example, in the news article, *Sanmina-SCI shares fall after credit downgrade*, it is stated that "Shares in contract manufacturer Sanmina-SCI Corp. fell on Thursday after the company's credit rating was downgraded by Standard and Poor's on concerns about its operating performance. [...] Standard and Poor's on Wednesday lowered Sanmina-SCI's corporate credit and senior secured bank loan ratings to BB from BB+..." (*Factiva*, September 12, 2002).

[16] In contrast, the paper "The Informational Role of Bank Loan Ratings" by Yi and Mullineaux (forthcoming) employs an ordered probit model with a multinomial dependent variable. They use control variables such as characteristics of borrowers and bank loans to explain Moody's rating classes.

$$CAAR = \alpha_0 + \alpha_1 TQ + \alpha_2 SIZE + \alpha_3 LEV^{17} + \alpha_4 TIE + \alpha_5 CRATIO + \alpha_6 ROE^{18} + \alpha_7 RATP + \alpha_8 INVG + \varepsilon. \quad (1)$$

$$CAAR = \alpha_0 + \alpha_1 TQ + \alpha_2 SIZE + \alpha_3 LEV + \alpha_4 TIE + \alpha_5 CRATIO + \alpha_6 ROE + \alpha_7 \Delta RATP + \alpha_8 INVG + \alpha_9 CLASS + \alpha_{10} ACINV + \varepsilon. \quad (2)$$

where:

TQ	=	long-term debt plus the market value of equity divided by the book value of the total assets;
SIZE	=	natural log of the total assets;
LEV	=	long-term debt divided by total equity;
TIE	=	earnings before interest and taxes divided by total debt interest;
CRATIO	=	current assets divided by current liabilities;
ROE	=	net income divided by the market value of equity;
RATP	=	rating point assigned to each rating from 28 to 1;
ΔRATP	=	number of changes in rating points;
INVG	=	a dummy variable, equal to one if the rating is below investment grade, and zero otherwise;
CLASS	=	a dummy variable, equal to one if the rating change occurs within a class, and zero otherwise; and
ACINV	=	a dummy variable, equal to one if the rating is moved into, or out of the investment grade, and zero otherwise.

[17] Alternative leverage proxies (i.e., long-term debt divided by total assets, and total liabilities divided by total assets) are used in the tests, and yield results that are not qualitatively different, so these results are not presented.

[18] An alternative proxy for profitability, termed basic earning power (calculated as EBIT divided by total assets), is also employed in the tests, and yields results similar to those reported.

5. EMPIRICAL RESULTS

The results of the event studies, univariate tests and cross-sectional regressions for the bank loan rating announcements of assignment, placement on *CreditWatch* and action are included in this section.

5.1 Event Studies of Market Reaction to Bank Loan Rating Announcements

5.1.1 Assignment announcements

Table 6 reports the event study output for the 265 announcements of bank loan rating assignments. Average abnormal returns (AAR), median abnormal returns (MAR), the number of positive versus negative abnormal returns, SCS Z and GSIGN Z are reported for the period of the 15 days before and the 15 days after the announcement date. Cumulative returns are also provided for various windows. The three-day CAAR and the cumulative median abnormal returns (CMAR) are -0.35% and -0.50%, respectively, with an insignificant t-test statistic of -0.916. The ratio of positive to negative returns is 118:147, and the GSIGN Z is insignificant, at -0.851. The results of the two-day window (day -1 to day 0) are also insignificant. These findings support Hypothesis 1, that the announcements of bank loan rating assignment should not be associated with significant abnormal market reaction.

The pattern of AAR and CAAR over the whole window (day -15 to day 15) are provided in Figure 2-1. AAR is randomly spread around zero, and the market has a positive reaction within the announcement date. The pattern of CAAR is also around zero before

the announcement date. This indicates that the announcements of bank loan ratings assignments seldom correspond to the previous event.

Table 6
Returns around Announcements of Bank Loan Rating Assignment

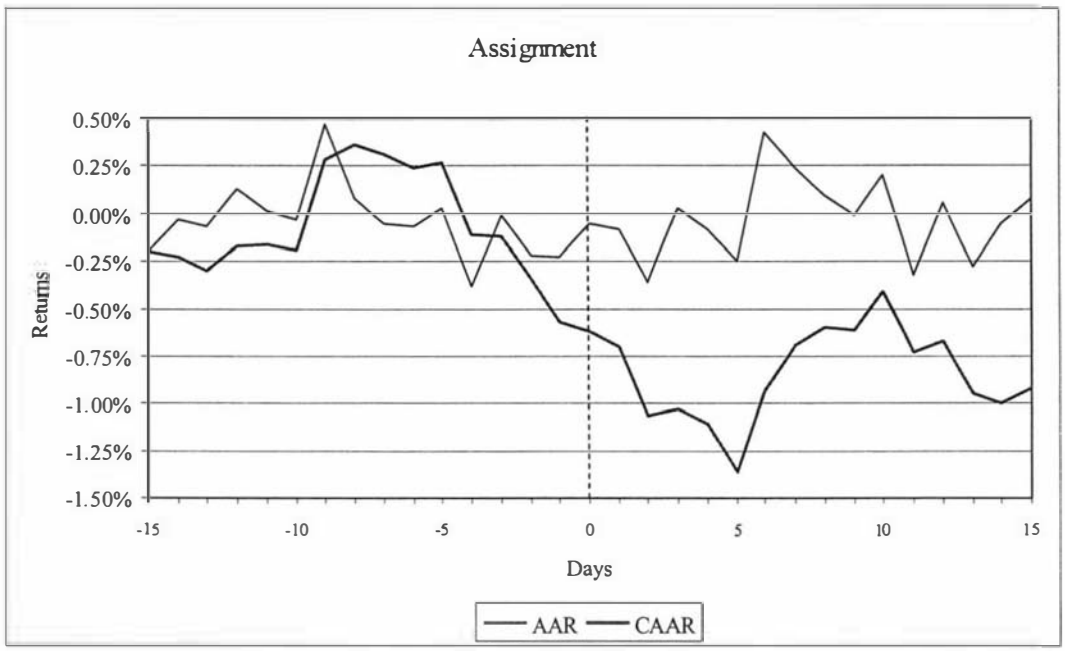
Table 6 reports the returns around the 265 announcements of bank loan ratings. N is the number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Pos:Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic testing whether the average abnormal return is significantly different from zero. GSIGN Z is generalised sign Z, which is the non-parametric test statistic for significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model, using the standardised residual method. CAAR is cumulative average abnormal returns and CMAR is the median cumulative abnormal return.

Day	N	AAR (%)	MAR (%)	Pos:Neg	SCS Z	GSIGN Z
-15	265	-0.20	-0.26	120:145	-0.930	-0.605
-14	265	-0.03	-0.06	127:138	-0.272	0.257
-13	265	-0.07	-0.20	119:146	0.280	-0.728
-12	265	0.13	-0.14	128:137	-0.200	0.380
-11	265	0.01	-0.45	110:155	0.153	-1.835$
-10	265	-0.03	-0.11	128:137	-0.485	0.380
-9	265	0.47	0.18	145:120	1.634	2.472*
-8	265	0.08	-0.04	132:133	0.244	0.872
-7	265	-0.05	-0.23	116:149	0.195	-1.097
-6	265	-0.07	-0.33	117:148	-1.271	-0.974
-5	265	0.03	-0.07	129:136	0.166	0.503
-4	265	-0.38	-0.46	105:160	-1.876$	-2.451*
-3	265	-0.01	-0.18	120:145	0.135	-0.605
-2	265	-0.22	0.11	140:125	-0.159	1.857$
-1	265	-0.23	-0.22	118:147	-1.189	-0.851
0	265	-0.05	-0.05	131:134	-0.314	0.749
1	265	-0.08	-0.15	122:143	0.027	-0.359
2	265	-0.36	-0.28	113:152	-2.413*	-1.466
3	265	0.03	0.00	132:133	-0.059	0.872
4	265	-0.08	-0.03	129:136	-0.789	0.503
5	265	-0.25	-0.41	110:155	-1.888$	-1.835$
6	265	0.43	0.21	139:126	2.551*	1.734$
7	265	0.24	0.02	134:131	1.124	1.118
8	265	0.09	-0.01	131:134	0.927	0.749
9	265	-0.01	-0.25	119:146	-0.430	-0.728
10	265	0.20	0.01	133:132	0.273	0.995
11	265	-0.32	-0.23	125:140	-1.375	0.011
12	265	0.06	-0.10	127:138	-0.011	0.257
13	265	-0.28	-0.24	123:142	-1.727$	-0.236
14	265	-0.05	-0.04	130:135	-0.948	0.626
15	265	0.08	-0.16	124:141	0.468	-0.112
Days	**N**	**CAAR (%)**	**CMAR (%)**	**Pos:Neg**	**SCS Z**	**GSIGN Z**
[-1,+1]	265	-0.35	-0.50	118:147	-0.916	-0.851
[-1,0]	265	-0.28	-0.16	124:141	-1.105	-0.112
[0,+1]	265	-0.12	-0.17	129:136	-0.200	0.503
[-15,-2]	265	-0.35	-0.75	124:141	-0.533	-0.112
[+2,+15]	265	-0.22	-0.53	121:144	-0.922	-0.482
[-15,+15]	265	-0.92	-0.94	126:139	-1.191	0.134

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Figure 2-1
AAR and CAAR of Assignment Announcements

Figure 2-1 shows the relationship between days (on the horizontal axis) and average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) (on the vertical axis), for the sample of assignment announcements.



5.1.2 Placement announcements on *CreditWatch*

Table 7 reports the event study output for the 32 placement announcements of bank loan ratings on *CreditWatch* with negative implication. The three-day CAAR and CMAR are -3.41% and -3.29%, respectively, with a t-test statistic of -2.975. This statistic is significant at the 1% level. The ratio of positive to negative returns is 7:25, and the GSIGN Z of -3.065 is also significant at the 1% level. The results of the two-day window are similar, and are also significant at the 1% level. These findings support Hypothesis 2a, that the announcements of bank loan rating placement with negative implication should be associated with significantly negative abnormal market reactions. These findings are

Table 7
Returns around Announcements of Bank Loan Rating Placement with Negative Implication

Table 7 reports the returns around the 32 announcements of bank loan rating placements on *CreditWatch* with negative implication. N is the number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Pos:Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests whetherfaverage abnormal returns is significantly different from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model, using the standardised residual method. CAAR is cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

Day	N	AAR (%)	MAR (%)	Pos:Neg	SCS Z	GSIGN Z
-15	32	-0.48	-1.19	12:20	-1.330	-1.297
-14	32	0.30	0.56	20:12	-0.503	1.532
-13	32	0.26	0.17	17:15	0.490	0.472
-12	32	0.32	0.36	17:15	0.822	0.472
-11	32	-0.96	-1.18	13:19	-0.690	-0.943
-10	32	-0.20	0.44	19:13	0.275	1.179
-9	32	-0.18	-0.41	15:17	-0.813	-0.236
-8	32	0.13	-0.02	16:16	0.249	0.118
-7	32	0.05	0.09	17:15	-0.003	0.472
-6	32	-0.40	-0.43	14:18	-1.353	-0.589
-5	32	0.13	0.05	16:16	0.337	0.118
-4	32	0.00	0.01	16:16	-0.138	0.118
-3	32	-0.99	-1.08	13:19	-1.346	-0.943
-2	32	0.31	0.46	22:10	0.845	2.240*
-1	32	-1.07	-0.26	13:19	-1.492	-0.943
0	32	-1.72	-1.40	11:21	-2.510*	-1.650$
1	32	-0.62	-1.11	14:18	-0.718	-0.589
2	32	-0.22	0.24	18:14	0.540	0.825
3	32	1.73	0.20	17:15	1.326	0.472
4	32	0.81	0.25	18:14	0.411	0.825
5	32	-1.11	-1.34	11:21	-2.147*	-1.650$
6	32	0.59	0.10	17:15	0.301	0.472
7	32	0.33	0.56	17:15	0.454	0.472
8	32	1.10	0.24	18:14	0.929	0.825
9	32	0.51	-0.07	15:17	0.519	-0.236
10	32	0.38	-0.06	15:17	0.819	-0.236
11	32	-0.42	-1.06	13:19	-1.086	-0.943
12	32	-1.32	-1.21	13:19	-2.208*	-0.943
13	32	-0.35	-0.26	14:18	-0.339	-0.589
14	32	-0.92	-0.46	14:18	-0.858	-0.589
15	32	-0.23	-1.09	13:19	-0.368	-0.943
Days	**N**	**CAAR (%)**	**CMAR (%)**	**Pos:Neg**	**SCS Z**	**GSIGN Z**
[-1,+1]	32	-3.41	-3.29	7:25	-2.975**	-3.065**
[-1,0]	32	-2.79	-2.40	8:24	-2.974**	-2.711**
[0,+1]	32	-2.34	-2.30	9:23	-2.143*	-2.358*
[-15,-2]	32	-1.72	0.40	17:15	-0.910	0.472
[+2,+15]	32	0.89	0.54	17:15	-0.115	0.472
[-15,+15]	32	-4.24	-10.68	12:20	-1.572	-1.297

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

consistent with Wansley and Clauretie (1985), Holthausen and Leftwich (1986), and Elayan et al. (1996; and 2003).

The patterns of AAR and CAAR over the whole window (day -15 to day 15) are provided in Figure 2-2. AAR drops visually on the announcement date and, whereas AAR increases back from day 1, CAAR continuously decreases until day 2.

Figure 2-2
AAR and CAAR of Placement Announcements with Negative Implication

Figure 2-2 shows the relationship between days (on the horizontal axis) and average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) (on the vertical axis), for the sample of placement announcements with negative implication.

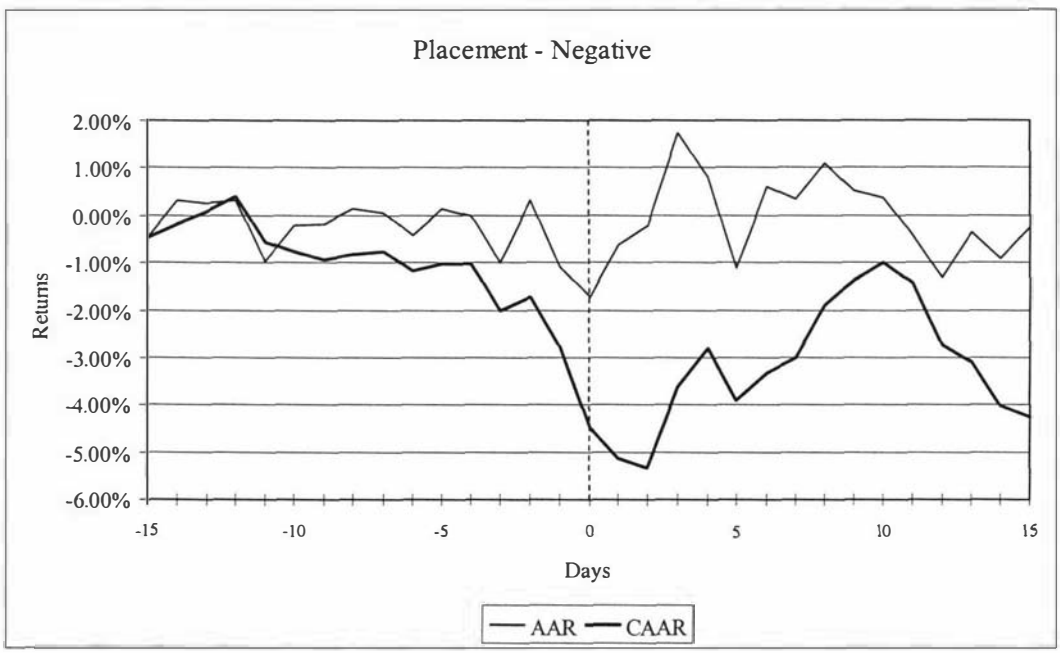


Table 8 reports the event study output for the seven placement announcements of bank loan rating on *CreditWatch* with positive implication. The three-day CAAR and CMAR are 0.36% and 1.83%, respectively, with a t-test statistic of 0.385. This statistic is insignificant. The ratio of positive to negative returns is 4:3, and the GSIGN Z of 0.556 is

also insignificant. The results of the two-day window are similar, but significant.

Consistent with previous studies (Elayan et al., 1996; Hand et al., 1992), the results

Table 8
Returns around Announcements of Bank Loan Rating Placement with Positive Implication

Table 8 reports the returns around the 7 announcements of bank loan rating placement on *CreditWatch* with positive implication. N is the number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Pos:Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests whether the average abnormal return is significantly different from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model, using the standardised residual method. CAAR is cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

Day	N	AAR (%)	MAR (%)	Pos:Neg	SCS Z	GSIGN Z
-15	7	-0.11	-0.55	3:4	-0.269	-0.202
-14	7	0.70	0.97	5:2	1.918$	1.313
-13	7	1.43	0.87	6:1	1.561	2.071*
-12	7	0.22	0.54	4:3	0.381	0.556
-11	7	-0.73	-0.93	2:5	-0.544	-0.960
-10	7	1.77	2.00	5:2	1.426	1.313
-9	7	0.78	0.78	6:1	1.261	2.071*
-8	7	-0.24	-0.28	3:4	-0.248	-0.202
-7	7	-0.68	-0.26	2:5	-0.862	-0.960
-6	7	1.30	0.68	5:2	1.947$	1.313
-5	7	-1.41	0.38	5:2	-0.312	1.313
-4	7	0.48	0.27	4:3	0.286	0.556
-3	7	-0.49	-0.14	3:4	0.019	-0.202
-2	7	-0.65	0.83	4:3	-0.487	0.556
-1	7	0.47	0.96	4:3	0.499	0.556
0	7	0.18	-0.74	3:4	0.424	-0.202
1	7	-0.29	0.58	4:3	-0.305	0.556
2	7	-0.32	1.51	4:3	0.330	0.556
3	7	1.64	0.79	4:3	0.675	0.556
4	7	1.03	1.13	4:3	1.353	0.556
5	7	0.00	-0.71	2:5	-0.685	-0.960
6	7	0.30	0.01	4:3	0.409	0.556
7	7	-0.38	-0.62	3:4	-0.851	-0.202
8	7	-0.69	-1.29	3:4	-1.604	-0.202
9	7	-2.45	-0.80	1:6	-1.511	-1.717$
10	7	-0.57	1.04	4:3	-0.285	0.556
11	7	-0.67	-0.81	1:6	-2.454*	-1.717$
12	7	-1.26	-0.83	3:4	-1.177	-0.202
13	7	-0.03	0.25	4:3	0.361	0.556
14	7	1.24	1.10	6:1	2.454*	2.071*
15	7	-0.73	-0.50	2:5	-1.564	-0.960
Days	**N**	**CAAR (%)**	**CMAR (%)**	**Pos:Neg**	**SCS Z**	**GSIGN Z**
[-1,+1]	7	0.36	1.83	4:3	0.385	0.556
[-1,0]	7	0.65	1.13	4:3	0.742	0.556
[0,+1]	7	-0.11	-0.16	3:4	0.162	-0.202
[-15,-2]	7	2.36	6.29	5:2	0.832	1.313
[+2,+15]	7	-2.90	-3.40	3:4	-0.757	-0.202
[-15,+15]	7	-0.17	2.97	4:3	0.166	0.556

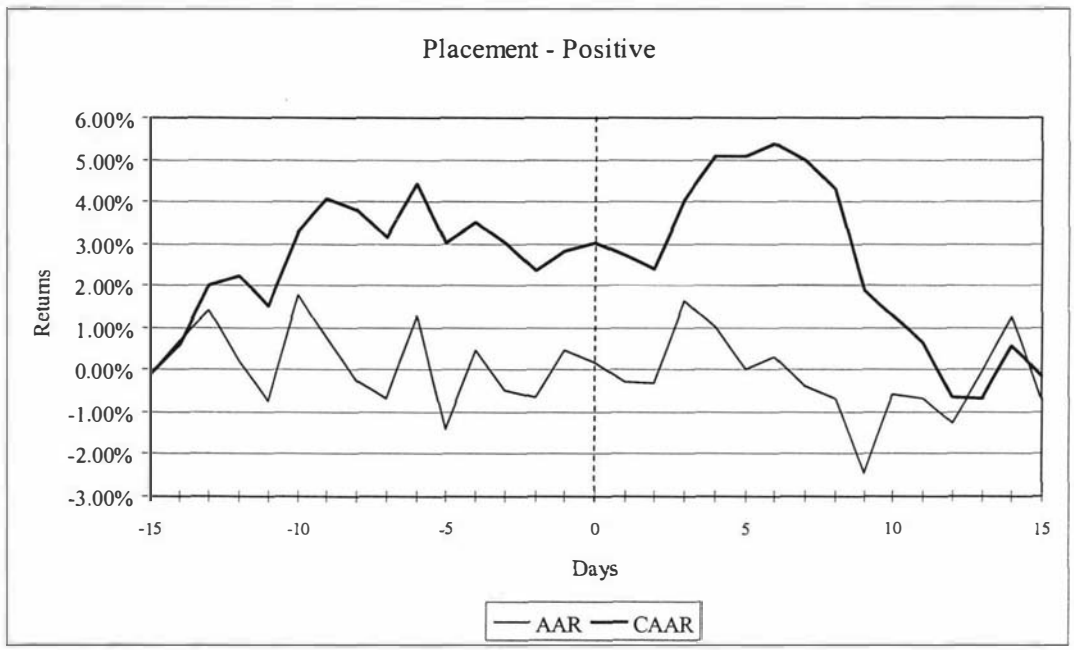
***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

support Hypothesis 2b, which holds that the placement announcements of bank loan rating with positive implication should be associated with insignificant abnormal market reactions. It must be noted, however, that this is a relatively small sample size from which to reach a generalised conclusion.

The pattern of AAR and CAAR in the whole window (day -15 to day 15) is provided in Figure 2-3. AAR is randomly spread around zero, and CAAR is nearly positive through the whole window. The market reacts positively from day -1, and has a minor decrease in day 0. This may be due to the bias in defining announcement dates, or because of the small sample size.

Figure 2-3
AAR and CAAR of Placement Announcements with Positive Implication

Figure 2-3 shows the relationship between days (on the horizontal axis) and average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) (on the vertical axis), for the sample of placement announcements with positive implication.



5.1.3 Action announcements

Table 9 reports the event study output for the 121 announcements of bank loan rating downgrades. The three-day CAAR and CMAR are –3.07% and –2.41%, respectively. The three-day t-test statistic is –5.224, which is statistically significant at the 0.1% level. The ratio of positive to negative returns is 43:78, and the GSIGN Z is –3.023, which is statistically significant at the 1% level. The results of the two-day window are also significant at the 0.1% level. The results support Hypothesis 3a, that the announcements of bank loan rating downgrades should be associated with significantly negative abnormal market reactions. These findings are also consistent with previous studies (Holthausen and Leftwich, 1986; Glascock et al., 1987; Cornell et al., 1992; Hand et al., 1992; Schweitzer et al., 1992; Hsueh and Liu, 1992; Goh and Ederington, 1993; and 1999; Nayar and Rozeff, 1994; Elayan et al., 1996; and 2003; Barron et al., 1997).

The patterns of AAR and CAAR in the whole window (day -15 to day 15) are provided in Figure 2-4. AAR drops visually at announcement date, although it starts the decrease from day -1. AAR starts to rise back from day 1, but CAAR continuously decreases until day 2. The trend of CAAR before the announcement date presents the strict verification of contamination, as there is no extremely abnormal reaction indicating events in the pre-event window. The downward trend of CAAR after the downgrade announcements confirms the downgrade reason of weakening performance.

Table 9
Returns around Announcements of Bank Loan Rating Downgrade

Table 9 reports the returns around the 121 announcements of bank loan rating downgrades. N is the number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Pos:Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests whether the average abnormal return is significantly different from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model, using the standardised residual method. CAAR is cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

Day	N	AAR (%)	MAR (%)	Pos:Neg	SCS Z	GSIGN Z
-15	121	-0.36	0.11	65:56	-0.446	0.977
-14	121	-0.90	-0.46	49:72	-2.244*	-1.932$
-13	121	1.02	0.43	70:51	2.269*	1.886$
-12	121	-0.32	-0.29	52:69	-0.347	-1.387
-11	121	0.44	-0.23	57:64	0.345	-0.478
-10	121	0.09	-0.29	54:67	0.465	-1.023
-9	121	-0.43	-0.47	53:68	-0.568	-1.205
-8	121	0.32	0.05	63:58	1.024	0.613
-7	121	-0.14	-0.18	57:64	-0.073	-0.478
-6	121	-0.96	-0.87	49:72	-1.677$	-1.932$
-5	121	-0.03	-0.41	55:66	0.266	-0.841
-4	121	-0.18	0.08	63:58	-0.909	0.613
-3	121	-0.36	0.15	65:56	-0.278	0.977
-2	121	0.36	0.61	68:53	0.777	1.523
-1	121	-0.86	-0.62	49:72	-2.419*	-1.932$
0	121	-1.47	-0.85	44:77	-3.597***	-2.842**
1	121	-0.74	-0.96	49:72	-2.107*	-1.932$
2	121	-0.45	-0.50	55:66	-0.339	-0.841
3	121	0.41	0.27	67:54	0.312	1.341
4	121	-0.50	-0.01	60:61	-0.190	0.068
5	121	-0.09	-0.15	59:62	0.001	-0.114
6	121	-0.31	-0.17	59:62	-0.530	-0.114
7	121	0.41	0.00	61:60	0.535	0.250
8	121	-0.20	-0.41	53:68	0.205	-1.205
9	121	-0.42	-0.60	54:67	-0.914	-1.023
10	121	-0.28	-0.50	56:65	-0.420	-0.660
11	121	-0.76	0.06	62:59	-1.048	0.432
12	121	0.79	0.10	62:59	1.127	0.432
13	121	0.55	0.24	62:59	1.517	0.432
14	121	0.27	0.32	64:57	0.665	0.795
15	121	-0.27	0.05	62:59	-0.234	0.432
Days	**N**	**CAAR (%)**	**CMAR (%)**	**Pos:Neg**	**SCS Z**	**GSIGN Z**
[-1,+1]	121	-3.07	-2.41	43:78	-5.224***	-3.023**
[-1,0]	121	-2.33	-1.57	43:78	-4.291***	-3.023**
[0,+1]	121	- 2.21	-1.81	41:80	-4.641***	-3.387***
[-15,-2]	121	-1.43	0.50	63:58	-0.359	0.613
[+2,+15]	121	-0.84	0.03	61:60	0.205	0.250
[-15,+15]	121	-5.35	-1.59	57:64	-1.268	-0.478

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Figure 2-4
AAR and CAAR of Downgrade Announcements

Figure 2-4 shows the relationship between days (on the horizontal axis) and average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) (on the vertical axis), for the sample of downgrade announcements.

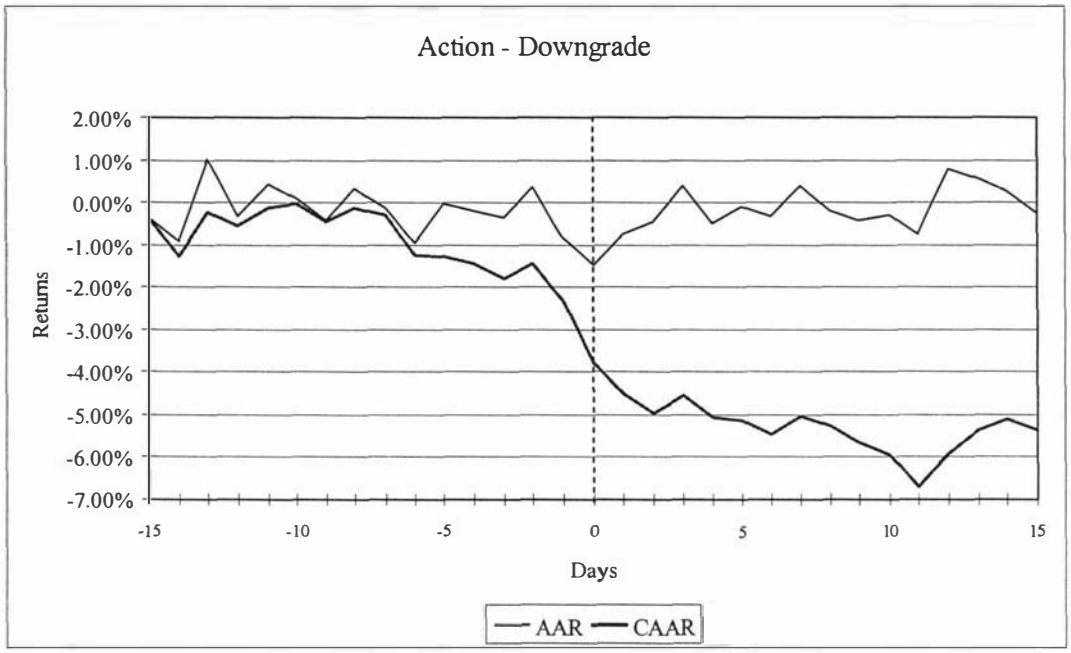


Table 10 reports the event study output for the 68 announcements of bank loan rating upgrades. The three-day CAAR and CMAR are 0.14% and 0.00%, respectively, with an insignificant t-test statistic of 0.307. The ratio of positive to negative returns is 34:34, with an insignificant GSIGN Z of 0.476. The results of the two-day window are similar and insignificant. Consistent with previous studies (Wansley and Cloauretie, 1985; Holthausen and Leftwich, 1986; Glascock et al., 1987; Elayan et al., 1996; Nayar and Rozeff, 1994; Barron et al., 1997), the results support Hypothesis 3b, that the announcements of bank loan rating upgrades are associated with insignificantly abnormal market reactions.

Table 10
Returns around Announcements of Bank Loan Rating Upgrade

Table 10 reports the returns around the 68 announcements of bank loan rating upgrades. N is the number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Pos:Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests whether the average abnormal return is significantly different from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model, using the standardised residual method. CAAR is cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

Day	N	AAR (%)	MAR (%)	Pos:Neg	SCS Z	GSIGN Z
-15	68	-0.58	-0.32	26:42	-1.442	-1.467
-14	68	0.22	0.15	36:32	-0.137	0.962
-13	68	-0.29	-0.37	30:38	-0.412	-0.496
-12	68	0.74	-0.13	33:35	1.490	0.233
-11	68	-0.82	-0.65	30:38	-2.610**	-0.496
-10	68	-0.33	-0.66	26:42	-1.224	-1.467
-9	68	-0.42	0.35	39:29	-0.577	1.691$
-8	68	0.80	0.45	38:30	1.353	1.448
-7	68	0.78	0.37	38:30	1.264	1.448
-6	68	-0.13	-0.65	24:44	-0.518	-1.953$
-5	68	-0.77	-0.29	30:38	-1.519	-0.496
-4	68	0.54	0.17	37:31	1.422	1.205
-3	68	0.26	0.14	34:34	0.703	0.476
-2	68	0.42	-0.01	34:34	1.791$	0.476
-1	68	0.46	0.37	40:28	1.090	1.934$
0	68	-0.15	-0.18	30:38	-0.085	-0.496
1	68	-0.17	-0.69	27:41	-0.326	-1.224
2	68	-0.07	0.05	35:33	-0.532	0.719
3	68	0.35	0.20	39:29	1.110	1.691$
4	68	-0.14	-0.30	29:39	0.194	-0.739
5	68	0.21	0.17	36:32	0.499	0.962
6	68	0.49	-0.07	33:35	1.342	0.233
7	68	0.59	0.27	39:29	1.137	1.691$
8	68	-0.13	-0.29	31:37	-0.189	-0.253
9	67	0.34	-0.23	33:34	0.488	0.350
10	67	-1.00	-0.60	29:38	-1.937$	-0.629
11	67	0.29	0.38	40:27	0.817	2.064*
12	67	-0.06	-0.04	33:34	0.070	0.350
13	67	-0.58	-0.05	32:35	-1.443	0.106
14	67	0.18	-0.01	33:34	0.703	0.350
15	67	-0.97	-0.64	29:38	-1.721$	-0.629
Days	**N**	**CAAR (%)**	**CMAR (%)**	**Pos:Neg**	**SCS Z**	**G SIGN Z**
[-1,+1]	68	0.14	0.00	34:34	0.307	0.476
[-1,0]	68	0.31	0.16	38:30	0.690	1.448
[0,+1]	68	-0.32	-0.31	33:35	-0.316	0.233
[-15,-2]	68	0.43	-0.37	34:34	0.256	0.476
[+2,+15]	68	-0.47	-1.46	33:35	0.087	0.233
[-15,+15]	68	0.11	-0.36	32:36	0.325	-0.010

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

The patterns of AAR and CAAR in the whole window (day -15 to day 15) are provided in Figure 2-5. AAR is randomly spread around zero, and on the announcement date it actually decreases, though insignificantly. CAAR has an upward trend from day -5 until day 10.

Figure 2-5
AAR and CAAR of Upgrade Announcements

Figure 2-5 shows the relationship between days (on the horizontal axis) and average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) on the vertical axis) for the sample of upgrade announcements.

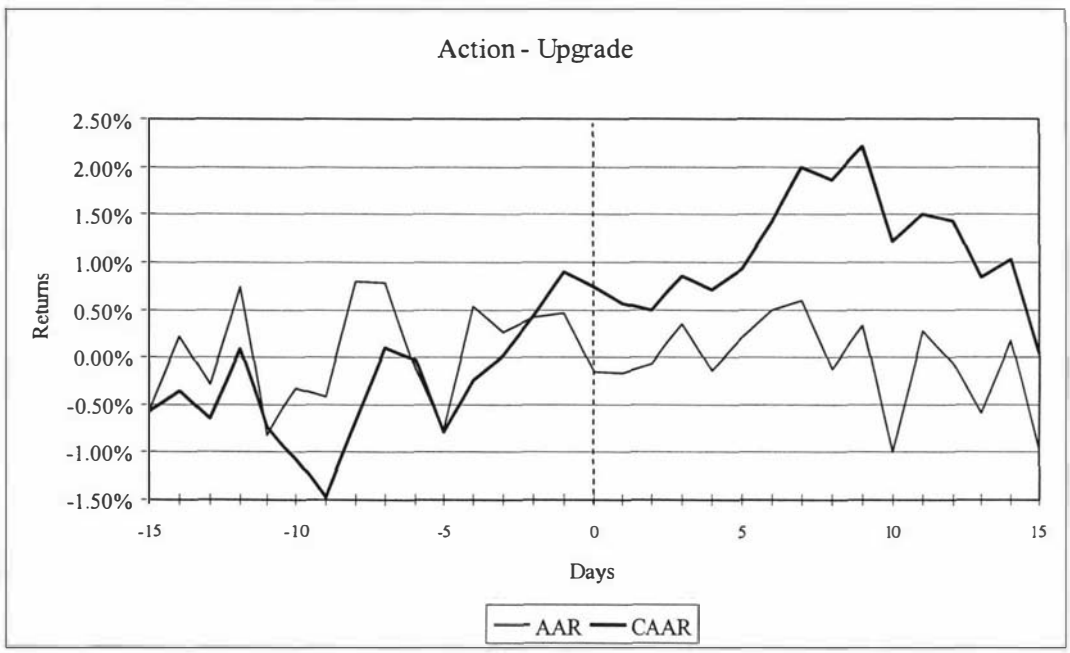


Table 11 reports the event study output for the 78 announcements of bank loan rating affirmation. Both three-day CAAR and CMAR are –0.49%, with an insignificant t-test statistic of –1.037. The ratio of positive to negative returns is 35:43, and the GSIGN Z of –0.448 is also insignificant. The results of the two-day window are similar and insignificant. The results support Hypothesis 3c, that the announcements of bank loan

rating affirmation should be associated with insignificantly abnormal market reactions.

This finding is consistent with Elayan et al. (1996; and 2003).

Table 11
Returns around Announcements of Bank Loan Rating Affirmations

Table 11 reports the returns around the 78 announcements of bank loan rating affirmations. N is the number of firm returns for a given day. AAR is the average abnormal returns. MAR is the median abnormal returns. Pos:Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests whether the average abnormal return is significantly different of from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model, using the standardised residual method. CAAR is cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

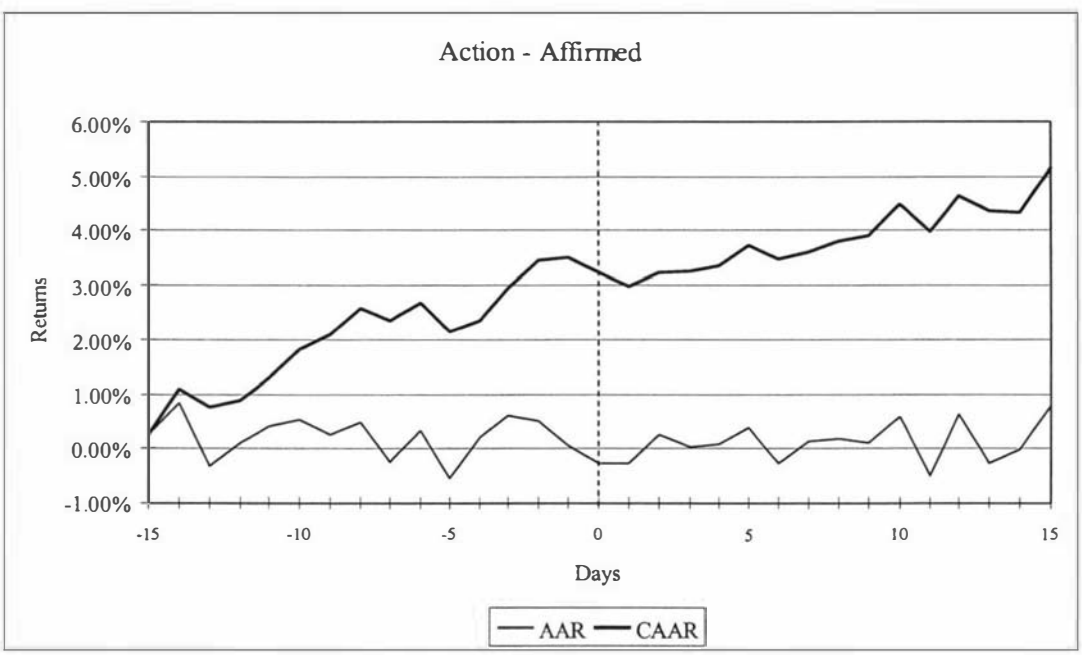
Day	N	AAR (%)	MAR (%)	Pos:Neg	SCS Z	GSIGN Z
-15	78	0.27	0.03	41:37	0.841	0.913
-14	78	0.83	-0.06	37:41	1.891$	0.006
-13	78	-0.33	-0.63	32:46	-1.129	-1.128
-12	78	0.11	-0.42	33:45	-0.111	-0.901
-11	78	0.40	-0.08	38:40	0.503	0.233
-10	78	0.53	-0.04	38:40	1.463	0.233
-9	78	0.26	-0.16	38:40	-0.369	0.233
-8	78	0.49	0.24	43:35	1.386	1.367
-7	78	-0.24	-0.58	28:50	-0.752	-2.035*
-6	78	0.34	-0.29	36:42	0.851	-0.221
-5	78	-0.54	-0.52	31:47	-1.655$	-1.355
-4	78	0.20	-0.48	33:45	0.004	-0.901
-3	78	0.61	0.04	40:38	1.300	0.686
-2	78	0.50	0.82	46:32	1.610	2.047*
-1	78	0.05	-0.58	35:43	-0.186	-0.448
0	78	-0.26	-0.42	33:45	-0.805	-0.901
1	78	-0.27	-0.29	35:43	-0.903	-0.448
2	78	0.27	-0.14	37:41	-0.032	0.006
3	78	0.01	-0.09	36:42	-0.081	-0.221
4	78	0.09	0.13	41:37	-0.378	0.913
5	78	0.39	0.10	40:38	1.261	0.686
6	78	-0.26	0.16	40:38	-1.304	0.686
7	77	0.09	-0.01	38:39	-0.291	0.343
8	77	0.21	-0.09	36:41	0.172	-0.114
9	77	0.07	0.11	41:36	-0.257	1.027
10	77	0.61	0.10	41:36	1.249	1.027
11	77	-0.49	-0.50	32:45	-1.345	-1.027
12	77	0.63	0.13	41:36	1.591	1.027
13	77	-0.31	-0.10	37:40	-0.911	0.114
14	77	-0.03	-0.35	37:40	1.012	0.114
15	77	0.73	0.01	39:38	1.493	0.571
Days	**N**	**CAAR (%)**	**CMAR (%)**	**Pos:Neg**	**SCS Z**	**GSIGN Z**
[-1,+1]	78	-0.49	-0.49	35:43	-1.037	-0.448
[-1,0]	78	-0.21	-0.68	35:43	-0.663	-0.448
[0,+1]	78	-0.53	-0.14	37:41	-1.216	0.006
[-15,-2]	78	3.42	0.32	45:33	1.400	1.820$
[+2,+15]	78	1.99	-0.12	38:40	0.920	0.233
[-15,+15]	78	4.92	1.75	41:37	1.161	0.913

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

The patterns of AAR and CAAR in the whole window (day -15 to day 15) are provided in Figure 2-6. AAR is randomly spread around zero. On the other hand, CAAR has an obvious upward trend and is above zero from day -15 throughout the whole window, indicating that companies in the sub-sample of rating affirmation had stable performance, at least in the short run.

Figure 2-6
AAR and CAAR of Affirmed Announcements

Figure 2-6 shows the relationship between days (on the horizontal axis) and average abnormal returns (AAR) and cumulative average abnormal returns (CAAR) (on the vertical axis) for the sample of affirmation announcements.



5.2. Univariate Tests of Returns based on Control Variables

The left-hand side of Table 12 provides the univariate results for tests of significant differences in the sample of assignments. The CAARs are split on the basis of the control variables (i.e., TQ, SIZE, LEV, TIE, CRATIO, ROE, RATP and INVG). In these tests the difference between the above-, and below-median groups is significant for LEV, TIE

Table 12
Equity Market Reaction of Control Variables to Announcements of Assignment and *CreditWatch* Placement with Negative Implication

Sign is the expected sign of the difference. N is the number of returns for a given category. CAAR is the three-day (t-1, t+1) cumulative average abnormal return percentage of the total. Z-test is the test statistic testing for a significant difference between the CAAR and zero. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by book value of the total assets. SIZE is the log of total assets. LEV is long-term debt divided by total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. ROE is the return on equity calculated as net income divided by the market value of equity. RATP is rating points. INVG is investment grade. Difference is the above median CAAR minus the below median CAAR, unless specified otherwise.

	Assignments				Placements with Negative Implications			
	Sign	N	CAAR	Z-test	Sign	N	CAAR	Z-test
TQ								
Above median		132	-0.38	-0.427		16	-2.35	-1.933$
Below median		133	-0.32	-0.874		16	-4.48	-2.280*
Difference	—	--	-0.06	-0.168	—	--	2.13	1.717$
SIZE								
Above median		132	-0.35	-0.394		16	-3.64	-2.255*
Below median		133	-0.32	-0.874		16	-3.19	-1.944$
Difference	+	--	-0.03	-0.083	+	--	-0.45	-0.360
LEV								
Above median		131	-0.02	0.163		16	-2.90	-2.884**
Below median		132	-0.63	-1.352		16	-3.93	-1.877$
Unknown		3	-4.34	-0.613		--	--	--
Difference	—	--	0.61	1.703$	—	--	1.03	0.831
TIE								
Above median		131	-0.02	-0.004		16	-2.34	-1.258
Below median		131	-0.65	-1.217		16	-4.49	-3.851***
Unknown		3	-1.79	-0.512		--	--	--
Difference	+	--	0.63	1.743$	+	--	2.15	1.726$
CRATIO								
Above median		131	-0.33	-0.604		16	-2.91	-1.408
Below median		131	-0.36	-0.689		16	-3.92	-2.718**
Unknown		3	-0.81	-0.088		--	--	--
Difference	+	--	0.03	0.083	+	--	1.01	0.809
ROE								
Above median		132	-0.11	0.530		16	-2.83	-1.435
Below median		133	-0.60	-1.637		16	-4.00	-3.454***
Difference	+	--	0.49	1.369	+	--	1.17	0.945
RATP								
Above median		110	0.04	-0.099		15	-3.42	-2.004*
Below median		155	-0.63	-1.149		17	-3.41	-2.514*
Difference	+	--	0.67	1.814$	+	--	-0.01	-0.008
INVG								
Investment Grade		83	-0.09	-0.093		6	-0.51	-0.334
Non Invest Grade		182	-0.47	-1.080		26	-4.09	-3.206**
Difference	+	--	0.38	0.103	+	--	3.58	2.239*

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

and RATP at the 10% level. For TIE, since both CAARs are negative, the positive difference is in accord with the expectation that firms with a sub-par interest coverage ratio will experience a more extreme market reaction. The RATP result, as expected, reflects a more positive reaction from a relatively higher rating assignment.

The univariate test statistics for *CreditWatch* placements with a negative implication are presented in the right-hand side of Table 12.[19] As this is a bad news event, all of the above- and below-median CAARs are negative. The differences are significant for TQ (at the 10% level), TIE (at the 10% level), and INVG (at the 5% level). As predicted, the below-median TIE and ROE, and the non-investment grade groups have a more negative reaction.

Table 13 depicts the univariate test results for rating action announcements. On the left-hand side of the table, the results for rating downgrades are presented. As expected for a bad news announcement, these results show all of the grouped CAARs to be negative. The differences for SIZE (at the 1% level), LEV (at the 5% level), CRATIO (at the 5% level), and ΔRATP (at the 5% level) all prove to be significant. Thus, a rating downgrade is found to generate a more negative reaction for larger firms, which have greater leverage, are less liquid, are less profitable and have a larger downgrade.

The centre section of Table 13 shows the test statistics for rating upgrades. Three variables generate significant differences, namely CRATIO (at the 10% level), CLASS (at the 1% level) and ACINV (at the 10% level). Only the CRATIO difference has the

[19] Univariate and regression tests are not reported for the placements with positive implications due to insignificant results and the small number of observations available.

Table 13
Equity Market Reaction of Control Variables to Announcements of Actions

Sign (S) is the expected sign of the difference. N is the number of returns for a given category. CAAR is the percentage, three-day (t-1, t+1) cumulative average abnormal return. Z-test is the test statistic which tests whether there is a significant difference between the CAAR and zero. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by book value of total assets. SIZE is the log of total assets. LEV is long-term debt divided by total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. ΔRATP is the change in rating points. INVG is investment grade. Difference is above median CAAR minus below median CAAR, unless specified otherwise. NA means not applicable.

	Downgrades				Upgrades				Affirmations		
	S	N	CAAR	Z-test	S	N	CAAR	Z-test	N	CAAR	Z-test
TQ											
Above		60	-2.84	-3.750***		34	0.78	0.821	39	-0.66	-0.921
Below		61	-3.30	-3.636***		34	-0.50	-0.392	39	-0.30	-0.521
Difference	—	--	0.46	0.584	+	--	1.28	1.599	--	-0.36	-0.503
SIZE											
Above		60	-4.23	-5.200***		34	0.32	0.314	39	-0.64	-0.988
Below		61	-1.93	-2.228*		34	-0.04	0.083	39	0.46	1.062
Difference	+	--	-2.30	-2.918**	—	--	0.36	0.446	--	-1.10	-1.532
LEV											
Above		60	-4.04	-3.883***		34	-0.12	-0.036	39	-0.93	-0.507
Below		61	-2.12	-3.583***		34	0.40	0.484	39	-0.03	-0.865
Difference	—	--	-1.92	-2.438*	+	--	-0.52	-0.647	--	-0.90	-1.246
TIE											
Above		57	-2.53	-4.495***		34	0.21	0.774	39	-1.42	-2.795**
Below		62	-3.65	-3.100**		34	0.07	-0.374	39	0.46	1.062
unknown		2	0.45	0.158		--	--	--	--	--	--
Difference	+	--	1.12	1.394	—	--	0.14	0.172	--	-1.88	-2.571*
CRATIO											
Above		60	-2.28	-4.044***		34	-0.62	-0.789	38	-0.39	-0.793
Below		60	-3.88	-3.419***		34	0.91	1.004	39	-0.57	-0.593
unknown		1	-2.41	--		--	--	--	1	-0.59	--
Difference	+	--	1.60	2.027*	—	--	-1.53	-1.912$	-1	0.18	0.249
ROE											
Above		60	-2.47	-3.857***		34	-0.31	-0.093	39	-1.47	-2.380*
Below		61	-3.60	-3.513***		34	0.59	0.444	39	0.51	0.464
Difference	+	--	1.19	-1.490	—	--	-0.90	-1.119	--	-1.98	-2.745**
ΔRATP											
= 0		19	-1.40	-0.644		21	-0.04	-0.094	NA	NA	NA
= 1		65	-2.63	-3.580***		42	0.03	-0.075	NA	NA	NA
= 2		37	-4.70	-4.344***		5	1.84	3.347***	NA	NA	NA
Difference	+	--	2.07	2.269*	—	--	-1.81	-1.120	NA	NA	NA
INVG											
INVG		18	-2.13	-2.777**		8	1.47	0.987	27	-1.13	-2.383*
Non-INVG		103	-3.23	-4.613***		60	-0.04	-0.288	51	-0.14	0.484
Difference	+	--	1.10	0.985	—	--	1.51	1.201	--	-0.99	-1.281
CLASS											
Across		54	-2.59	-3.302***		17	-1.74	-1.535	NA	NA	NA
Within		67	-3.46	-4.025***		51	0.77	1.264	NA	NA	NA
Difference	—	--	0.87	1.101	+	--	-2.51	-2.711**	NA	NA	NA
ACINV											
Across		11	-3.46	-2.056*		3	-3.36	-1.789$	NA	NA	NA
Not across		110	-3.03	-4.803***		65	0.30	0.757	NA	NA	NA
Difference	—	--	-0.43	-0.314	+	--	-3.66	-1.867$	NA	NA	NA

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

expected sign, however. Both the across CLASS and across investment-grade groups generate a negative CAAR, which is surprising since these events should be *better* news than their counterparts. Admittedly, the ACINV across group only contains three observations, making any conclusions suspect.

The univariate results for rating affirmations are shown on the right-hand side of Table 13. Due to the nature of an affirmation, significant differences between the groups are not necessarily expected, however, two significant differences are observed. The TIE difference z-statistic suggests that firms with above-median TIEs experience a significantly more negative market reaction. The significant z-statistic for the ROE difference may be interpreted as showing that more profitable firms suffer more from a ratings affirmation.

5.3. Regression Tests of Market Reaction to Bank Loan Rating Announcements

Appendix 2-5 and 2-6 at the end of this essay report summary statistics and Spearman's correlation of the independent variables used in the multivariate regressions for the sample of assignment announcements, respectively. Two multivariate regression models[20] which attempt to explain the three-day CAAR during the bank loan rating assignment period are shown in Table 14. The LEV parameter estimates are significantly different from zero in both models, using the standard t-test and the White[21] (1980) test statistics. These estimates have the expected negative sign. Additionally, the ROE

[20] For each rating type Model 1 includes all of the previously-identified control variables. Model 2 utilizes a more parsimonious specification developed using a step-wise approach, which attempts to retain as many meaningful variables as possible, while selectively dropping those that do not increase explanatory power.

[21] The White (1980) test is based on a consistent variance/covariance matrix that has been corrected for heteroscedasticity.

variable is significant in Model 2, based on the White test statistic. Thus, firms with more leverage experience a less positive, or a more negative reaction upon the rating assignment, while the opposite is true for firm profitability. The F-test value for Model 1 (Model 2) is 2.22 (3.08), and is significant at the 5% (1%) level, thus rejecting the hypothesis of no systematic relationship between the dependent and explanatory variables.

Table 14
Cross-sectional Multivariate Regression Results for Assignment Announcement Day Returns

The dependent variable is the cumulative average abnormal return (CAAR) during the three-day (day t-1, day t+1) assignment announcement period. Ind. Var. is the independent variable. Exp. S. is the expected sign of each independent variable. Par. Est. refers to the parameter estimate. T-stat is the t-statistic which tests whether the parameter estimate is significantly different from zero. N is the number of announcements in a given category. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of total assets. LEV is long-term debt divided by total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. RATP is rating points. INVG is investment grade. NA indicates not applicable.

		MODEL 1			MODEL 2		
Ind. Var.	Exp. S.	Par. Est.	T-stat	White test	Par. Est.	T-stat	White test
Intercept	NA	-0.069	-1.30	-1.53	-0.019	-0.83	-0.92
TQ	-	-0.004	-1.35	-1.35	-0.003	-1.07	-1.16
SIZE	+	-0.001	-0.36	-0.32	—	—	—
LEV	-	-0.001	-2.10*	-2.71**	-0.001	-2.63**	-4.39***
TIE	+	0.000	0.67	0.79	—	—	—
CRATIO	+	-0.001	-0.44	-0.37	-0.001	-0.22	-0.20
ROE	+	0.016	1.20	1.70	0.016	1.27	1.92*
RATP	+	0.004	1.59	1.67	0.001	1.12	1.33
INVG	+	0.016	1.18	1.37	-0.019	-0.83	-0.92
F Value		2.22*			3.08**		
N		261			261		

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

Appendix 2-7 and 2-8 at the end of this essay report the summary statistic and Spearman's correlation of the independent variables used in the multivariate regressions for the sample of placement announcements with negative implication, respectively. Table 15 provides the results of the two multivariate regressions, which attempt to explain the three-day CAAR for the negative-implication *CreditWatch* placements. The TQ,

LEV and ROE variables are found to be significant using the White test. The F-values for both models are insignificant.

Table 15
Cross-sectional Multivariate Regression Results for *CreditWatch* Placements with Negative Implication Announcement Day Returns

The dependent variable is the cumulative average abnormal returns (CAAR) during the three-day period (day t-1, day t+1) for placement announcements with negative implication. Ind. Var. is independent variable. Exp. S. is the expected sign of each independent variable. Par. Est. refers to the parameter estimate. N is the number of announcements in a given category. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of the total assets. LEV is long-term debt divided by the total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. RATP is rating points. INVG is a dummy variable which is equal to one if the rating is below investment grade, and zero otherwise. NA indicates not applicable.

		MODEL 1			MODEL 2		
Ind. Var.	Exp. S.	Par. Est.	T-stat	White test	Par. Est.	T-stat	White test
Intercept	NA	-0.075	-0.48	-0.56	-0.077	-1.63	-1.68
TQ	-	0.044	1.43	1.99$	0.039	1.60	2.16*
SIZE	+	-0.003	-0.26	-0.41	—	—	—
LEV	-	0.000	0.50	3.14**	0.000	0.51	3.81**
TIE	+	-0.001	-0.19	-0.27	—	—	—
CRATIO	+	0.011	0.69	0.75	0.012	0.82	0.90
ROE	+	-0.011	-1.05	-3.16**	-0.011	-1.18	-2.93**
RATP	+	0.001	0.10	0.10	—	—	—
INVG	+	-0.026	-0.56	-0.57	-0.028	-0.96	-0.96
F Value		0.64			1.13		
N		32			32		

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

Appendix 2-9 and 2-10 at the end of this essay report the summary statistic and Spearman's correlation of the independent variables used in the multivariate regressions for the sample of downgrade announcements, respectively. Table 16 provides the results for two multivariate regressions, which attempt to explain the three-day CAAR bank loan rating downgrades. The SIZE variable is found to be marginally significant when using both the t-test and White test statistics. This variable's sign is, however, expected to be positive. Therefore, this result does not suggest that a rating downgrade generates a more negative response for small firms. In Model 2, the ROE variable is also significant

(White test) and, as expected, its sign is positive. The F-values for both models are insignificant, although for Model 2 it nearly reaches the 10% level of significance.

Table 16
Cross-sectional Multivariate Regression Results for Downgrade Announcements Day Returns

The dependent variable is the cumulative average abnormal return (CAAR) during the three-day period (day t-1, day t+1) for action announcements. Ind. Var. is the independent variable. Exp. S. is the expected sign of each independent variable. Par. Est. is the parameter estimate. N is the number of announcements in a given category. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of the total assets. LEV is long-term debt divided by the total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. ΔRATP is the change in rating points. INVG is a dummy variable which equals one if the pre-change rating is below investment grade, and is zero otherwise. CLASS is a dummy variable which equals one if the rating action is across class. ACINV is a dummy variable which equals one if the rating action is across investment grade. NA indicates not applicable.

		MODEL 1			MODEL 2		
Ind. Var.	Exp. S.	Par. Est.	T-stat	White test	Par. Est.	T-stat	White test
Intercept	NA	0.066	0.96	1.12	0.047	0.99	1.11
TQ	-	0.000	-0.02	-0.02	—	—	—
SIZE	+	-0.012	-1.66$	-1.82$	-0.011	-1.66$	-1.89$
LEV	-	0.000	-0.58	-0.37	0.000	-0.64	-0.40
TIE	+	0.002	0.80	1.28	0.003	1.24	1.91
CRATIO	+	0.003	0.38	0.48	—	—	—
ROE	+	0.001	1.13	2.24	0.001	1.07	2.08*
ΔRATP	+	0.010	1.20	1.29	0.009	1.23	1.40
INVG	+	-0.018	-0.83	-1.23	—	—	—
CLASS	-	0.022	1.32	1.42	0.018	1.16	1.28
ACINV	-	-0.009	-0.32	-0.42	0.047	0.99	1.11
F Value		1.11			1.73		
N		119			119		

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

Appendix 2-11 and 2-12 at the end of this essay report the summary statistic and Spearman's correlation of the independent variables used in the multivariate regressions for the sample of upgrade announcements, respectively. Table 17 provides the results for two multivariate regressions which attempt to explain the three-day CAAR bank loan rating upgrades. The LEV, ΔRATP and CLASS variables are significant for both the Model 1 and 2 upgrade regressions. The significant result of changes in rating points indicates that the magnitude of good news has an impact on investors. Investors are less

impressed, however, when firms are upgraded into a higher class. The results for LEV can be interpreted as showing that investors find announcements of a rating upgrade to be more informative for less-leveraged firms. Model 2 generates a significant F-test (at the 5% level).

Table 17
Cross-sectional Multivariate Regression Results for Upgrade Announcements Day Returns

The dependent variable is the cumulative average abnormal return (CAAR) during the three-day period (day t-1, day t+1) for action announcements. Ind. Var. is the independent variable. Exp. S. is the expected sign of each independent variable. Par. Est. is the parameter estimate. N is the number of announcements in a given category. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of the total assets. LEV is long-term debt divided by total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. ΔRATP is the change in rating points. INVG is a dummy variable which equals one if the pre-change rating is below investment grade, and is zero otherwise. CLASS is a dummy variable which equals one if the rating action is across class. ACINV is a dummy variable which equals one if the rating action is across investment grade. NA indicates not applicable.

		MODEL 1			MODEL 2		
Ind. Var.	Exp. S.	Par. Est.	T-stat	White test	Par. Est.	T-stat	White test
Intercept	NA	0.037	0.73	0.79	0.011	0.81	0.82
TQ	+	0.005	0.73	0.67	0.002	0.33	0.29
SIZE	-	-0.003	-0.60	-0.68	—	—	—
LEV	+	-0.002	-1.84$	-3.36**	-0.002	-1.97*	-3.43**
TIE	-	-0.001	-0.90	-0.83	—	—	—
CRATIO	-	-0.007	-1.38	-1.67	-0.008	-1.59	-1.78
ROE	-	0.006	0.72	0.75	—	—	—
ΔRATP	+	0.017	1.65$	2.06*	0.014	1.55	1.94$
INVG	-	-0.006	-0.36	-0.38	—	—	—
CLASS	+	-0.033	-2.17*	-2.06*	-0.026	-2.03*	-1.89$
ACINV	+	-0.016	-0.60	-0.92	-0.025	-1.03	-1.44
F Value		1.70			2.74*		
N		68			68		

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

6. CONCLUSION

Credit ratings of bank loans present a unique opportunity to examine whether rating agencies duplicate existing information, or convey any additional value to the capital market. This issue arises because of the highly similar functions of certification and monitoring performed by both financial intermediaries, and rating agencies. Consistent evidence is provided that, in spite of bank signals already in place, negative announcements by rating agencies provide useful information to the capital market. This information transmission proves to be significant only for the negative signals implicit in rating downgrades, and placements on *CreditWatch* with negative implications.

These results suggest that the information provided by rating agencies differs from that offered by banks. Otherwise, there would be no significant abnormal market reaction to any type of announcements by rating agencies, regarding loans which are already being monitored or certified by banks. The findings in this essay also suggest that the value of rating agencies depends most on recognising the deterioration in the firm's financial position, and conveying this news to the market (see Schweitzer et al., 1992). This conclusion is supported by the finding that the identification of improving fortunes by rating agencies does not generate a significant reaction.

Appendix 2-1
Hypotheses on Anticipated Response of the Equity Market's Reaction and the Empirical Results

Appendix 2-1 provides the summary of hypotheses of anticipated response of the equity market's reaction to the announcements of bank loan ratings.

Hypothesis	Expected Results	Empirical Results
1) Assignment	Insignificant	Insignificant
Placement on *CreditWatch*		Significantly negative **
2a) negative implication	Significantly negative	
2b) positive implication	Insignificant	Insignificant
Action		
3a) downgrade	Significantly negative	Significantly negative ***
3b) upgrade	Insignificant	Insignificant
3c) affirmed	Insignificant	Insignificant

***, **, *, and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Appendix 2-2
Characteristics of the Samples of Announcements of Assignment

Appendix 2-2 provides the statistic summary of key accounting variables for announcements of assignment of bank loan ratings. VAR gives the name of each variable, and N is the number of announcement in a given category. S is sales, NI is net income, TA is total assets, TL is total liabilities, SH is shareholder's equity and MV is market value. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively. All accounting variables are displayed on the basis of millions of United States dollars (US$).

VAR	N	MEAN	MEDIAN	STD	MIN	MAX
S	265	2,027.10	794.97	3,798.65	7.37	30,338.78
NI	265	52.58	22.26	328.54	-2,696.75	2,330.90
TA	265	2,260.36	901.60	3,860.02	3.08	27,645.15
TL	265	1,566.03	559.73	2,714.06	1.28	17,477.17
SH	265	691.30	313.23	1,294.54	-1,181.71	10,167.98
MV	265	1,845.49	709.20	3,537.42	11.54	37,519.00

Appendix 2-3
Characteristics of the Samples of Announcements of Placement on *CreditWatch*

Appendix 2-3 provides the statistical summary of key accounting variables for announcements of placement on *CreditWatch* of bank loan ratings. Panel A and B presents the sample group of placement with negative and positive implication, respectively. VAR gives the name of each variable and N is the number of announcements in a given category. S is sales, NI is net income, TA is total assets, TL is total liabilities, SH is shareholder's equity and MV is market value. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively. All accounting variables are displayed on the basis of millions of United States dollars (US$).

VAR	N	MEAN	MEDIAN	STD	MIN	MAX
Panel A: Placement with Negative Implication						
S	32	1,976.36	1,004.31	3,006.57	19.67	12,492.00
NI	32	-100.97	-1.09	568.97	-3,094.00	545.79
TA	32	3,279.23	966.20	5,904.09	143.37	22,064.00
TL	32	2,512.35	565.16	4,843.71	96.22	20,532.00
SH	32	766.87	303.04	1,314.91	-23.75	5,667.10
MV	32	1,899.53	333.44	3,949.75	18.51	17,278.54
Panel B: Placement with Positive Implication						
S	7	3,323.83	1,379.50	4,489.07	507.16	13,206.10
NI	7	91.17	100.42	147.81	-110.79	374.50
TA	7	5,664.55	2,298.97	10,019.55	718.54	28,288.70
TL	7	3,676.24	1,609.12	5,071.67	832.10	14,905.10
SH	7	1,988.32	263.70	5,060.40	-873.56	13,383.60
MV	7	2,997.22	706.34	5,122.88	494.76	14,377.21

Appendix 2-4
Characteristics of the Samples of Announcements of Action

Appendix 2-4 provides the statistical summary of key accounting variables for announcements of action of bank loan ratings. Panels A, B and C present the sample group of downgrades, upgrades and affirmed ratings, respectively. VAR gives the name of each variable and N is the number of announcements in a given category. S is sales, NI is net income, TA is total assets, TL is total liabilities, SH is shareholder's equity and MV is market value. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively. All accounting variables are displayed on the basis of millions of United States dollars (US$).

VAR	N	MEAN	MEDIAN	STD	MIN	MAX
Panel A: Downgrade						
S	121	1,781.41	915.14	2,609.73	19.67	18,692.30
NI	121	-64.58	-3.61	412.46	-4,107.25	316.44
TA	121	2,096.87	1,025.55	2,685.53	135.44	14,601.60
TL	121	1,488.39	856.54	1,959.62	19.96	11,106.33
SH	121	604.60	333.55	1,075.72	-1,449.04	7,551.14
MV	121	858.82	325.10	1,686.98	17.99	11,488.51
Panel B: Upgrade						
S	68	3,322.90	1,347.19	6,199.10	83.51	33,674.00
NI	68	54.66	31.59	290.29	-1,568.07	937.30
TA	68	3,144.63	1,279.63	4,954.55	169.77	28,288.70
TL	68	2,143.66	979.52	3,069.30	157.02	14,905.10
SH	68	1,000.97	351.43	2,022.55	-151.12	13,383.60
MV	68	2,742.54	739.00	5,649.46	27.41	37,626.08
Panel C: Affirmed Panel B: Upgrade						
S	78	4,706.36	1,451.82	7,602.12	54.27	37,120.00
NI	78	71.28	34.39	762.97	-3,299.00	3,941.00
TA	78	6,759.68	2,182.49	12,469.04	190.60	91,072.00
TL	78	4,456.89	1,560.24	6,544.38	108.26	32,500.00
SH	78	2,029.01	645.89	5,930.62	-458.50	51,238.00
MV	78	5,287.36	1,663.53	9,066.17	19.62	43,700.57

Appendix 2-5
Summary Statistics for Independent Variables in Multivariate Regression Analysis of Bank Loan Rating Announcements of Assignment

This table presents the summary statistics for the independent variable used for multivariate regression model of bank loan rating assignment. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by book value of the total assets. SIZE is the log of total assets. LEV is long-term debt divided by total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. RATP is rating points. N is the number of announcement in a given category. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX is the minimum and maximum values, respectively. The firm names and the financial year of the extreme variables are given in the footnote.

Variable	N	MEAN	MEDIAN	STD	MIN	MAX
TQ	265	1.77	1.39	1.17	0.14	10.06
SIZE	265	6.88	6.80	1.31	1.12	10.23
LEV	263	1.39	0.73	5.92	-7.85	89.40[a]
TIE	262	7.58	3.38	20.89	-92.76[b]	222.75[c]
CRATIO	262	1.87	1.57	1.23	0.34	11.54[c]
ROE	265	-0.002	0.04	0.25	-2.01[d]	0.40
RATP	265	16.62	16.00	2.47	12.00	23.00

[a] Exodus Communications Inc., 1999.
[b] Matria Healthcare Inc, 1998.
[c] Juno Lighting Inc., 1998.
[d] Ziff Daivs, Inc., 1999.

Appendix 2-6
Correlation Coefficient between Independent Variables in the Multivariate Regression Analysis of Bank Loan Rating Announcements of Assignment

This table reports the Spearman's correlation coefficients between the independent variables used in the multivariate regression model of bank loan rating announcements of assignment. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of total assets. SIZE is the log of total assets. LEV is long-term debt divided by total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by market value of equity. RATP is rating points. INVG is investment grade. Significance is presented within parenthesis.

	TQ	SIZE	LEV	TIE	CRATIO	ROE	RATP	INVG
TQ	1.000	-0.165	-0.421	0.459	0.122	-0.093	0.184	-0.194
		(0.007)	(0.000)	(0.000)	(0.048)	(0.130)	(0.003)	(0.001)
SIZE		1.000	0.140	-0.088	-0.254	-0.045	0.523	-0.439
			(0.023)	(0.157)	(0.000)	(0.464)	(0.000)	(0.000)
LEV			1.000	-0.530	-0.265	-0.130	-0.223	0.211
				(0.000)	(0.000)	(0.035)	(0.000)	(0.001)
TIE				1.000	0.280	0.435	0.352	-0.349
					(0.000)	(0.000)	(0.000)	(0.000)
CRATIO					1.000	0.052	-0.122	0.064
						(0.402)	(0.049)	(0.305)
ROE						1.000	0.171	-0.194
							(0.005)	(0.002)
RATP							1.000	-0.813
								(0.000)
INVG								1.000

Appendix 2-7
Summary Statistics for Independent Variables in Multivariate Regression Analysis of Bank Loan Rating Announcements of Placement with Negative Implication

This table reports the summary statistics for the independent variables that are used for the multivariate regression model of bank loan rating placement with negative implication. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of the total assets. LEV is long-term debt divided by total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. RATP is rating points. N is the number of announcements in a given category. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively. The firm names and financial year of the extreme variables are given in the footnote.

Variable	N	MEAN	MEDIAN	STD	MIN	MAX
TQ	32	1.18	1.08	0.47	0.69	2.71
SIZE	32	7.13	6.87	1.34	4.97	10.00
LEV	32	-1.02	1.44	17.30	-93.31[a]	12.94
TIE	32	1.65	1.26	2.80	-4.07	10.79
CRATIO	32	1.41	1.37	0.80	0.28	3.32
ROE	32	-0.32	0.0004	1.25	-6.98[b]	0.32
RATP	32	15.47	15.00	2.24	11.00	21.00

[a] Breed Technologies Inc., 1997.
[b] American Skiing Company, 2000.

Appendix 2-8
Correlation Coefficient between Independent Variables in the Multivariate Regression Analysis of Bank Loan Rating Announcements of Placement with Negative Implication

This table reports the Spearman's correlation coefficients between the independent variables used in the multivariate regression model of bank loan rating announcements of placement with negative implication. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of the total assets. LEV is long-term debt divided by the total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. RATP is rating points. INVG is investment grade. Significance is presented within parenthesis.

	TQ	SIZE	LEV	TIE	CRATIO	ROE	RATP	INVG
TQ	1.000	0.154	0.055	0.327	-0.048	0.132	0.068	0.026
		(0.401)	(0.767)	(0.067)	(0.794)	(0.473)	(0.710)	(0.888)
SIZE		1.000	-0.144	0.070	-0.240	-0.132	0.514	-0.234
			(0.433)	(0.703)	(0.186)	(0.473)	(0.003)	(0.197)
LEV			1.000	-0.360	-0.383	-0.092	-0.252	0.356
				(0.043)	(0.030)	(0.618)	(0.165)	(0.046)
TIE				1.000	0.123	0.759	0.266	-0.364
					(0.503)	(0.000)	(0.141)	(0.040)
CRATIO					1.000	0.168	0.109	-0.165
						(0.359)	(0.552)	(0.368)
ROE						1.000	0.158	-0.225
							(0.387)	(0.215)
RATP							1.000	-0.684
								(0.000)
INVG								1.000

Appendix 2-9
Summary Statistics for Independent Variables in Multivariate Regression Analysis of Bank Loan Rating Announcements of Downgrade

This table reports the summary statistics for the independent variable which is used for the multivariate regression model of bank loan rating downgrades. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of the total assets. LEV is long-term debt divided by the total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is the net income divided by the market value of equity. RATP is rating points. N is the number of announcements in a given category. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively. The firm names and financial year of the extreme variables are given in the footnote.

Variable	N	MEAN	MEDIAN	STD	MIN	MAX
TQ	121	1.15	1.07	0.40	0.17	2.46
SIZE	121	7.08	6.93	1.05	4.91	9.59
LEV	121	0.93	1.04	14.40	-93.31[a]	117.33[b]
TIE	119	1.39	1.65	2.98	-20.16[c]	10.58
CRATIO	120	1.54	1.38	0.81	0.27	5.25
ROE	121	-0.86	-0.02	5.89	-64.18[d]	0.40
RATP	121	15.62	15.00	2.38	9.00	21.00

[a] Breed Technologies Inc., 1997.
[b] Metrocall Inc., 1999.
[c] Gemstar-TV Guide International, 2001.
[d] Williams Communications Group Inc., 2001.

Appendix 2-10

Correlation Coefficient between Independent Variables in the Multivariate Regression Analysis of Bank Loan Rating Announcements of Downgrade

This table reports the Spearman's correlation coefficients between independent variables that are used in the multivariate regression model of bank loan rating announcements of downgrade. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of the total assets. LEV is long-term debt divided by the total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. ΔRATP is the change in rating points. INVG is a dummy variable which equals one if the pre-change rating is below investment grade, and is zero otherwise. CLASS is a dummy variable which equals one if the rating action is across class. ACINV is a dummy variable which equals one if the rating action is across investment grade. Significance is presented within parenthesis.

	TQ	SIZE	LEV	TIE	CRATIO	ROE	ΔRATP	INVG	CLASS	ACINV
TQ	1.000	-0.089	-0.343	0.212	-0.007	0.136	0.040	-0.217	-0.143	-0.100
		(0.334)	(0.000)	(0.021)	(0.941)	(0.137)	(0.661)	(0.017)	(0.117)	(0.275)
SIZE		1.000	0.003	0.216	-0.005	0.149	-0.206	-0.309	-0.032	0.209
			(0.972)	(0.018)	(0.961)	(0.102)	(0.024)	(0.001)	(0.728)	(0.022)
LEV			1.000	-0.033	-0.043	-0.070	0.101	0.083	0.078	-0.165
				(0.718)	(0.639)	(0.444)	(0.270)	(0.365)	(0.393)	(0.070)
TIE				1.000	0.335	0.721	-0.039	-0.410	-0.031	0.212
					(0.000)	(0.000)	(0.674)	(0.000)	(0.738)	(0.021)
CRATIO					1.000	0.260	0.064	-0.128	-0.107	0.069
						(0.004)	(0.484)	(0.164)	(0.245)	(0.453)
ROE						1.000	0.040	-0.283	-0.060	0.255
							(0.660)	(0.002)	(0.513)	(0.005)
ΔRATP							1.000	0.076	-0.438	-0.270
								(0.407)	(0.000)	(0.003)
INVG								1.000	0.142	-0.029
									(0.121)	(0.749)
CLASS									1.000	0.352
										(0.000)
ACINV										1.000

Appendix 2-11
Summary Statistics for Independent Variables in Multivariate Regression Analysis of Bank Loan Rating Announcements of Upgrade

This table reports the summary statistics for the independent variable which is used in the multivariate regression model of bank loan rating upgrade. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of total assets. LEV is long-term debt divided by the total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. RATP is rating points. N is the number of announcements in a given category. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively. The firm names and financial year of the extreme variables are given in the footnote.

Variable	N	MEAN	MEDIAN	STD	MIN	MAX
TQ	68	1.60	1.34	0.97	0.61	6.39
SIZE	68	7.32	7.15	1.15	5.13	10.25
LEV	68	1.60	1.09	5.16	-10.99	32.70[a]
TIE	68	2.89	2.31	5.24	-16.27	25.21[b]
CRATIO	68	1.65	1.39	1.00	0.31	6.17
ROE	68	-0.11	0.04	0.68	-3.68[c]	0.33
RATP	68	15.49	15.00	2.18	11.00	22.00

[a] Gentek Inc., 1999.
[b] Jabil Circuit Inc., 2000.
[c] Denbury Resources Inc., 1998.

Appendix 2-12

Correlation Coefficient between Independent Variables in the Multivariate Regression Analysis of Bank Loan Rating Announcements of Upgrade

This table reports the Spearman's correlation coefficients between independent variables used in the multivariate regression model of bank loan rating announcements of upgrade. TQ is Tobin's Q, which is the sum of the total liabilities and the market value of equity divided by the book value of the total assets. SIZE is the log of the total assets. LEV is long-term debt divided by total equity. TIE is times interest earned calculated as earnings before interest and taxes divided by long-term debt interest. CRATIO is the current ratio. Return on equity (ROE) is net income divided by the market value of equity. ΔRATP is the change in rating points. INVG is a dummy variable which equals one if the pre-change rating is below investment grade, and is zero otherwise. CLASS is a dummy variable which equals one if the rating action is across class. ACINV is a dummy variable which equals one if the rating action is across investment grade. Significance is presented within parenthesis.

	TQ	SIZE	LEV	TIE	CRATIO	ROE	ΔRATP	INVG	CLASS	ACINV
TQ	1.000	-0.121	-0.347	0.371	0.075	-0.197	-0.048	-0.170	-0.055	-0.213
		(0.327)	(0.004)	(0.002)	(0.545)	(0.106)	(0.696)	(0.166)	(0.654)	(0.081)
SIZE		1.000	-0.195	0.236	-0.072	0.038	-0.125	-0.405	-0.265	0.133
			(0.111)	(0.052)	(0.561)	(0.756)	(0.308)	(0.001)	(0.029)	(0.279)
LEV			1.000	-0.196	-0.055	0.295	-0.138	0.160	0.135	-0.177
				(0.109)	(0.658)	(0.015)	(0.263)	(0.191)	(0.272)	(0.149)
TIE				1.000	0.135	0.529	0.139	-0.286	-0.368	0.049
					(0.273)	(0.000)	(0.260)	(0.018)	(0.002)	(0.690)
CRATIO					1.000	-0.031	-0.020	0.188	0.078	0.046
						(0.801)	(0.871)	(0.124)	(0.528)	(0.712)
ROE						1.000	0.091	-0.067	-0.043	0.137
							(0.463)	(0.585)	(0.726)	(0.266)
ΔRATP							1.000	0.019	0.417	0.202
								(0.878)	(0.000)	(0.098)
INVG								1.000	0.211	0.078
									(0.084)	(0.525)
CLASS									1.000	0.372
										(0.002)
ACINV										1.000

CHAPTER THREE

Essay Two

The Role of Bank Quality in Mitigating the Market Reaction to Adverse Rating Agency Announcements Concerning Bank Loans

Abstract

Does the quality of a lending bank influence the market reaction of downside information issued by rating agencies? The answer is yes. This study finds that the firms which are certified and monitored by the high quality banks are associated with less negative market reactions toward bank loan rating announcements of placement on *CreditWatch* with negative implication, and also announcements of downgrades. These results indicate that the high quality lending banks can sustain investors' confidence toward the borrowers when they have deteriorated news. This is due to investors' beliefs that high quality lending banks access inside information not available to outsiders. The results also show that lead lending banks are not significantly affected by borrowers' bad rating news.

1. INTRODUCTION

It is commonly thought that banks' speciality in the area of accessing private information due to ongoing business relationships can solve the problem of information asymmetry and ex ante uncertainty between entrepreneurs and investors (Fama, 1985; Diamond, 1991). Here this issue is extended by hypothesising that banks' access to private information, due to prior lending activities, would influence the investors' assessment towards the firm valuation regarding a downside event. The *downside news* used in this essay are the announcements of bank loan rating placements on *CreditWatch* with negative implications and, also, bank loan rating downgrades, which have been proved to cause negative market reactions in Essay One of this thesis.

Using different variables to proxy banks' quality, the results of the univariate tests and cross-sectional analyses support the hypothesis that a lender's quality influences how the market revises its perception of a firm's value as a result of a downside event. The negative market reaction towards a firm's bad news concerning bank loan ratings will be reduced when the bank loans are granted and monitored by high quality lenders. This indicates that investors believe lending banks have unique private information not publicly available and that, when this private information is conveyed by trustworthy banks, investors are more willing to sustain confidence and reassess their judgement towards a firm's bad news.

The sample used in this essay provides a unique opportunity to investigate whether banking relationships are still special even though rating agencies perform many functions which are highly similar to lending banks. The certifying and monitoring role

of lending banks may be replaced by rating agencies via the announcements of recognised deterioration of firms. It is interesting to examine whether lending banks still keep their informational advantage to evaluate and monitor firms in the presence of rating agencies. Lending banks may lose their informational advantage for two reasons. First, it is argued that banks may reduce their efforts in evaluating and monitoring if the other source of the information is reliable (Best and Zhang, 1993). Second, a bank's informational advantage (which is due to the continuous relationship it has with its borrowers) may no longer be unique, as rating agencies can also build long term interactions with their clients and, therefore, gain access to private information (Butler and Rodgers, 2003).

Empirical results cited in Essay One among others' research (see, for example Schweitzer, Szewczky and Varma, 1992) support the contribution of rating agencies in the presence of banks. Under the presumption that the market perceives rating agencies as reputable third parties, which convey additional information to the market, this essay, examines the value of lending banks in the presence of rating agencies. It concentrates specifically on whether the banks' reputation influences the firm valuation of their clients. It is assumed that investors are more willing to sustain their confidence to deteriorated borrowers and devalue them less, when the firms are associated with high quality lenders. This is because investors trust that high quality banks, based on their past performance and reputation, may have unique access to private information.

This essay also examines whether the bad rating news of clients' loans have any adverse impact on the lead lending banks. A negative impact on a lead bank's return is expected. This is because bad rating news concerning a borrower's bank loan indicates either a direct impact that may cause the deteriorated borrower to default (and, hence, reduce the

value of the bank's loan portfolio), or an indirect impact in ruining a bank's loan portfolio management reputation. Nevertheless, no significant result is found. Deteriorated rating news concerning one of the client's bank loans does not have any influence on the lead lending bank's value. This is probably because the amount of the bank loan is small in comparison to the bank's total portfolio.

2. REVIEW OF LITERATURE

This section contains three sub-sections. The first focuses on the speciality of banks in the area of accessing private information due to the continuous relationships they have with clients. The second demonstrates the impact of a lender's characteristics on different kinds of events. The last part is the comparison of commercial banks and rating agencies.

2.1 Unique Private Information of Lending Banks

Financial intermediaries use unique non-public information to solve the problem of information asymmetry between entrepreneurs and investors in the market. It is argued that this unique access to inside information comes from continuous interaction between financial intermediaries and client borrowers. Fama (1985) suggested that banks have a comparative advantage as inside lenders, because the ongoing histories of borrowers as depositors provide banks with more private information. This inside access to continuous records makes it easier for banks to identify borrowers' risks, and to monitor these risks. Diamond (1991) argued that it is the track record of borrowers' information which builds their reputation and, therefore, firms that are lacking in such recognised quality will create their reputation through their relationship with banks, before borrowing directly from the market. Hansen and Torregrosa (1992) argued that firm value could be influenced by random factors, as well as by direct managerial effort. This factor creates difficulties in evaluating an accurate firm value and in distinguishing whether the deterioration is due to the lack of managerial efforts, or just bad luck. It is for this reason that banks' access to private information as a result of prior lending activities can influence investors' assessments of the banks' clients. This is because "the ability to

assess performance over a sequence of periods allows the principal to assess the agents' behaviour more accurately" (Molho, 1997, p. 159).

Lummer and McConnell (1989) found that it is loan revision and renewal, not loan initiation, which results in a positive market reaction. This positive reaction is strongest for the borrowers that have reported problems with their loans. Banks' willingness to continue their relationships based on their inside information is regarded as a very strong positive signal to the market, particularly for troubled firms. They therefore concluded that "it is the action of the bank, rather than the borrower's decision about the use of debt, that signals information" (Lummer and McConnell, 1989, p.120). Dahiya, Puri and Saunders (2003) examined the announcement effect on the borrowers when their loans were sold by their lending banks. They found that the market reacts negatively to those firms whose bank loans have been sold by the initial lending banks. The performances of those firms are, however, not the worst ones, and are not even in the bottom category. They argued that this suggests that publicly available information alone is not sufficient for investors to distinguish the true level of weakness, while banks can access private information and clarify the true financial condition of such firms.

The banks' proprietary information from prior lending activities of client firms is often used to solve the problem of information asymmetry and moral hazard, particularly in the case of initial public offerings and seasoned issuance. Banks' processing of asymmetric information and external monitoring could reduce the ex ante uncertainty of investors associated with initial public offerings and, hence, increase firm valuation. Empirical studies show that the presence of credit line banking (Slovin and Young, 1990) and loan commitment (James and Wier, 1990) reduce the magnitude of underpricing in initial

public offerings of equity. Datta, Iskandar-Datta and Patel (1999; 2000) found that the existence of bank debt reduces the yield spread for the initial public offerings of public straight debt, because of the private information and cross monitoring. Slovin, Sushka and Hudson (1990) found that the presence of bank debt in the capital structure is associated with much less negative (and insignificant) market reaction. This is usually associated with seasoned equity issuance.

The banks' unique advantage in accessing private information due to their track record with borrowers is illustrated more clearly in the case of underwriting businesses. This is because, in addition to the activities of gathering, assessing and certifying information as do the traditional investment houses, lending banks are also involved in loan-issuing activity which gives them unique access to private information. Puri (1999) showed that commercial banks, as lenders to firms, can be better certifiers than investment houses in terms of underwriting securities. This is due to the prior claims held by these banks, which give them private information through continuous monitoring. Kanatas and Qi (1998; 2003) argued that such repeated business from lending to underwriting results in savings from informational scope economies for commercial banks.[1] Through empirical investigation Puri (1996) found that issues underwritten by banks generate higher prices than those issues underwritten by investment houses, indicating that investors perceive a higher quality in such firms ex ante. The ex post performance of such bank-underwritten issues also shows that they experience a lower default rate in the long run than non-bank

[1] On the other hand, combing lending and underwriting activities may cause a conflict of interest, in terms of the incentives for commercial banks to underwrite those firms that are not credible in order to use the process to repay loans (Puri, 1996; and 1999; Kanatas and Qi, 1998). Another contrary issue is that the likelihood of successful placements by commercial banks may be less than that of investment houses. This is because, if the underwriting fails, the latter may lose their business, while the former may still retain their client by granting loans (Kanatas and Qi, 2003). The empirical studies do not support these arguments in general, and have proved that underwriting by commercial banks is as good as, if not better than, that by investment houses.

underwritten ones (Puri, 1994). Fields, Fraser and Bhargava (2003) examined underwritten initial public offerings. They also found that the issues underwritten by commercial banks are associated with lower underwriting costs and the long-term stock price performance of such firms is superior to those underwritten by investment houses.

2.2 Impact of Lender's Characteristics

Extending the effect of the presence of the banking relationship, some studies examine the effect of lenders' characteristics on borrowers. Chemmanur and Fulghieri (1994) argued that investors use investment banks' past performances (which is the quality of the firms they have dealt with) to measure the credibility of the underwriters, and the quality of the projects they market. Johnson (1997b) argued that reputable banks, due to their sufficient monitoring incentives and professional technologies, can identify a borrower's true risk and, therefore, have an incentive to capture good firms and earn client-firm-specific quasi-rents.

Billett, Flannery and Garfinkel (1995) used Moody's senior unsecured debt rating as the measurement of credit quality in their study. They found that borrowers' abnormal returns on loans from the highest-rated lenders (AAA) significantly exceeds that from lower-rated lenders (BBB or lower). They concluded that "the information conveyed by a loan announcement depends very importantly on the lender's credit rating" (Billett et al., 1995, p.713). Borrowing from good lenders can convey more positive information about a firm's prospects to the equity market. Instead of bond ratings, Johnson (1997b) used bank size (amount of deposits), capital ratio and relative loan loss provisions, as a proxy for bank quality. The univariate tests of event study showed that larger, and higher equity

capital, banks provide higher quality screening and monitoring services. In contrast to Billett et al. (1995), Johnson (1997b) found that a bank's bond rating is not significant, after controlling for the bank deposit size, the capital ratio and the loan loss ratio.

Some other researchers examined the effect of lender identity on the costs of borrowing, instead of the equity returns of the issuance announcements. Stover (1996) examined the effect of standby letters of credit on the yield of tax-exempt bonds. He used Moody's senior unsecured or subordinated debt ratings as the measurement of banks' credit quality, and banks' asset size and profitability (ranking by shareholder equity) as the proxy for bank's reputations. The results from the path analysis showed that, while these three factors are significantly positive on the banks' quality, bank quality has significantly positive effects on the bond ratings, which reduces the interest cost. Hubbard, Kuttner and Palia (2002) investigated the effect of banks' financial health on the cost of loans. They regressed the drawn all-in spread with the characteristics of lenders. The characteristics included size, the percentage of loans past due, the capital ratio, a dummy variable of low capital ratio that is less than 5.5%, net loan charge-off percentage and liquidity. From the results of these regressions, the most significant variables are the low-capital dummy and the higher proportion of non-performing loans, indicating that the spreads on loans from weak banks are higher.

The importance of the lender's characteristics is also illustrated in the case of bank failure. While the announcements of bank failure have adverse impacts for the borrowers involved, Brewer, Genay, Hunter and Kaufman (2003) found that clients of healthier banks; which are better-capitalised, more profitable, and have lower loan loss reserves; suffer less from such failure announcements.

2.3 Commercial Banks versus Rating Agencies

Commercial banks are regarded as inside lenders, which have access to private information due to ongoing relationships with borrowers. An important question is whether the rating agencies also have such an advantage. Wakeman (1984) argued that rating agencies use no more than public information, but that they act as agents to collect this public information at a lower cost and provide monitoring services as reputable auditors. In contrast, Butler and Rodgers (2003) discussed *relationship rating,* which is similar to the concept of relationship banking. They argued that solicited rating agencies; which are requested by and paid for by the issuers[2]; could build their relationship with the clients over time. This relationship means that the rating agencies rely less on the publicly available (or *hard*) information and allows them more access to private (or *soft*) information.

Several studies have investigated the interrelationship between banks and rating agencies. Stover (1996) examined the effect of (standby) letters of credit on tax-exempt bonds, and found that this form of insurance from banks reduces the bond price through the indirect impact from bond ratings. The rating agencies, therefore, work as a supplementary transmission for banks. Other studies have found that the functions of rating agencies and banks are not redundant. Nayar and Rozeff (1994) found that; for commercial paper with high commercial paper ratings; the letters of credit generate more positive excess returns. Schweitzer et al. (1992) found that a rating downgrade of bank holding companies' bonds

[2] Being selected and paid by the issuers may create a conflict of interest problem for the rating agencies. Nevertheless, Covitz and Harrison (2003) did not find evidence supporting this argument. Rather, they found that rating agencies are motivated by reputation hypotheses; which are the incentives to build and maintain their reputation for making independent and objective judgements.

still cause negatively excess returns, even when these bonds are already monitored by bank regulators. Similarly, the empirical results from Essay One find that the equity market has an abnormal reaction to downside news of bank loan ratings, indicating that rating agencies do not duplicate banks' functions.

Besides the finding that rating agencies may replace the lending banks' informational advantage, banks also may adjust their evaluating and monitoring efforts on the basis of other indicators. Best and Zhang (1993) argued that if the other information sources can solve the problem of information asymmetries efficiently, bank loan announcements should convey little information to the market. They used financial analysts' percentage earnings prediction errors and the most recent earnings forecast revisions as the indicators, and found that when the other source of information is reliable, banks then provide little information to the market.

From the literature review, it is known that lending banks, particularly high-quality banks, are specialised in evaluating the true value of companies. In the presence of lending banks as informational providers and monitors, investors also recognise the informational value of rating agencies. An open question is, therefore, to be found in determining the value of banks for investors in the presence of rating agencies.

3. TESTABLE HYPOTHESES

This section discusses the hypotheses for this essay, including the effect of lenders' reputations on borrowers' returns, in terms of the timing of downside announcements by rating agencies, and the characteristics which proxy for the banks' reputations or level of quality.

3.1 The Effect of Lenders on Bad News

Based on the literature review, there are four presumptions behind the research question. First, lending banks have access to inside information, not available publicly, due to their prior lending activities. Second, this informational advantage could enhance firm valuation, or in other words, mitigate the downside effect from certain announcements associated with negative market reactions. Third, this favourable effect is associated with banks having good quality and/or performance records in the past. Fourth, rating agencies, in the existence of banks, convey additional value to the market. This value is mainly conveyed via the downside news recognising deterioration in a firm's future performance prospects.

The sample used in this essay is the announcements of bank loan ratings, specifically the placements on *CreditWatch* with negative implication and downgrades. When bank loan ratings have been placed with negative implication, or downgraded, it means that the prospects of a firm's future performance have deteriorated. This sample provides a unique opportunity to examine the effect of lending banks on borrowers, because it is argued that rating agencies may have access to inside information which could replace the

banks' informational advantage (Butler and Rodgers, 2003), and banks may devote fewer efforts to evaluating and monitoring where the other information source is reliable (Best and Zhang, 1993). Therefore it could be assumed that, under the existence of reputable rating agencies, the lender's characteristics have little effect on the borrowers.

On the other hand, lending banks may still be regarded as unique institutions having access to private borrower-specific information that is not available publicly. It is found that banks' actions to keep business create strong positive effects for distressed firms (Lummer and McConnell, 1989), and their actions to sell the loans cause negative borrower returns while the market has not yet recognised the weakening performance (Dahiya et al., 2003). As investors consider the past performance of intermediaries when deciding the current quality of the clients they deal with (Chemmanur and Fulghieri, 1994), it can be argued that, if the lending bank's past performance or quality is good, the investor will trust the bank's ability in loan management and, hence, sustain their confidence toward the current borrowers. Therefore, it is hypothesized that when the firms' future prospects weaken (in this essay, when the bank loan ratings are placed on *CreditWatch* with negative implication and when the bank loan ratings are downgraded), investors will be more willing to alter their assessment toward these deteriorated firms. This willingness is based on the belief that these loans are still held in the portfolio of, and monitored by, high quality lenders, who have unique private information not available publicly, and are trusted by the market due to their good past performance. It is therefore hypothesized that the presence of a lending relationship with a high reputation bank mitigates the negative equity market reaction associated with bank loan rating announcements of placement on *CreditWatch* with negative implication, and bank loan rating announcements of downgrade.

Notably, since to some extent all the firms have passed the selection point by having loans granted by banks and have already provided their *bank-proved* quality to the market, this essay focuses beyond the traditional view that banks' informational advantage is used to categorise ex ante borrowers' quality, and onto the effect of lenders' quality on borrowers.

3.2 Proxy for Bank Quality

Several variables are used for the proxy of a bank's capability for effective and efficient monitoring, or put more simply, its reputation or quality. First, size is a common variable for the proxy of reputation or quality of the third-party outsiders. DeAngelo (1981) developed the relationship between audit quality and audit firm size. Johnson (1997b) later argued that larger banks have a greater incentive to monitor, and can monitor more efficiently. It is hypothesized that bank size should have a positive effect on the borrowers' equity returns, because these borrowers are monitored by banks that monitor effectively and efficiently in order to maintain their own reputation.

Hypothesis 1a: It is expected that firms which are associated with larger banks experience less negative market reaction than those which are associated with smaller banks, on the announcements of bank loan rating placement with negative implication, and the difference is expected to be significant.

Hypothesis 1b: It is expected that firms which are associated with larger banks experience less negative market reaction than those which are associated with smaller

banks, on the announcements of bank loan rating downgrade, and the difference is expected to be significant.

A bank's growth rate is used in this essay to proxy bank risk. Huffman and Ward (1996) argued that high growth in assets indicates that a company is taking higher risk, therefore increasing the probability of financial distress. It is also a general rationale in the banking industry that growing too fast is dangerous, either because profitability is not growing with asset size, or the perceived risk of the financial market to the growing bank will increase and, hence, reduce its share value (Fraser, Gup and Kolari, 2001, p.64). Peek, Rosengren and Kasirye (1999) found the target banks usually grow faster than their peers before acquisition. It is also found that, in the case of bank failure, an unhealthy lender will adversely affect their client firms (Slovin, Sushka, and Polonchek, 1993). Therefore, a bank's growth rate in total assets should have a negative impact on the borrowers' equity returns.

Hypothesis 2a: It is expected that firms which are associated with rapidly-growing banks experience a more negative market reaction than those which are associated with slow-growing banks, on the announcements of bank loan rating placement with negative implication, and the difference is expected to be significant.

Hypothesis 2b: It is expected that firms which are associated with rapidly-growing banks experience a more negative market reaction than those which are associated with slow-growing banks, on the announcements of bank loan rating downgrade, and the difference is expected to be significant.

A bank's profitability is another proxy for the variable, reputation. Stover (1996) found that profitability has a positive relationship with a bank's quality, and Brewer et al. (2003) found that clients of banks which are more profitable suffer less from failure announcements. Similarly, a highly profitable bank is expected to have a positive impact on its borrowers.

Hypothesis 3a: It is expected that firms which are associated with highly-profitable banks experience less negative market reaction than those which are associated with low-profit banks, on the announcements of bank loan rating placement with negative implication, and the difference is expected to be significant.

Hypothesis 3b: It is expected that firms which are associated with highly-profitable banks experience less negative market reaction than those which are associated with low-profit banks, on the announcements of bank loan rating downgrade, and the difference is expected to be significant.

In addition to size and profitability, a bank's capital ratio is also an important measure for a bank's performance. Thakor (1996) developed a model and, empirically, found that obtaining loans from capital-constrained banks will magnify the favourable announcement effect of the bank's promise to lend. Johnson (1997b) argued that the bank capital level conveys information to the market about a bank's quality of certification and monitoring services. He found that the price effect of bank loan announcements were positively related to the equity capital ratio. Brewer (2003) found that better-capitalised banks caused a smaller impact on the borrower in the case of a bank failure, or distress. Therefore, it is expected that, the higher the capital ratio, the

more efficiently it performs the monitoring function, and that those companies which are monitored closely by the banks will have more favourable market reaction.

Hypothesis 4a: It is expected that firms which are associated with highly-capitalised banks experience a lower negative market reaction than those which are associated with low-capitalised banks, on the announcements of bank loan rating placement with negative implication, and the difference is expected to be significant.

Hypothesis 4b: It is expected that firms which are associated with highly-capitalised banks experience a lower negative market reaction than those which are associated with low-capitalised banks, on the announcements of bank loan rating downgrade, and the difference is expected to be significant.

Some studies, instead of using accounting variables directly from the financial statements, employ a bank's credit rating as an alternative measurement of its quality. Billett et al. (1995) suggested that a bank's credit rating may be used as the proxy for its monitoring effectiveness. It is, therefore, expected that banks with higher credit ratings should have a stronger positive effect on borrowers.

Hypothesis 5a: It is expected that firms which are associated with highly-rated banks experience less negative market reaction than those which are associated with low-rated banks, on the announcements of bank loan rating placement with negative implication, and the difference is expected to be significant.

Hypothesis 5b: It is expected that firms which are associated with highly-rated banks experience less negative market reaction than those which are associated with low-rated banks, on the announcements of bank loan rating downgrade, and the difference is expected to be significant.

Last, this essay tests whether the lender's identity; of either a US, or a foreign bank; causes any difference in its impact on the borrowers. Byers, Fraser and Shockley (1998) argued that foreign banks can offer lower prices and services in terms of knowledge of the international market and innovative banking products. They also found that loans to US corporations by foreign lenders are associated with significant increases in borrowers' returns, while loans by domestic lenders do not. Chen, Mazumdar and Hung (1996) argued, however, that foreign banks in the US are generally subject to less strict capital requirements, hence a lesser requirement for monitoring efforts. They found that, first, foreign lenders, primarily Japanese banks, charge a significantly higher loan rate, and second, the passage of the FDIC Improvement Act (which imposed uniform regulatory standards on domestic and foreign banks) has reduced the rate difference. It is hypothesized that, based on the latter study that domestic banks are perceived as better monitors, the bank loans granted by US lenders will have lesser negative market reaction than those granted by foreign banks operating in the US.

Hypothesis 6a: It is expected that firms which are associated with US banks experience less negative market reaction than those which are associated with foreign banks, on the announcements of bank loan rating placement with negative implication, and the difference is expected to be significant.

Hypothesis 6b: It is expected that firms which are associated with US banks experience less negative market reaction than those which are associated with foreign banks, on the announcements of bank loan rating downgrade, and the difference is expected to be significant.

The summary of the hypotheses and the empirical results are presented in Appendix 3-1 at the end of this essay.

4. DATA DESCRIPTION AND METHODS OF ANALYSIS

4.1 Data Description

Announcements of bank loan rating placement on *CreditWatch* with negative implication and bank loan rating downgrade were collected from 1996 to 2002. The following procedure was employed to compile the final sample. First, a list of bank loan rating announcements was complied from the following sources: 1) *Standard and Poor's Credit Analysis Reference Disc*; 2) bank loan rating announcements and lists from Standard and Poor's website (www.standardandpoors.com); and 3) *Factiva*, a Dow Jones and Reuters Company. Second, daily returns around the announcement date were collected from the University of Chicago's Centre for Research in Security Prices (CRSP) daily file. Third, *Factiva* was also used to identify any confounding events[3] around the announcement date, specifically in the three-day window (from one day before, to one day after, the announcement date).

The primary announcement data satisfies the following requirements. First, the companies having bank loan rating announcements are included in the CRSP database (or have a CUSIP number). Second, daily returns are available for the period of 240 days before, to 15 days after, the announcement date. Third, no other confounding announcements occurred within the three-day window, from one day before, to one day after, the announcement date of the bank loan rating. These criteria produced the final sample size of 32 placement announcements with negative implication and 121 downgrade announcements.

[3] This essay adopts a restrictive definition of contaminated events, which includes merger or acquisition, dividend payments, security issues, leveraged buyouts, lawsuits, earning announcements, share buybacks, loan repayments or initiations and changes in top management, among others.

As the announcements of bank loan ratings do not provide the names of the lending banks, the first step is to obtain the lenders' names by hand matching each announcement to the specific bank loan. The detailed information for each bank loan is obtained from the *Dealscan* database of the Loan Pricing Corporation. A specific loan is matched to the loan amount, which is usually given in the rating announcements, and the announcement date. In some cases the matching is impossible, because: 1) the loan amount from the announcement and *Dealscan* is not matched; and/or 2) the information of the loan amount is missing and there is more than one possible loan from *Dealscan* according to the announcement date. Under this circumstance the observation has to be dropped from the final sample. Therefore, the number of observations is reduced to 30, from 32 (with 28 loans), in the negative placement group and to 109, from 121 (with 76 loans), in the downgrade group. In many cases the bank loan is syndicated by more than one lender. In these cases the lead lending bank is the one used in this essay, as in Hubbard et al. (2002) and Dahiya, Saunders and Srinivasan (2003). The Loan Pricing Corporation lists the role of lead lending member in the syndicated facility as arranger, co-arranger, lead bank, agent, co-agent, or lead manager, while other syndicate members are listed as participants. Therefore, all the bank loans in the research sample have a clear lead lending bank.[4] The number of syndicate members, the maturity of the loan, the security status of the loan, and the margin over prime rate/LIBOR are also recorded.

The accounting information for each bank, at the end of the fiscal year prior to the announcement year, was collected from: 1) the *COMPUSTAT* database; 2) the *DataStream* database for those banks that cannot be found in *COMPUSTAT*; and 3) the

[4] Although many bank loans contain multiple tranches, the lead lenders for those multiple tranches are the same.

EDGAR database on the website of the US Securities and Exchange Commission (www.sec.govt) for the banks or missing variables that cannot be found in the previous two resources. If the lead lender is a foreign bank[5], the financial statements of its main subsidiary filed in the US, instead of those of the parent company in the foreign country, are used. The accounting data for US branches/agents of foreign banks are obtained from the call report database on the website of the Federal Reserve Bank of Chicago (www.chicagofed.org).[6] The accounting information for each borrower is also obtained from the three resources listed above. The senior credit rating of each bank is obtained from Moody's website (www.moodys.com), according to the latest rating prior to each announcement date. The announcements are dropped from the sample if the accounting data of the lead banks is missing. This reduces the sample size to 29 for the negative placement group, and to 101 for the downgrade group. The process of data deletion for the group of negative placement and downgrade is presented in Table 1.

Table 1
Criteria for Data Deletion

Table 1 gives information of the process and results of constructing each sample for placements with negative implication and downgrades. The initial sample of 32 announcements of bank loan rating placement on *CreditWatch* with negative implication and 121 announcements of bank loan rating downgrade are reduced to the final sample of 29 and 101 announcements, respectively. The two reasons for this are that: the information of a specific bank loan may be missing, therefore, the identity of the lead lending bank is unavailable; and the accounting data for the lead lending banks may be insufficient.

Reason for Deletion	Placement with negative implication	Downgrade
Total number of announcements	32	121
Less: No identity for lead lending bank	2	12
Less: Insufficient data for lead lending banks	1	8
Final Sample	29	101

[5] The foreign banks in the sample include; Bank of Nova Scotia, Canadian Imperial Bank of Commerce, Toronto Dominion Bank, Banque Paribus, Societe Generale and Credit Lyonnais.
[6] The author thanks Ms. Susan Yuska from the Federal Reserve Bank of Chicago for invaluable help in clarifying the definitions of database and accounting variables.

Table 2 provides the statistics summary of the characteristics of the bank loans and the lead lending banks in Panel A and Panel B, respectively, for the sample of negative placement. It is notable that the number of observations for loan and bank characteristics is different, as the former is based on the loan level (a single loan may be associated with multiple announcements), and the latter is based on the announcement level.[7] The mean (median) loan amount and maturity is 401.32 (262.50) million dollars and 4.56 (4.92) years, respectively. The loans are syndicated by 8.86 financial institutions, on average. Of the bank loans in the sample, 78.95% are secured, three quarters are granted by an US bank as the lead lending agent, and 43.33% of the loans are granted by a high-rated (Aa3 and above) bank. The mean (median) of the lead lending banks' total assets capital ratio[8] is 209.94 (133.12) billion US dollars and 12.34% (12%), respectively. It is more meaningful to compare these statistics between two groups divided by bank loan rating; these two groups determined by whether the loan is in the speculative, or investment grade. The speculative-grade bank loans are apparently associated with much higher spread (two times higher on average), than the investment-grade loans. They also have longer maturity and are more likely to be secured, which findings agree with those of Flannery (1986), and Berger and Udell (1990), respectively. In addition, consistent with Sharpe (1990) and Johnson (1997b), high-quality lenders and borrowers are tend to *group* together, and the lead lending banks for the companies with investment grade ratings are about twice as large on average and more likely to have higher ratings than the ones that are associated with lower-rated borrowers.

[7] The observation number for a bank's net income may be different, as the report form used by US branches/agents of foreign banks is the FFIEC002, and it does not include an income schedule. The author thanks Ms. Yuska for this information.

[8] The observation number for a bank's capital ratio may be different, because this ratio; defined as the risk adjusted ratio that combines Tier 1 and qualifies Tier 2; is obtained directly from *COMPUSTAT*.

Table 2
Characteristics of Bank Loans and Lead Lending Banks for the Samples of Bank Loan Rating Announcements of *CreditWatch* Placement with Negative Implication

Table 2 provides a statistical summary of some characteristics of the bank loans and lead lending banks for the sample of bank loan rating announcements of placement on *CreditWatch* with negative implication. The statistics are presented in three groupings; Full sample; and the sub-samples with bank loan ratings of speculative grade (below BBB-) and investment grade (above BBB-). N is the number of available data, MEAN is the arithmetic average, MED is the median, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively. The number for data for the characteristics of bank loans and lead lending bank is different because the former one is based on the loan level and the latter one is based on the announcement level.

Variable	Full sample						Speculative Grade			Investment Grade		
	N	MEAN	MED	STD	MIN	MAX	N	MEAN	MED	N	MEAN	MED
Panel A: Characteristics of Bank Loans												
Loan amount (million US$)	28	401.32	262.50	436.13	27.00	2100.00	24	432.79	262.50	5	350.00	300.00
All-in-spread (basis point)	28	154.04	150.00	91.55	25.00	387.50	22	167.05	175.00	5	83.50	62.50
Number of syndicate banks	28	8.86	6.50	7.62	1.00	24.00	24	9.42	6.50	5	8.40	9.00
Maturity (months)	28	54.67	59.00	20.14	12.00	108.00	21	57.29	59.00	4	42.00	48.00
Secured loans												
(% of total number of loans)		78.95						82.35			33.33	
Loans granted by US banks												
(% of total number of loans)		75.00						70.83			100.00	
Lead lending banks rated Aa3 and above												
(% of total number of loans)		43.33						33.33			83.33	
Panel B: Characteristics of Lead Lending Banks												
Total assets (billion US$)	29	209.94	133.12	203.35	0.07	715.35	23	172.12	120.24	6	354.92	350.99
Net income (billion US$)	26	2.38	1.66	2.20	-0.07	7.88	20	2.03	1.25	6	3.55	3.12
Risk-adjusted capital ratio (%)	23	12.34	12.00	1.56	10.88	18.40	17	12.48	12.08	6	11.94	12.00

Table 3
Characteristics of Bank Loans and Lead Lending Banks for the Samples of Bank Loan Rating Downgrade Announcements

Table 3 provides a statistical summary of some characteristics of the bank loans and lead lending banks for the sample of bank loan rating downgrade announcements. The results are presented in three groupings; Full sample; and the sub-samples with bank loan ratings of speculative grade (below BBB-) and investment grade (above BBB-). N is the number of available data, MEAN is the arithmetic average, MED is the median, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively. The number for data for the characteristics of bank loans and lead lending bank is different because the former one is based on the loan level and the latter one is based on the announcement level.

Variable	Full sample						Speculative Grade			Investment Grade		
	N	MEAN	MED	STD	MIN	MAX	N	MEAN	MED	N	MEAN	MED
Panel A: Characteristics of Bank Loans												
Loan amount (million US$)	76	430.98	300.00	401.74	15.00	2300.00	64	450.07	300.00	15	378.80	300.00
All-in-spread (basis point)	76	164.23	175.00	95.54	12.50	425.00	62	185.38	187.50	15	53.95	40.00
Number of syndicate banks	76	10.49	9.00	7.55	1.00	30.00	64	10.41	9.00	15	10.20	9.00
Maturity (months)	76	49.06	60.00	19.96	10.00	99.00	59	49.17	59.00	15	47.60	60.00
Secured loans												
(% of total number of loans)		76.27						87.91			0.00	
Loans granted by US banks												
(% of total number of loans)		82.89						79.67			87.50	
Lead lending banks rated Aa3 and above												
(% of total number of loans)		65.42						36.26			75.00	
Panel B: Characteristics of Lead Lending Banks												
Total assets (billion US$)	101	305.21	336.10	247.20	0.07	715.35	86	297.60	258.79	15	348.81	365.52
Net income (billion US$)	86	4.02	3.78	2.72	-0.002	9.79	72	3.97	3.78	14	4.27	3.75
Risk-adjusted capital ratio (%)	86	12.27	11.83	2.06	10.87	18.40	72	12.22	11.94	14	12.52	11.73

A similar pattern can be seen for the sample of bank loan downgrades, shown in Table 3. The mean (median) of loan amount and maturity is 430.98 (300) million US dollars and 4.09 (5) years, respectively. The loans are syndicated by 10.49 financial institutions on average. Of the loans in the sample, 76.27% are secured, nearly 83% of them are granted by a US bank as the lead lending agent, and 65.42% of the loans are granted by high-rated banks. The mean (median) of the lead lending bank's total assets and capital ratio is 305.21 (336.01) billion US dollars and 12.27% (11.83%), respectively. The speculative-grade bank loans have about 3.5 times higher spread, and are much more likely to be secured. The lead lending banks for the investment-grade-rated companies are larger, and more likely to have higher ratings than the banks associated with speculative-grade-rated borrowers.

4.2 Method of Analysis

There are two types of tests employed in this essay. First, univariate tests are used to determine whether there are significant differences between announcement-period returns split on the basis of relevant variables into above- and below-median groups. Second, multivariate regression analysis is used to provide evidence on whether any of the hypothesized control variables offer significant explanatory value for the announcement-period equity returns.

4.2.1 Univariate analysis of event study

The market model is used to estimate the abnormal security returns associated with the announcements. The intercept and slope coefficients used in the market model are

estimated over a 150-day period, from day t-240 to day t-91, relative to the announcement day (t=0). This is defined as the date of the first report of announcement. The standardised abnormal return approach is used to generate z-test statistics (SCS Z), and the generalized sign test (GSIGN Z) is used to test for the fraction of positive and negative average abnormal returns. The null hypothesis for the GSIGN Z is that the fraction of positive returns is the same as in the estimation period. A mathematical explanation of the methodology is shown in Appendix A at the end of the thesis. Univariate tests are used to test for significant differences in the cumulative average abnormal returns (CAAR) between groups split on the basis of the different variables described in the preceding section. Further, the difference in the cumulative average abnormal returns (CAAR) is examined, between groups split on the basis of the different variables discussed in the last section of testable hypotheses. A mathematical explanation of the t-statistic for the difference between the two means is shown in Appendix B at the end of the thesis.

4.2.2 Multivariate regression

Multivariate regressions are used to determine whether the control variables offer any ability to explain the CAAR for the bank loan rating announcements. In these regressions the dependent variable is the three-day (day t-1 to day t+1) CAAR. The regression models for the groups of placement with negative implication and downgrade are given in Equations (1) and (2), respectively.

$$CAAR = \alpha 0 + \alpha 1 BKSIZE + \alpha 2 BKTAG + \alpha 3 PROF + \alpha 4 COL + \alpha 5 INVG + \varepsilon. \quad (1)$$

$$CAAR = \alpha 0 + \alpha 1 BKSIZE + \alpha 2 BKTAG + \alpha 3 PROF + \alpha 4 COL + \alpha 5 \Delta RATP + \varepsilon. \quad (2)$$

where:

BKSIZE = natural log of lead lender's total assets;

BKTAG = growth rate in total assets of the lead lender, calculated by BKSIZEt0-BKSIZEt-1/BKSIZEt-1, where t0 indicates the financial year prior to the announcement date;

PROF = earnings before interest, tax, depreciation and amortisation divided by total assets;

COL = sum of property, plant and equipment and inventory divided by total assets;

INVG = a dummy variable, equal to one if the rating is below investment grade, and zero otherwise; and

ΔRATP = number of changes in rating points.

A bank's size, calculated as the natural log of the total assets, is a common variable used as the proxy of a bank's reputation (Stover, 1996; Johnson, 1997b; Byers et al., 1998; Hubbard et al., 2002; Brewer et al., 2003). In addition; unlike the return on assets or the capital ratio, which are also used as proxies for reputation; this variable is much more readily available, hence reducing concern of a reduced sample size. It is hypothesized that bank size should have a positive effect on the borrower's equity returns, therefore, in the regression it should be significant and have a positive sign.

A bank's growth rate in total assets is used as the proxy for creditworthiness (Huffman and Ward, 1996).[9] It is hypothesized that the higher the variation, the riskier the banks, and the more negative the impact on the borrower's equity returns. Therefore, this variable should have a significant and negative sign in the regression.

Other variables are included in the models to control the characteristics of firms and ratings. Profitability ratios (PROF) show the combined effects of liquidity, asset and debt management. Investors are theorised to be more sensitive to those companies with lower profitability. The profitability measurement used in this essay is the ratio of earnings before interest, tax, depreciation and amortisation (EBITDA) to total assets (Titman and Wessels, 1988). This is the key accounting measurement used by the rating agencies to estimate enterprise value. As suggested by Moody's Staff (1996), EBITDA is the core level of cash flow, regardless of industry or macroeconomic conditions. Therefore, the ratio of EBITDA to total assets is used to measure profitability in this essay.[10] It is expected that bad news will have a stronger impact on low profitability firms, so this variable should have a positive sign.

The ratio of tangible assets to total assets is used to proxy information asymmetries or growth opportunity. The collateralised assets (COL); calculated by the sum of property,

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[9] The previous studies usually use a bank's debt ratings as the measurement of risk. This rating variable is not used in this essay because of three reasons, besides the concern of sample size. First, as suggested by Gibson (1995), this variable may force all banks with a given rating to have the same effect. Second, because there is little fluctuation in credit ratings within any particular bank, it is more difficult to catch the variance through the sample period. Third, it was more appropriate to use credit rating in previous studies, but not in the current one, as former studies usually focused on events of only one point of time; for example, the initial public offering of shares, or a bank loan issuance. In this essay, rating announcements are more like continuous events, which highlights the problem of the second reason just stated. Therefore, the bank's growth rate in total assets is used here, instead of its credit rating.

[10] On the other hand, Fridson (1998) and King (2001) argued that the sole use of EBITDA as the measure of value is doubtful. Therefore, the traditional basic earning power (BEP); calculated as EBIT divided by total assets; is also employed as the alternative measurement for profitability. For the group of negative placement, neither BEP nor the alternative model is significant. For the group of downgrade, BEP is still significant at the 5% level, and the alternative model is significant at the 10% level.

plant and equipment and inventory; is used as a proxy for intangible assets (Dittmar, 2004). Comell, Landsman and Shapiro (1992) found that the informational value provided by rating actions is correlated to a firm's intangible assets. They included the product of magnitude of the change in ratings and the intangible assets ratio (measured from the tangible assets at current costs) and found that it was significant at the 5% level, making the F-value significant also.[11] Hsueh and Liu (1992) found that rating change announcements had a stronger impact on firms which had less information available to the market. Krishnaswami, Spindt and Subramaniam (1999) found that the benefits from monitoring accrued more to firms with greater information asymmetry. If the COL ratio (as the proxy of tangible assets) is used as the proxy of information asymmetries[12], any results higher the COL are taken to indicate lesser information asymmetry and, hence, are expected to have a positive sign in the regression.

For rating characteristics, investment grade (INVG) is used for the sample of negative placement. The lowest rating to qualify as investment grade (INVG) is BBB- (Standard and Poor's; Baa3 by Moody's). Many institutional investors; pension funds for example; are restricted to investing in above-investment-grade securities. If investment grade is viewed as a benchmark of bank loan credit quality, it can be expected that any creditworthiness announcement effects will be stronger for firms with below-investment-grade, or speculative, ratings (see, for example Hand, Holthausen and Laftwich, 1992; Dichev and Piotroski, 2001). In the regressions, a dummy variable is set to one if the rating is below-investment, and is zero otherwise. The below-INVG group is expected to

[11] The F-value of regression models in most of the rating literature is insignificant. Although the product of the number of grades changed (ΔRATP) and the intangible asset ratio in the regression model of Cornell et al. (1992) increase the significance of the F-value, the variable of the product is excluded in this essay because it is highly correlated with ΔRATP.

[12] Tobin's Q; calculated by the sum of the total liabilities and the market value of equity divided by the total assets; and size are also employed as the alternative proxy for information asymmetry, but the results are not qualitatively different.

be associated with a stronger market reaction and, therefore, should have a negative sign in the regression model for the sample of negative placement.

The number of grade changes in ratings (ΔRATP) is used for the sample of downgrade. Based on Holthausen and Leftwich (1986), a number is assigned to each rating; from 28 assigned to the highest rating of AAA, to 1 assigned to the lowest rating of D. The midpoint of these numbers is assigned to the class without the plus or minus modification (AAA, CC, C and D). The ΔRATP is calculated by subtracting the new rating from the old one. This is, therefore, positive, and measures the magnitude of the bad news. This is the most common variable used in the rating literature for the multivariate regression methodology. Nevertheless, while the expected sign is almost always correct in all studies; which indicates that ΔRATP has a positive relationship to the market reaction; its significance is not consistent. Therefore, this variable is expected to have a negative sign in the regression for the sample of downgrade, but the significance may be uncertain.

5. EMPIRICAL RESULTS

This section covers two parts of the empirical results for the sample of bank loan rating placement announcements on *CreditWatch* with negative implication, and downgrade announcements. The first part presents the results of the event study of the univariate tests based on different hypothesized variables. The second part is the results of the cross-sectional regression.

5.1 Univariate Tests of Returns based on Hypothesized Variables

The event study results of the univariate tests for negative placement are shown in Table 4, based on different variables. The three-day and two-day CAAR, CMAR, the number of positive versus negative abnormal returns, SCS Z and GSIGN Z are reported.

For the variable of bank size, the three-day CAAR for the group with smaller (larger) lending banks is -5.78% (-0.00%), and the difference between these two groups is at 0.1% level. These results support Hypothesis 1a, that larger lenders are more effective in monitoring borrowers, and mitigate the negative impact on borrowers. This finding is consistent with DeAngelo (1981) and Johnson (1997b).

For the variable of the bank's growth rate in total assets, the group with high-growth lenders has unexpectedly less negative returns (three-day CAAR of -2.28%) than the group with low-growth lenders (three-day CAAR of –4.02%). The difference is, however, not significant.

Table 4

Equity Market Reaction of Hypothesized Variables to Bank Loan Rating Announcements of *CreditWatch* Placement with Negative Implication

N is the number of returns for a given category. CAAR3 and CAAR2 are the three-day (t-1, t+1) and two-day (t-1, t0) cumulative average abnormal return, with mean and median (MED) provided. P:N shows how many of the returns are positive or negative on a given day. SCS Z is the statistical test for a significant difference in the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. Bank's size is the log of the lead lending bank's total assets, bank's growth rate is the percentage change in total assets, profitability is the return on assets calculated as net income divided by total assets and capital ratio is the risk-adjusted capital ratio extracted from Compustat. The bank's credit rating (according to Moody's) is high (low) if it is Aa3 and above (below Aa3). Difference is the above median CAAR minus the below median CAAR, unless specified otherwise.

		CAAR3					CAAR2				
	N	MEAN	MED	P:N	SCS Z	GSIGN Z	MEAN	MED	P:N	SCS Z	GSIGN Z
All sample	32	-2.79	-2.40	8:24	-2.974**	-2.714**	-3.41	-3.29	7:25	-2.976**	-3.067**
Bank's Size											
Above median	13	0.00	-0.51	6:7	-0.009	-0.159	-0.40	-0.91	5:8	-0.369	-0.714
Below median	16	-5.78	-3.87	1:15	-3.726***	-3.520***	-4.21	-2.86	3:13	-3.562***	-2.520*
Difference	-3	5.78			4.494***		3.73			2.885**	
Bank's Growth Rate											
Above median	14	-2.28	-2.15	3:11	-1.654$	-1.924$	-1.50	-0.99	6:8	-0.722	-0.318
Below median	15	-4.02	-3.76	4:11	-1.966*	-1.929$	-3.50	-3.51	2:13	-2.933**	-2.962**
Difference	-1	1.74			1.349		2.00			1.551	
Bank's Profitability											
Above median	13	-0.66	-1.93	5:8	-0.799	-0.773	-1.36	-2.29	2:11	-1.322	-2.437*
Below median	13	-4.12	-3.97	2:11	-2.630**	-2.361*	-3.03	-3.20	6:7	-1.802$	-0.141
Difference	--	3.46			2.565*		1.67			1.238	
Bank's Capital Ratio											
Above median	11	-1.55	-1.25	5:6	-0.554	-0.249	-2.80	-2.29	2:9	-2.874**	-2.059*
Below median	12	-2.88	-4.97	2:10	-1.996*	-2.218*	-0.71	-1.80	5:7	-0.559	-0.485
Difference	-1	1.33			0.968		-2.09			-1.521	
Bank's Credit Rating											
High	13	-2.32	-1.25	4:9	-1.208	-1.276	-2.00	-1.69	4:9	-1.600	-1.276
Low	17	-3.90	-3.76	3:14	-3.292***	-2.652**	-2.82	-2.52	4:13	-2.005*	-2.167*
Difference	-4	1.58			1.205		0.82			0.626	
US vs. Foreign Banks											
US	23	-2.24	-2.37	7:16	-1.910$	-1.774$	-1.71	-2.29	7:16	-1.740$	-1.774$
Foreign	7	-6.41	-3.76	0:7	-1.864$	-2.656**	-4.96	-1.27	1:6	-1.976*	-1.900$
Difference	16	4.17			2.735*		3.25			2.132*	

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

For the variable of bank profitability, the group with highly-profitable banks are associated with much less negative abnormal returns, as expected (three-day CAAR of -0.66%). Meanwhile the group with less-profitable banks has a three-day CAAR of -4.12%. The difference between these two groups is significant at the 5% level, which supports Hypothesis 3a, that borrowing from highly profitable lenders mitigates the negative reaction on negative placements of bank loan ratings. This finding is consistent with Stover (1996) and Brewer et al. (2003).

For the variable of the bank risk-adjusted capital ratio, the three-day CAAR for the group with highly- (less-) capitalised lenders is -1.55% (-2.88%), as expected. The difference is, however, not significant. Similarly, the group with higher-rated lenders has less negative abnormal returns than the group with lower-rated banks (-2.32% versus -3.90%), however this difference is not significant either.

Finally, the results in the bottom panel of Table 4 show that the group with a foreign bank as the lead lender has much more negative abnormal returns (three-day CAAR of -6.41%) than does the group with a US lead lending bank (-2.24%). The difference is significant at the 5% level. This supports Hypothesis 6a, that investors find the monitoring done by foreign banks is not as effective/efficient as that of US banks.

The event study results of the univariate tests for downgrade are shown in Table 5, based on the different variables. For the variable of bank size, the group with the larger (smaller) lead lending bank has -2.38% (-4.29%) three-day CAAR. The difference is significant at the 5% level, which supports Hypothesis 1b, that larger banks have a positive effect on borrowers.

For the variable of the bank's growth rate in total assets, the group with higher- (lower-) growth lenders has a three-day CAAR of -4.13% (-2.57%). The difference is significant at the 10% level, supporting Hypothesis 2b, that safer banks mitigate the negative reaction of deteriorated borrowers. This finding is consistent with Slovin et al. (1993).

For the variable of bank profitability, the group with highly- (less-) profitable banks has a -2.14% (-4.15%) three-day CAAR. The difference is significant at the 5% level, supporting Hypothesis 3b that investors consider the monitoring performed by profitable banks is more reliable.

For the variable of bank risk-adjusted capital ratio, as expected, the three-day CAAR for the group with highly-capitalised lenders is less negative than that with less-capitalised lenders (-2.77% versus -3.56%), however, the difference is not significant. Similarly, the group with higher-rated lenders has less negative abnormal returns than that with lower-rated lenders (-3.06% versus -3.20%), however, the difference is, again, not significant. The last panel of Table 5 shows that, whether bank loans are granted by a US or a foreign lead lending bank, there is no significant difference in returns.

In summary, these results support the hypotheses that larger, less-risky and more profitable banks are regarded by the equity market as reputable monitors and, therefore, impart positive effect to borrowers, mitigating the negative effect caused by downside rating news. This indicates investors perceive informational value from banks is different than from rating agencies, specifically from high quality banks. As hypothesized, the

Table 5
Equity Market Reaction of Hypothesized Variables to Bank Loan Rating Announcements of Downgrade

N is the number of returns for a given category. CAAR3 and CAAR2 are the three-day (t-1, t+1) and two-day (t-1, t0) cumulative average abnormal return, with mean and median (MED) provided. P:N shows how many of the returns are positive or negative on a given day. SCS Z is the statistical test for a significant difference in average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. Bank's size is the log of the lead lending bank's total assets, bank's growth rate is the percentage change in total assets, profitability is the return on assets calculated as net income divided by total assets and capital ratio is the risk-adjusted capital ratio extracted from Compustat. The bank's credit rating (according to Moody's) is high (low) if it is Aa3 and above (below Aa3). Difference is the above median CAAR minus the below median CAAR, unless specified otherwise.

		CAAR3					CAAR2				
	N	MEAN	MED	P:N	SCS Z	GSIGN Z	MEAN	MED	P:N	SCS Z	GSIGN Z
All sample	121	-3.07	-2.41	43:78	-5.224***	-3.022**	-2.33	-1.57	43:78	-4.291***	-3.022**
Bank's Size											
Above median	50	-2.38	-3.18	17:33	-2.895**	-2.350*	-1.98	-2.19	18:32	-2.581**	-2.067*
Below median	51	-4.29	-1.98	17:34	-4.163***	-2.161*	-3.41	-1.58	17:34	-3.400***	-2.161*
Difference	-1	1.91			2.222*		1.43			1.664$	
Bank's Growth Rate											
Above median	50	-4.13	-3.18	12:38	-5.136***	-3.653***	-3.65	-3.06	10:40	-4.914***	-4.218***
Below median	51	-2.57	-1.79	22:29	-2.289*	-0.870	-1.77	-0.12	25:26	-1.528	-0.030
Difference	-1	-1.56			-1.805$		-1.88			-2.176*	
Bank's Profitability											
Above median	42	-2.14	-0.70	18:24	-2.492*	-1.010	-2.50	-1.48	17:25	-2.512*	-1.319
Below median	44	-4.15	-3.91	12:32	-3.985***	-2.907**	-3.46	-2.51	12:32	-3.774***	-2.907**
Difference	-2	2.01			2.245*		0.96			1.072	
Bank's Capital Ratio											
Above median	43	-2.77	-3.46	17:26	-2.436*	-1.263	-2.88	-1.78	17:26	-2.698**	-1.263
Below median	43	-3.56	-2.45	13:30	-4.169***	-2.676**	-3.10	-2.62	12:31	-3.368***	-2.981**
Difference	--	0.79			0.881		0.22			0.245	
Bank's Credit Rating											
High	70	-3.06	-2.93	22:48	-4.640***	-3.101**	-2.08	-1.89	24:46	-3.446***	-2.623**
Low	37	-3.20	-1.59	16:21	-2.179*	-0.629	-3.18	-1.57	15:22	-2.204*	-0.958
Difference	33	0.14			0.159		1.10			1.249	
US vs. Foreign Banks											
US	89	-3.17	-3.13	31:58	-4.646***	-2.828**	-2.95	-2.39	30:59	-4.353***	-3.040**
Foreign	20	-3.13	-2.05	7:13	-1.805$	-1.102	-0.41	-0.38	9:11	-0.341	-0.206
Difference	69	-0.04			-0.037		-2.54			-2.362*	

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

high capital ratio, high ratings and the identity of US banks also have positive effects, but these are not significant.

5.2 Analysis of Cross-sectional Regressions

The summary statistics and correlation of the independent variables used in the regression model for the sample of negative placement are shown in Appendix 3-2 and 3-3 at the end of this essay, respectively. There is no large difference between mean and median for each variable, indicating there is no outlier problem. Except for BKSIZE and COL (significant at the 10% level)[13], all the coefficients from the Spearman's correlation among the independent variables are under 0.5, and none are significant, indicating variables are independent. The results of the regression model are shown in Table 6, with

Table 6
Multivariate Regression Result for Day Returns around Bank Loan Rating Announcements of Placement on *CreditWatch* with Negative Implication

Table 6 shows the results of the multivariate regression which attempts to explain the cumulative average abnormal returns during the three-day period (Day t-1, Day t+1) of bank loan rating announcements of placement with negative implication. BKSIZE is the natural log of the lead lending bank's total assets (in terms of millions of United States dollars) and BKTAG is the growth rate in total assets of the lead lending bank. PROF is profitability, calculated as borrower's earning before interest, tax, depreciation and amortisation divided by the total assets. COL is the sum of the borrower's property, plant and equipment and inventory divided by the total assets. INVG is the dummy variable, which equals unity if the rating is below investment grade. NA is not applicable.

Independent Variable	Expected Sign	Parameter Estimate	T-statistics	White test
Constant	NA	-0.289	-3.098**	-4.023***
BKSIZE	+	0.017	2.428*	3.080**
BKTAG	-	-0.049	-1.142	-1.453
PROF	+	0.366	1.809$	2.056$
COL	+	0.091	1.961$	2.274*
INVG	-	-0.021	-0.990	-1.130
F-value	2.128$			
Number of observation	29			

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

[13] The variance inflation factor (VIF) for these two variables are less than two, indicating that multicollinearity is not much of a concern.

an F-value which is significant at the 10% level, indicating the model is meaningful. BKSIZE is positive, as expected, and significant at the 5% level (using the standard t-test) and at the 1% level (using the White test). This confirms that the lender's size, as the proxy of reputation, is important in mitigating a borrower's bad news. This finding is consistent with DeAngelo (1981) and Johnson (1997b). BKTAG is negative, as expected, but is not statistically significant. PROF and COL have the expected positive sign and are significant at the 10% level by t-test, and the 10% and 5% level, respectively, by White test. This indicates that negative news has less impact on firms with higher profitability and a lower level of informational asymmetry. INVG has a negative sign, indicating that bad rating news has a stronger effect on speculative firms, but is not significant.

The summary statistics and correlation of independent variables used in the regression model for the sample of downgrade are shown in Appendix 3-4 and 3-5 at the end of this essay, respectively. There is no large difference between mean and median for any of the variables. BKSIZE is positively (negatively) correlated with BKTAG (COL) at the 10% (0.1%) level, but the coefficients from the Spearman's correlation are under 0.5. The results of the regression model are shown in Table 7, with an F-value which is marginally significant at the 10% level. BKSIZE is positive, as expected, and significant at the 10% level (t-test and White test). These results indicate that investors believe that the monitoring by larger banks is more effective. BKTAG is negative, as expected, and is significant at the 1% level (t-test and White test). These results indicate that the market questions a bank's quality if it expands too quickly. PROF is positive and significant at the 5% level, indicating that bad rating news has a less negative impact for highly profitable firms. COL also has a positive sign, but is insignificant. The ΔRATP has an

expected negative sign, which indicates that the market reacts largely to the magnitude of the bad news, and is significant at the 10% level by the White test.

Table 7
Multivariate Regression Result for Day Returns around Bank Loan Rating Announcements of Downgrade

Table 7 shows the results of the multivariate regression which attempts to explain the cumulative average abnormal returns during the three-day period (Day t-1, Day t+1) of bank loan rating announcements of downgrade. BKSIZE is the natural log of the lead lender's total assets (in terms of millions of United States dollars) and BKTAG is the growth rate in the total assets of the lead lender. PROF is profitability, calculated as the borrower's earnings before interest, tax, depreciation and amortisation divided by the total assets. COL is the sum of the borrower's property, plant and equipment and inventory divided by the total assets. ΔRATP is the number of grades changed. NA is not applicable.

Independent Variable	Expected Sign	Parameter Estimate	T-statistics	White test
Constant	NA	-0.136	-2.028*	-2.132*
BKSIZE	+	0.008	1.874$	1.960$
BKTAG	-	-0.045	-2.681**	-2.779**
PROF	+	0.151	2.035*	2.175*
COL	+	0.023	0.580	0.601
ΔRATP	-	-0.011	-1.476	-1.708$
F-value	1.859			
Number of observation	101			

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

6. THE EFFECT ON BANK STOCK RETURNS

The effect of borrowers' bad news in bank loan ratings on the lead lending banks is examined in this section. The logic behind this test is derived from the study of Dahiya et al. (2003), which investigated the lead lending bank's returns when the borrowers experience financial distress. They mentioned four stages in the typical chronology of distress-related news information. These are, dividend cuts and earnings decline, default on debt and credit rating change, Chapter 11 bankruptcy filing, and confirmation of reorganisation plans. Dahiya et al. (2003) classed default on public debt and filing for bankruptcy protection under Chapter 11. They found the returns of lead lending banks are significantly negative when the borrowers experience these two events of financial distress.

This essay employs the events of financial distress prior to the default of debt used by Dahiya et al. (2003), which are: placement of bank loan rating on *CreditWatch* with negative implication, and bank loan rating downgrade. Notably, although the default of debt is often the underlying reason for a ratings downgrade, it is considered as a contaminated event and any downgrade due to this reason has already been deleted from the sample. Therefore, the sample used in this essay provides a unique opportunity to test the effect of borrowers' financial distress in its early stage on the lead lending bank. To be specific, the question here is, whether the detection by the rating agencies of the borrowers' deteriorated financial position has any effect on the lead lending banks.

Although Dahiya et al. (2003) found significant effects of borrowers' debt defaults and Chapter 11 filings on lead lending bank's returns, the effect of borrowers' negative news

on bank loan ratings is arguable. On the one hand, the negative placement or downgrade of bank loan ratings may cause a downside influence on the lending bank for several reasons. First, there is a direct impact on the bank because the borrowers may be unable to repay the loans. Second, if the deteriorated financial position of one firm has intra-industry contagion effects, this indicates that other firms in the same industry are also encountering similar problems. The banks are then exposed to an increased probability of default by other borrowers also. Third, the deteriorated financial position of the borrowers may indicate to the market that the quality of the lending banks' loan portfolios has weakened. This will impose an indirect negative impact onto the banks due to their weakened reputation in terms of managing loan portfolios.

On the other hand, the borrowers' negative news regarding ratings may have no effect on the lead lending banks due to the following reasons. First, banks are considered to have an advantage in accessing inside information. Therefore, the informational content of the announcements from rating agencies may be lower for banks than for the general market. Similarly, while the market appreciates the rating agencies monitoring the firms, investors may still trust the banks' abilities to monitor their borrowers ahead of the rating agencies, due to their informational advantage. Last, the significant effect to lead lending banks may not be found because the proportion of a bank's loans that has been placed on *CreditWatch* with negative implication or downgraded is very tiny comparing to the lending bank's capital. Needless to say, nearly all the bank loans in the sample are syndicated, which means that the amount for each individual bank is even smaller.[14]

[14] The ratio of the aggressive loan amount to the total assets of a lead lending bank is taken as the proxy of its exposure (Dahiya et al., 2003), as the exact loan amount for the lead lending bank in each bank loan is not available for all announcements. The findings for our sample are that the proportion of negatively-placed loans, and downgraded loans, to the lead lending bank's total assets is 1.12% and 0.52%, respectively.

The number of observations of bank loan rating announcements regarding identified lead lending banks is 30 and 109 for the sub-sample of negative placement and downgrade, respectively. In compiling the required criteria mentioned in the data description section above, the lead lending bank has to be included in the CRSP database (or have a CUSIP number), and the daily returns have to be available for the period of 240 days before, to 15 days after, the announcement date. These requirements further reduce the sample size to 25 and 83 for the groups of negative placement and downgrade, respectively.

The event study results regarding the lead lending banks' returns for the groups of negative placement and downgrade are shown in Table 8. For both groups the three-day CAAR and two-day CAAR are insignificant. This finding indicates that the downside announcements of bank loan ratings of the borrowers do not have an effect on the lead lending banks. This is most likely because the proportion of the negative-placed loans or the downgraded loans is very small compared to the bank's total assets.

Table 8
Equity Market Reaction of Lead Lending Banks around the Announcements of Placement on *CreditWatch* with Negative Implication and Downgrade of Borrowers' Bank Loan Ratings

Table 8 reports the returns of the lead lending banks around the twenty-five announcements of borrowers' bank loan rating negative placement (in Panel A) and the eighty-three announcements of borrowers' bank loan rating downgrade (in Panel B). N is the number of firm returns for a given day. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal return. Pos:Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference in the average abnormal return from zero. GSIGN Z is generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns.

	Placement of borrowers' bank loan ratings with negative implication						**Downgrade of borrowers' bank loan ratings**					
Day	N	AAR (%)	MAR (%)	Pos:Neg	SCS Z	GSIGN Z	N	AAR (%)	MAR (%)	Pos:Neg	SCS Z	GSIGN Z
-1	25	-0.46	0.04	13:12	-1.126	0.392	83	-0.11	0.24	44:39	-0.082	0.713
0	25	0.31	-0.70	8:17	-0.712	-1.609	83	-0.01	0.06	45:38	0.048	0.932
1	25	0.31	0.12	14:11	0.962	0.793	83	0.31	0.37	50:33	1.537	2.030
Days	N	CAAR (%)	CMAR (%)	Pos:Neg	SCS Z	GSIGN Z	N	CAAR (%)	CMAR (%)	Pos:Neg	SCS Z	GSIGN Z
[-1,+1]	25	0.16	-0.33	9:16	-0.578	-1.209	83	0.18	0.25	48:35	0.811	1.591
[-1,0]	25	-0.15	-0.19	11:14	-1.204	-1.408	83	-0.12	0.14	45:38	-0.021	0.932
[0, +1]	25	0.62	-0.43	10:15	0.208	-0.809	83	0.30	0.30	45:38	0.979	0.932
[-15,-2]	25	-0.88	1.25	14:11	-0.916	0.793	83	-0.59	-0.18	39:44	-0.829	-0.385
[+2,+15]	25	0.16	-1.18	11:14	0.120	-0.408	83	2.00	1.02	47:36	1.828$	1.372
[-15, +15]	25	-0.57	-0.01	12:13	-0.626	-0.008	83	1.59	1.92	49:34	1.005	1.811

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

7. CONCLUSION

This essay uses a unique data sample to examine the commercial banks' advantage in having access to private information from the ongoing relationships of their lending activities. In addition, instead of the traditional viewpoint of certifying and differentiating borrowers' quality, this essay focuses on how lenders' quality alters the investors' evaluation towards borrowers. The sample used in this essay is the announcements of bank loan rating placement on *CreditWatch* with negative implication and bank loan rating downgrade, which are shown to be associated with significantly negative equity market reactions in Essay One. This sample set provides a unique opportunity for re-examining the banks' impact on market reaction to adverse rating announcements. This essay examines the value of high quality relative to low quality banks with respect to market perception of bad news.

The results from the univariate tests and the cross-sectional regression analysis show that, while the market reacts significantly negatively to bad news announced by rating agencies, those monitored by high quality lenders are associated with less negative excess returns. These findings support the hypothesis that the high quality lending banks have an impact on the investors' assessment of their borrowing clients, and also mitigate the negative effect from downside news. These findings reconfirm that lending banks are still unique and that their certifying and monitoring functions are different than from rating agencies. In addition, the results hold after controlling for the characteristics of the firms and ratings. This indicates that the supporting evidence extends beyond the traditional viewpoint that lending banks are specialised in differentiating borrowers' quality, but instead focuses on the lenders' quality in influencing investors' evaluation of borrowers.

The results also show that borrowers' bad news concerning bank loan ratings does not have a significant effect on their lead lending banks.

Appendix 3-1
Hypotheses on Anticipated Response of the Equity Market's Reaction and the Empirical Returns

This table provides the summary of hypotheses of anticipated response and empirical results of the equity market's reaction to the announcements of bank loan rating placement on *CreditWatch* with negative implication and downgrade. Each sample is divided into two groups according to each variable. Bank's size is the log of the lead lending bank's total assets, bank's growth rate is the percentage change in total assets, profitability is the return on assets calculated as net income divided by total assets, and capital ratio is the risk-adjusted capital ratio extracted from Compustat. The bank's credit rating (according to Moody's) is high (low) if it is Aa3 and above (below Aa3).

	Expected results	**Empirical results**	
		(a) Bank loan rating placement with negative implication	(b) Bank loan rating downgrade
1) Bank's Size			
Above median	Less negative	Less negative	Less negative
Below median	More negative	More negative	More negative
Difference	Significant	Significant ***	Significant *
2) Bank's Growth Rate			
Above median	More negative	Less negative	More negative
Below median	Less negative	More negative	Les negative
Difference	Significant	Insignificant	Significant $
3) Bank's Profitability			
Above median	Less negative	Less negative	Less negative
Below median	More negative	More negative	More negative
Difference	Significant	Significant *	Significant *
4) Bank's Capital Ratio			
Above median	Less negative	Less negative	Less negative
Below median	More negative	More negative	More negative
Difference	Significant	Insignificant	Insignificant
5) Bank's Credit Rating			
High	Less negative	Less negative	Less negative
Low	More negative	More negative	More negative
Difference	Significant	Insignificant	Insignificant
6) US vs. Foreign Banks			
US	Less negative	Less negative	More negative
Foreign	More negative	More negative	Less negative
Difference	Uncertain	Significant **	Insignificant

***, **, * and $ indicate significance at the 0.1%, 1%, 5% and 10% levels, respectively.

Appendix 3-2
Summary Statistics for Independent Variables in Multivariate Regression Analysis of Bank Loan Rating Announcements of Placement on *CreditWatch* with Negative Implication

This table reports the summary statistics for the independent variables used in the multivariate regression model of bank loan rating placement announcements with negative implication. N is the number of announcements in a given category. BKSIZE is the natural log of the lead lending bank's total assets (in terms of millions of United States dollars) and BKTAG is the growth rate in total assets of the lead lending bank. PROF is profitability, calculated as the borrower's earnings before interest, tax, depreciation, and amortisation divided by the total assets and COL is the sum of the borrower's property, plant and equipment and inventory, divided by total assets. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively.

Variable	N	MEAN	MEDIAN	STD	MIN	MAX
BKSIZE	29	11.47	11.80	1.91	4.22	13.48
BKTAG (%)	29	10.14	8.58	29.75	-99.95	76.15
PROF (%)	29	9.76	10.58	5.54	-2.63	17.86
COL (%)	29	50.21	51.99	21.05	9.25	86.18

Appendix 3-3
Correlation Coefficients between Independent Variables in the Multivariate Regression Analysis of Bank Loan Rating Announcements of Placement on *CreditWatch* with Negative Implication

This table reports the Spearman's correlation coefficients between independent variables used in the multivariate regression model of bank loan rating placement announcements with negative implication. BKSIZE is the natural log of the lead lending bank's total assets (in terms of millions of United States dollars) and BKTAG is the growth rate in the total assets of the lead lending bank. PROF is profitability, calculated as the borrower's earnings before interest, tax, depreciation and amortisation divided by total assets and COL is the sum of the borrower's property, plant and equipment and inventory divided by the total assets. INVG is the dummy variable, which equals unity if the rating is below investment grade. Significance is presented within parenthesis.

	BKSIZE	BKTAG	PROF	COL	INVG
BKSIZE	1.000	0.188	-0.060	-0.348	-0.214
		(0.329)	(0.757)	(0.064)	(0.266)
BKTAG		1.000	-0.020	-0.142	-0.092
			(0.917)	(0.461)	(0.636)
PROF			1.000	-0.072	-0.112
				(0.709)	(0.563)
COL				1.000	0.020
					(0.917)
INVG					1.000

Appendix 3-4
Summary Statistics for the Independent Variables in the Multivariate Regression Analysis of Bank Loan Rating Announcements of Downgrade

This table reports the summary statistics for the independent variables used for the multivariate regression model of bank loan rating downgrade. N is the number of announcement in a given category. BKSIZE is the natural log of the lead lending bank's total assets (in terms of millions of United States dollars) and BKTAG is the growth rate in the total assets of the lead lending bank. PROF is profitability, calculated as borrower's earnings before interest, tax, depreciation and amortisation divided by total assets. COL is the sum of the borrower's property, plant and equipment and inventory divided by total assets. The ΔRATP is the number of grades changed. For the given category, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation and MIN and MAX are the minimum and maximum values, respectively.

Variable	N	MEAN	MEDIAN	STD	MIN	MAX
BKSIZE	101	11.49	12.73	2.56	4.22	13.48
BKTAG (%)	101	12.96	8.62	49.89	-99.95	133.47
PROF (%)	101	8.58	9.72	9.38	-51.36	44.99
COL (%)	101	47.67	45.57	22.72	2.86	94.07
ΔRATP	101	1.26	1.00	1.01	0.00	8.00

Appendix 3-5
Correlation Coefficients between Independent Variables in the Multivariate Regression Analysis of Bank Loan Rating Announcements of Downgrade

This table reports the Spearman's correlation coefficients between the independent variables used in the multivariate regression model of bank loan rating announcements of downgrade. BKSIZE is the natural log of the lead lending bank's total assets (in terms of millions of United States dollars) and BKTAG is the growth rate in the total assets of the lead lending bank. PROF is profitability, calculated as the borrower's earnings before interest, tax, depreciation and amortisation divided by the total assets. COL is the sum of the borrower's property, plant and equipment and inventory divided by the total assets. ΔRATP is the number of grades changed. Significance is presented within parenthesis.

	BKSIZE	BKTAG	PROF	COL	ΔRATP
BKSIZE	1.000	0.195	-0.070	-0.341	0.036
		(0.051)	(0.487)	(0.000)	(0.724)
BKTAG		1.000	-0.117	-0.020	-0.094
			(0.246)	(0.839)	(0.351)
PROF			1.000	0.091	-0.114
				(0.364)	(0.258)
COL				1.000	-0.148
					(0.140)
ΔRATP					1.000

CHAPTER FOUR

Essay Three

The Intra-industry Effect of Bank Loan Rating Announcements

Abstract

Announcements of bank loan rating are used to examine intra-industry effects. The sample is unique because the announcements are released by an outside party; the rating agency; instead of the firm itself. The intra-industry effect is found only among competitors of the announcing firms which are smaller than the announcing firms themselves. Moreover, the abnormal returns are found only to be linked to the announcements of placement on *CreditWatch* with negative implication and downgrades. The downgrade announcements cause significantly negative market reactions for both the smaller competitors and the announcing firms, indicating a contagion effect of common factors of deterioration. In contrast, negative placement announcements cause positive abnormal returns for competitors, but negative reaction for the announcing firms. This indicates a competitive effect of the change in the competitive balance within the industry. The results confirm that the value of rating agencies lies mainly in their detection of deteriorated prospects of firms. The bad news is found also to contain additional information for competitors of the announcing firms, as well as for the announcing firms themselves.

1. INTRODUCTION

Studies of intra-industry effect examine whether an announcement about, or an event concerning, a company contains information about competing firms in the same industry. This essay uses announcements of bank loan ratings to examine whether the announcements issued by rating agencies have any impact on the equity market and, specifically, whether these announcements have any intra-industry effect. Consistent with the study of Akhigbe, Madura and Whyte (1997); which found an intra-industry effect from announcements of bond rating downgrades; this essay also finds an intra-industry effect on announcements of bank loan rating downgrades, as well as from placement on *CreditWatch* with negative implication. These findings reconfirm the value of rating agencies via deteriorated news, which even extends beyond the firm level. Notably, the intra-industry effect from announcements of negative placement and downgrade is only found among competitors which are smaller than the announcing firms. These findings are consistent with the theory that the signalling effect of information is inversely related to the size of the rivals (Atiase, 1985; cited in Akhigbe and Madura, 1999b; Slovin, Sushka and Poloncheck, 1999).

The studies of intra-industry effects have been initiated from analysing the announcements of earning release or forecast, and have extended to, and focused on the banking industry. The intra-industry effect is also examined for the case of industrial firms. Such studies mainly use the announcements released by the firms themselves, such as announcements of dividend, security issues, merger and acquisition, among others. To an extent, the firms choose to reveal and convey certain inside information by releasing these announcements. This essay, in contrast, examines the intra-industry effect by

employing announcements by an outside party, not the firm-released news. The outside party in this essay is the rating agencies.

This essay extends the research of the first essay (see Chapter Two), which examined the value of rating agencies by announcements of bank loan ratings. Essay One finds that the market reacts significantly negatively to announcements of placement on *CreditWatch* with negative implication and downgrade, indicating that the contribution of rating agencies lies mainly in their ability to detect deteriorated prospects in the financial position of a company. The purpose of this essay is to substantiate the value of rating agencies by examining the intra-industry effect of bank loan rating announcements. This issue is important because rating agencies claim that the industrial context is also taken into consideration when making decisions about a rating (Standard and Poor's, 2002). If an intra-industry effect is found then it can be argued that the rating agencies provide additional information, not only about the announcing firms, but also about competitors in the same industry, or even about the industry as a whole.

The empirical results of this essay indicate that bank loan rating announcements of negative placement and downgrade have significant intra-industry effects on relatively small rivals. Furthermore, the direction of the market reaction is different for announcements of negative placement and downgrade. For rating downgrade, negative abnormal returns are found among the rivals (similar to Akhigbe et al., 1997), and the direction of the effect is the same as for the announcing firms. This contagion effect reflects that the whole industry encounters similar problems, which indicate a future deterioration in the industry. In contrast, for rating placement with negative implication, positive abnormal returns are found among the firm's rivals, which is an effect in the

opposite direction to the announcing firm's returns. This competitive effect means that the announcements of bank loan rating placement with negative implication indicates that the deterioration is more likely to be firm specific, hence rivals in the same industry benefit from the change in the competitive balance.

2. REVIEW OF LITERATURE

The studies of intra-industry effect have been initiated from the question of whether one firm's earning announcements have an influence on other firms' returns. Foster (1981) argued that earnings are affected by economic, industry and firm-specific factors. Therefore, earning releases may contain factors that are common to other firms in the same industry. Foster (1981) found significant information transfer, and concluded that earning releases by a company are used by investors to re-evaluate other firms as well. Han and Wild (1990) found that the sign and magnitude of abnormal returns of non-announcing firms are influenced by the sign and magnitude of the announcing firm's unexpected earnings. Baginski (1987) found similar results from an examination of a sample of management forecasts of earnings.

Extending the findings of intra-industry information transfer, studies have developed two different types of intra-industry effect. The first one is the contagion effect, referring to the situation where information revealed by announcing firms signals an industry-wide phenomenon, and the effect spills over to other rivals in the same industry (Kaufman, 1994). The second type is the competitive effect, referring to the situation where information revealed by announcing firms indicates a change in the competitive balance, and imposes an opposite influence on rival firms in the same industry (Erwin and Miller, 1998). For example, good (bad) news for the announcing firms indicates an increase (decrease) in business/market share and, therefore, is bad (good) news for rivals in the same industry. Studies supporting each effect are reviewed separately.

2.1 Contagion Effect

In the banking industry, Akhigbe and Madura (2001) found that bank failures have an adverse impact on other banks, particularly when the rival banks are relatively small and have a relatively low capital level. The negative contagion effect is also found from the announcement of a seasoned equity issue (Slovin, Sushka and Polonchek, 1992), dividend reduction (Bessler and Nohel, 2000) and/or bank debt downgrade (Schweitzer, Szewczyk and Varma, 2000; 2001). Similarly, good news can impose a positive contagion effect. Akhigbe and Madura (1999a) found that the positive influence of repurchase announcements spreads over to other banks, particularly when the announcing bank is a money centre bank and has a higher degree of positive returns. The positive effect from an acquisition announcement is also transferred to other banks and is magnified when the size of the rival banks is smaller than the target bank (Akhigbe and Madura, 1999b).

Contagion effects are also widely found among industrial firms. The market perceives announcements of dividend reduction (Firth, 1996) and dividend omission (Caton, Goh and Kohers, 2003) as transmitting information about the weakening expectation of cash flow across the industry. Similar results are found from the announcements of bond rating downgrade (Akhigbe et al., 1997), bankruptcy (Ferris, Jayaraman and Makhija, 1997), security offerings (Szewczyk, 1992) and downsizing (Sun and Tang, 1998). For the case of bond rating downgrade, the negative contagion effect is particularly strong when the downgraded firm is classified as the dominant one in the industry. The positive contagion impact is found from favourable announcements, such as going-private bid (Slovin, Sushka and Bendeck, 1991) and stock split (Tawatnuntachai and D'Mello, 2002).

The contagion effect is particularly emphasised by the latter, as stock split is only a cosmetic accounting change and provides no direct information about cash flow.

2.2 Competitive Effect

Madura, Akhigbe and Bartunek (1995) found that layoff announcements negatively affect the announcing firms' share price, but positively affect other banks. This indicates a reallocation of competitive position within the industry and other rival banks benefit from the weakening operation of the announcing banks. Baradwaj, Dubofsky and Fraser (1996) found that the acquirers of defensive acquisitions experience significantly negative returns. Nonetheless, the share prices of other banks, which are smaller than the acquirer's, increase.

For industrial firms, Erwin and Miller (1998) found that announcements of open market repurchase are associated with significantly positive share prices for repurchasing firms, but produce significantly negative market reactions for other rival firms in the same industry. Other examples of the way that good news for an announcing firm is bad news for its rivals include announcements of research and development expenditure (Zantout and Tsetsekos, 1994) and privatisation (Otchere and Zhang, 2001). The advantage of being the front runner in research and development activities, and the entry of aggressively probability-objective privatised firms signal a change of the competitive balance in an industry and causes a competitive intra-industry effect for rivals.

2.3 Uncertain or Negligible Effect

In some cases it is uncertain whether the valuation effect from the announcements or events will cause contagion or competitive effects for rivals in the same industry. This may be due to the characteristics of announcing firms. For example, Slovin et al. (1999) found that dividend reduction announcements of money centre banks have contagion impacts, but that regional banks cause a competitive effect for rival banks. They also found that regulatory enforcement actions at regional banks produce competitive effects, however, at money centre banks no intra-industry effect is found.

For industrial firms, Howe and Shen (1998) found negligible intra-industry effects from announcements of dividend initiation, arguing that it is a firm-specific event. Similar negligible results were found from the announcements of repurchase tender offers (Hertzel, 1991; Rao and Franz, 1996). Instead of interpreting the announcements of repurchase as firm-specific events, however, Rao and Franz (1996) argued that the negligible effect is due to the fact that repurchase programmes signal positive valuation effects to some industries and adverse information to other industries, hence, resulting in negligible outcomes. Similarly, Lang and Stulz (1992) found that a bankruptcy announcement has both, a contagion and a competitive effect on rivals, depending on the characteristics of the rivals. A contagion effect is found among rivals who have a higher correlation of past returns with bankrupt firms, and a competitive effect is more dominant among low-leveraged rivals.

From a review of the extant literature it is known that the intra-industry effect exists, indicating that investors in the market employ announcements from one firm to also

evaluate rivals in the same industry. Whether the information transfer signals a common phenomenon in regard to the whole industry (contagion effect), or signals a change in the competitive balance among rivals (competitive effect) is, however, an empirical question.

3. TESTABLE HYPOTHESES

3.1 Intra-industry Effect

Empirical results from Essay One show that the equity market reacts significantly negatively to announcements of bank loan rating placement on *CreditWatch* with negative implication and bank loan rating downgrade. These findings support the argument that rating agencies convey information to investors by recognising firm's deteriorated future prospects, even in the presence of monitoring banks. This current essay extends Essay One, and adds new evidence from the literature of intra-industry effects in order to examine whether announcements by rating agencies also convey information about the whole industry, specifically via deteriorated news.

The announcements used in most of the studies of intra-industry effect are released by firms. Such announcements include earnings releases and dividend changes. These announcements indicate the willingness of *companies*' to signal the market about the inside information regarding their future prospects. Therefore, the existence of intra-industry effects, if any, indicates that investors also take those firm-level signals released by the companies as new information about the industry as a whole. The events used in this essay are released by the third parties, instead of the firms themselves. These third parties are rating agencies, which are regarded as reputable monitors and information providers. The rating announcements show the *third parties'* recognition, instead of the firms' actions, about any new position or change toward the future prospects. In addition, rating agencies claim that, when assessing the rating for an industrial firm, the factors of industrial prospects for growth are also taken into consideration (Standard and Poor's,

2002). A team of analysts, with a lead analyst specialising in the specific industry, is in charge of the assignment process and later surveillance (Standard and Poor's, 2002). Therefore, if the rating announcements do contain industry-level information and cause intra-industry effects, this could provide additional evidence about the informational value of the rating agencies.

There are few papers published which consider the intra-industry effect of rating announcements. Schweitzer et al. (2000; 2001) found that bond rating downgrade of money centre banks negatively affected the revision of analysts' earning forecasts and the stock price of other money centre banks. Akhigbe et al. (1997) found that the bond rating downgrade of industrial firms has a significantly negative impact on rivals in the same industry. In addition to the rating downgrade announcements, this essay examines the completed actions from rating agencies. These actions include assignment, placement on *CreditWatch* with negative and positive implication, downgrade, upgrade and affirmation. There is another unique point to employing bank loan ratings. If the banks have a tendency of specialising in lending to certain industries and, if the change in a bank loan of one of the clients indicates a change in the whole industry, the banks may reconsider their future lending to other clients in the same industry.[1]

Based on the previous studies of intra-industry effects, an event of the announcing firms could have three kinds of impact on rival firms in the same industry. First, there could be a contagion effect, such that the event concerning the announcing firm indicates an industry-wide phenomenon and, in such a case, the rivals are impacted in the same direction. Second, there could be a competitive effect, such that the event indicates a

[1] The author thanks Mr. Mark D. Vaughan, banking supervision and regulation of the Federal Reserve Bank of Richmond, for confirming this point.

change in the competitive balance and, in such a case, the rivals are impacted in the opposite direction. Last, there could be an irrelevant effect, either because the announcement itself does not contain major information about the announcing firm (in which case there would be not even a mention of an effect on its rivals), or because the forces from the contagion and the competitive effects are equivalent (in which case the effects would cancel each other out and result in an insignificant outcome). According to the different market reactions of the announcing firms toward each kind of rating announcement, the details of each hypothesis are discussed below.

For bank loan rating assignments, because there is insignificant valuation effect for the announcing firms, it is expected that there should be no significant effect on industry rivals either.

Hypothesis 1: The announcement of bank loan rating assignment is not expected to generate a significantly positive or negative equity market reaction for rivals' portfolios.

For bank loan rating placement on *CreditWatch* with negative implication, it is shown that the share price of the announcing firms experiences a significant reduction, indicating that their deteriorated prospects are detected and conveyed to investors by the rating agencies. This deterioration could have three kinds of impact on industry rivals. First, the worsening situation of the deteriorated factors could signal an adverse condition of the applicable industry as a whole. Therefore, investors may also expect downward prospects for some other firms in the same industry. Second, the deterioration may indicate the possible elimination of the announcing firms, or the weakening competitive position of the announcing firms. In this case, the result is a better situation for the rivals because of

a rearranged and increased market share. Third, the negative placement of a company's bank loan rating is only firm specific news and should not cause any impact for rivals.

Hypothesis 2-1a: The information contained in the announcement of CreditWatch placement with negative implication of a bank loan rating is expected to indicate deterioration in rivals in the same industry. Therefore, it is expected to be associated with a significantly negative equity market reaction in rivals' portfolios.

Hypothesis 2-1b: The information contained in the announcement of CreditWatch placement with negative implication of a bank loan rating is expected to lead to a preference for rivals in the same industry. Therefore, it is expected to be associated with a significantly positive equity market reaction in rivals' portfolios.

Hypothesis 2-1c: The announcement of CreditWatch placement with negative implication of a bank loan rating does not contain information relevant to rivals in the same industry. Therefore, it is not expected to generate a significantly positive or negative equity market reaction in rivals' portfolios.

For the placement on *CreditWatch* with positive implication of bank loan ratings, it is shown that the market reacts positively, but insignificantly. Therefore, it is expected that the intra-industry effect from announcements of positive placement; whether it is a contagion (positive returns), or a competitive (negative returns) effect, should be insignificant.

Hypothesis 2-2: The announcement of placement on CreditWatch with positive implication of a bank loan rating is not expected to be associated with a significantly positive, or negative, equity market reaction in rivals' portfolios.

For bank loan rating downgrade, it is shown that the share price of announcing firms experiences a significant reduction. Similar to the case of negative placement, this deterioration could be due to the worsening situation of the industry as a whole, the firms' weakening capacity to retain their competitive position, or may be only a firm-specific problem. Therefore, the contagion, competitive and negligible effects are hypothesized, respectively below.

Hypothesis 3-1a: The information contained in the announcement of bank loan rating downgrade is expected to indicate a deterioration in rivals in the same industry. Therefore, it is expected to be associated with a significantly negative equity market reaction in rivals' portfolios.

Hypothesis 3-1b: The information contained in the announcement of bank loan rating downgrade is expected to lead to a preference for rivals in the same industry. Therefore, it is expected to be associated with a significantly positive equity market reaction in rivals' portfolios.

Hypothesis 3-1c: The announcement of bank loan rating downgrade does not contain information relevant to rivals in the same industry. Therefore, it is not expected to generate a significantly positive, or negative, equity market reaction in rivals' portfolios.

For the bank loan rating upgrade, it is shown that the market reacts positively, but insignificantly. Similar to the case of positive placement, it is expected that the intra-industry effect from announcements of positive placement, whether it is a contagion (positive returns), or a competitive (negative returns) effect, should be insignificant.

Hypothesis 3-2: The announcement of bank loan rating upgrade is not expected to be associated with a significantly positive, or negative, equity market reaction in rivals' portfolios.

For bank loan rating affirmation, similar to the case of assignment, there is insignificant valuation effect on the announcing firms. Therefore, it is expected that there should be no significant effect on rivals either.

Hypothesis 3-3: The announcement of bank loan rating affirmation is not expected to be associated with a significantly positive, or negative, equity market reaction in rivals' portfolios.

The summary of the hypotheses and the empirical results are presented in Appendix 4-1 at the end of this essay.

3.2 Size Effect

It is generally argued there is an inverse relationship between the relative size of the rivals, and the signalling effect of information (Atiase, 1985; cited in Akhigbe and Madura, 1999b; Slovin et al., 1999). Evidence shows that the intra-industry effect can be greater

for smaller rivals (Akhigbe and Madura, 1999b; and 2001; Baradwaj et al., 1996; Ferris et al., 1997). Therefore, it is hypothesized that the intra-industry effect; whether a contagion, or a competitive effect; should be more significant for the groups of rivals which are smaller than the announcing firm, and that the difference in the returns between small and large rival portfolios should be significant. The specific hypotheses for each kind of announcement are discussed below.

For bank loan rating assignment, as an intra-industry effect is not expected, the difference between the returns of large and small rival portfolios is not expected to be significant.

Hypothesis 4: The equity market reaction toward the announcement of bank loan rating assignment between large and small sized rivals is not expected to be significantly different.

For bank loan rating placement on *CreditWatch* with negative implication, if these announcements do have an intra-industry effect, it can be further expected that the different sized rivals might have different magnitudes of abnormal reaction. The abnormal returns from the small rival portfolios should be more significant than from the large rival portfolios, and this difference is expected to be significant.

Hypothesis 5-1: The equity market reaction toward the announcement of placement on CreditWatch with negative implication of a bank loan rating is expected to be more significant for the small sized rivals, and the difference in the reaction between large and small sized rivals is expected to be significant.

For bank loan rating on *CreditWatch* with positive implication, as an insignificant intra-industry effect is expected, it can be hypothesized that the difference between the large and small rival portfolios should not be significant.

Hypothesis 5-2: The equity market reaction toward the announcement of placement on CreditWatch with positive implication of a bank loan rating between large and small sized rivals is not expected to be significantly different.

For the bank loan rating downgrade, if these announcements do have an intra-industry effect, it can be further expected that the small sized rivals should be more sensitive to the effect than the large sized ones. It is expected that abnormal returns from the small rival portfolios should be more significant than from the large rival portfolio, and the difference is expected to be significant.

Hypothesis 6-1: The equity market reaction toward the announcement of bank loan rating downgrade is expected to be more significant for the small sized rivals, and the difference in reaction between the large and small sized rivals is expected to be significant.

For bank loan rating upgrade, as it is not expected that a significant intra-industry effect will be found, the difference between the large and small rival portfolios should not be significant.

Hypothesis 6-2: The equity market reaction toward the announcement of bank loan rating grade between large and small sized rivals is not expected to be significantly different.

For bank loan rating affirmation, as it is not expected that a significant intra-industry effect will be found, the difference between the returns of the large and small rival portfolios is not expected to be significant.

Hypothesis 6-3: The equity market reaction toward the announcement of bank loan rating affirmation between large and small sized rivals is not expected to be significantly different.

The summary of the hypotheses and the empirical results are presented in Appendix 4-2 at the end of this essay.

4. DATA DESCRIPTION AND METHOD OF ANALYSIS

4.1 Data Description

Announcements of rating assignment, *CreditWatch* placement and rating action of bank loan ratings were collected from 1996 to 2002, from the following sources: 1) Standard and Poor's Credit Analysis Reference Disc; 2) bank loan rating announcements and lists from Standard and Poor's website (www.standardandpoors.com); and 3) *Factiva*, a Dow Jones and Reuters Company. In addition, daily returns around the announcement date, the four-digit Standard Industrial Classification (SIC) code and the market value of each company was collected from the University of Chicago's Centre for Research in Security Prices (CRSP) daily file. The primary data of announcement are required to satisfy the following criteria:

1) The companies that have bank loan rating announcements are included in the CRSP database (or have a CUSIP number);
2) Daily returns are available for the period of 240 days before, to 15 days after, the announcement date; and
3) No other confounding announcements occurred within the three-day window from one day before, to one day after, the announcement date of the bank loan rating.

This process produces the 571 announcing firms which experienced announcements of bank loan ratings. In order to test for any intra-industry effects, additional criteria has to be complied with:

1) The underlying reason for the announcement should not be industry-wide. That is, in the same industry, there should not be more than one firm who has an announcement of bank loan rating on the same date;
2) The announcing firm has a four-digit SIC code;
3) The announcing firm has at least one rival firm with the same four-digit SIC code; and
4) The daily returns of the rivals (who have same four-digit SIC code as the announcing firms) are available for the period of 240 days before, to 15 days after, the announcement date.

Companies in the industries of finance, insurance and real estate are highly regulated, and are usually excluded by most studies of intra-industry effect that use samples of industrial firms. Therefore, firms with SIC codes from 6000-6999 are excluded from the sample. Table 1 provides the process of data deletion for the group of assignment, placement on *CreditWatch* with negative and positive implication and action including downgrade, upgrade and affirmation. Six announcements are dropped because of the lack of a SIC code, seventeen announcements are dropped because the announcing firms have no rivals with the same four-digit SIC code, five announcements are dropped due to insufficient return data on CRSP for the rival(s) during the estimation period and twenty announcements are dropped for having codes from 6000 to 6999. The initial sample of 571 announcements of bank loan ratings has been subjected to the above criteria to produce the final sample of 526 announcements.

Table 2 presents the summary statistics of the announcements and the rivals. There are 246 assignment announcements, covering 161 different industries. The total number of

Table 1
Criteria for Data Deletion

Table 1 gives information on the process, and the results, of data clearance for each sample. The initial sample of 571 announcements of bank loan ratings are reduced to the final sample of 526 announcements for four reasons: the announcing firm does not have a valid four-digit SIC code; the announcing firm is the only company with a SIC code; the rivals have an insufficient number of returns available; and/or the announcing firm is a finance, real estate, or insurance company (that is, having a SIC code from 6000 to 6999). All are shown with the number of announcements.

Reason for Deletion	Assignment	Placement		Action			Total
		Negative	Positive	Downgrade	Upgrade	Affirmed	
Total number of announcements	265	32	7	121	68	78	571
Less: No four-digit SIC code	1	--	--	--	--	5	6
Less: No rivals	6	2	--	5	--	4	17
Less: Insufficient number of returns available	1	--	--	1	2	1	5
Less: SIC from 6000 to 6999	11	2	--	4	1	2	20
Final Sample	246	28	7	111	65	69	526

Table 2
Summary Statistics of Rivals

This table presents the summary statistics of the rivals for each sample. Each announcing firm in the sample has at least one listed rival with the same four-digit SIC code and sufficient daily stock returns from CRSP tape.

	Assignment	Placement		Action		
		Negative	Positive	Downgrade	Upgrade	Affirmed
Number of announcements	246	28	7	111	65	69
Number of different four-digit SIC codes	161	24	7	70	47	52
Number of rivals in total	8,743	657	311	2,565	2,130	2,247
Mean number of rivals per event	35.54	23.46	44.43	23.11	32.77	32.57
Median number of rivals per event	17	13	24	11	16	16
Minimum number of rivals per event	1	1	1	1	2	1
Maximum number of rivals per event	426	89	158	184	155	179

rivals is 8,743, with the mean and median number of rivals per announcement being 35 and 17, respectively. For the group of negative placement, there are 28 announcements, covering 24 industries. The total number of rivals is 657, and the mean and median number of rivals per announcement is 23 and 13, respectively. For the group of positive placement, there are seven announcements covering seven industries. The total number of rivals is 657, and the mean and median number of rivals per announcement is 44 and 24, respectively. There are 111 downgrade announcements, covering 70 different industries. The total number of rivals is 2,565, and the mean and median number of rivals per announcement is 23 and 11, respectively. There are 65 upgrade announcements, covering 47 different industries. The total number of rivals is 2,130, and the mean and median number of rivals per announcement is 32 and 16, respectively. There are 69 affirmation announcements, covering 52 different industries. The total number of rivals is 2,247, and the mean and median number of rivals per announcement is 32 and 16, respectively. The minimum number of rivals is one, with a maximum of 426 in the group of assignment.

The comparison of announcing and rival firms' market value is presented in Appendix 4-3, 4-4 and 4-5 at the end of this essay for assignment, placement and action, respectively. The market value of each firm prior to the announcement year is obtained from CRSP. For the group of assignment, the median market value of the announcing and rival firms is 706.34 and 165.06 million US dollars, respectively. For the group of negative placement, the median market value of the announcing and rival firms is 344.72 and 203.76 million US dollars, respectively. For the group of positive placement, the median market value of the announcing and rival firms is 706.34 and 197.50 million US dollars, respectively. For the group of downgrade, the median market value of the announcing

and rival firms is 296.70 and 173.34 million US dollars, respectively. For the group of upgrade, the median market value of the announcing and rival firms is 831.94 and 276.26 million US dollars, respectively. For the group of affirmation, the median market value of the announcing and rival firms is 1,704.39 and 254.94 million US dollars, respectively. Generally, the announcing firms have a relatively higher median, and the group of rivals has a higher standard deviation in market value. This means that, given that market value is the proxy for market dominance, the announcing firms are generally considered large enough to affect other firms in the industry, yet the magnitude of influence may vary because of the wide range of the rivals' size.

4.2 Methods of Analysis

An event study is used to examine the announcement effect from bank loan rating for both groups of the announcing and rival firms. A market model is used to estimate the abnormal security returns associated with assignment, placement on *CreditWatch* and action announcements of bank loan ratings. The intercept and slope coefficients which are used in the market model are estimated over a 150-day period; from day t-240 to day t-91; relative to the announcement day (t=0), which is defined as the date of the first report of the announcement. The standardised abnormal return approach is used to generate Z-test statistics (SCS Z), and the generalised sign test (GSIGN Z) is used to test for the fraction of positive and negative average abnormal returns. The null hypothesis for the GSIGN Z is that the fraction of positive returns is the same as in the estimation period. A full mathematical explanation of the methodology is shown in Appendix A at the end of the thesis.

For the groups of rival firms, the standard event study is applied with a slight modification.[2] As the announcement period for a given announcement is the same for all rivals in an industry, there may be a significant correlation in stock returns among the rivals. To solve the problem of returns clustering and/or cross-correlation, the rival firms are pooled into a value-weighted portfolio[3], and the market model is used to estimate the intercept and slope coefficients.[4] Univariate tests are also used to examine the significant differences in the means of the returns between the groups; which are split on the basis of the market value of the rival firms in the different groups. Each rival firm's market value in the year preceding the announcement year is compared with the market value of the announcing firms in the same year. Therefore, for each announcement, this procedure divides the rival firms into two portfolios.[5] A mathematical explanation of t-statistic for the difference between the two means is shown in Appendix B at the end of the thesis.

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[2] The author thanks Professor Cowan of Iowa State University, the president of Cowan Research LC, for confirming the use of software for the event study in this procedure.

[3] Some studies pool rival firms into an equally weighted portfolio. This essay also employs this methodology, and obtains similar results. As a value-weighted portfolio is used in the market model when estimating intercept and slope for the announcing firms, for the purpose of consistency, the method of a value-weighted portfolio is applied when forming rival firms' portfolios of returns as a market model.

[4] Seemingly unrelated regression (SUR) is an alternative methodology used by literatures considering the intra-industry effect, particularly among studies of bank failures. SUR is an appropriate methodology for the case of bank failure because the announcement of bank failure is a single event, and therefore the announcement date is identical for all banks in the sample. In this essay, the announcement dates of bank loan ratings are multiple events, so the announcement dates are different across the sample, and therefore SUR is not necessary.

[5] The number of announcements for the subgroups of the large, and small, rival portfolio may be different; and may be different from the original number of the announcement; because the market value of the announcing firm may be the largest/smallest among the industry. According to the sample selection criteria that the announcing firm must have at least one rival, the announcement is excluded when the largest (smallest) announcing company does not have rivals that are larger (smaller) than it for the subgroup of the large (small) rival portfolio.

5. EMPERICAL RESULTS

This section presents the results of the event study of bank loan rating assignment, rating placement on *CreditWatch* and rating action, for the groups of both the announcing and the rival firms.

5.1 Assignment Announcements of Bank Loan Ratings

Table 3 reports the event study output of announcing and rival firms for the 246 announcements of bank loan rating assignment. Average abnormal returns (AAR), median abnormal returns (MAR), the number of positive versus negative abnormal returns, SCS Z and GSIGN Z are reported for the period of three days around the announcement date (from t-1 to t+1). Cumulative returns are also provided for various windows. For the group of the announcing firms, the three-day cumulative average abnormal returns (CAAR) and the cumulative median abnormal returns (CMAR) are –0.34% and –0.51%, respectively, with an insignificant SCS Z of –0.85. The ratio of positive to negative returns is 110:136. The GSIGN Z is –0.741, which is also insignificant. The results of the two-day window are similar. These insignificant results are also found for the group of rival firms.

For the group of rival firms, the three-day CAAR and CMAR are –0.24% and –0.19%, respectively, with an insignificant SCS Z of –0.967. The ratio of positive to negative returns is 112:134. The GSIGN Z is –0.967, which is also insignificant. The results of the two-day window are similar. These results support Hypothesis 1, that assignment announcements of bank loan rating do not have significant intra-industry effects.

Table 3
Returns of Announcing Firms and Rivals around Announcements of Bank Loan Rating Assignment

This table reports the returns around the 246 announcements of bank loan rating assignment for the announcing firms and their corresponding rival portfolios. Rival portfolios contain rival firms with the same four-digit SIC codes grouped into portfolios by event. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

		Announcing Firms					**Rival Firms**				
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z
-1	246	-0.26	-0.23	107:139	-1.290	-1.124	-0.03	-0.13	109:137	-0.473	-1.350
0	246	-0.04	-0.05	121:125	-0.215	0.664	-0.08	-0.10	108:138	-0.946	-1.477
1	246	-0.05	-0.14	113:133	0.180	-0.358	-0.12	-0.06	116:130	-0.871	-0.457
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z
[-1,+1]	246	-0.34	-0.51	110:136	-0.850	-0.741	-0.24	-0.19	112:134	-1.159	-0.967
[-1,0]	246	-0.29	-0.17	116:130	-1.151	0.026	-0.12	-0.17	111:135	-0.964	-1.095
[0,+1]	246	-0.08	-0.06	122:124	-0.012	0.792	-0.20	-0.09	115:131	-1.202	-0.584
[-15,-2]	246	-0.07	-0.34	121:125	-0.033	0.664	0.25	0.15	127:119	1.130	0.947
[+2,+15]	246	0.16	-0.43	117:129	-0.447	0.153	0.48	0.06	124:122	0.886	0.564
[-15,+15]	246	-0.24	-0.17	122:124	-0.524	0.792	0.50	0.63	131:115	0.924	1.457

Table 4
Returns of Large and Small Rivals around Announcements of Bank Loan Rating Assignment

This table reports the portfolio returns of large and small rival firms around the announcements of bank loan rating assignment. The rival firm, which has the same four-digit SIC codes as the announcing firm, is grouped into the large rival (small rival) portfolio if its market value in the year prior year to the announcements was larger (smaller) than the market value of the announcing firm in the same base year. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

	Large Rivals						**Small Rivals**						**Difference**		
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	SCS Z
-1	205	-0.01	-0.19	92:113	-0.311	-1.122	243	-0.06	-0.06	116:127	-0.378	-0.152	-38	0.05	0.324
0	205	-0.22	-0.11	96:109	-2.298*	-0.563	243	-0.03	-0.05	115:128	-0.288	-0.280	-38	-0.19	-1.231
1	205	-0.12	-0.11	92:113	-1.345	-1.122	243	-0.13	-0.03	120:123	-0.121	0.362	-38	0.01	0.065
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	SCS Z
[-1,+1]	205	-0.35	-0.44	82:123	-1.929$	-2.519*	243	-0.22	-0.18	116:127	-0.398	-0.152	-38	-0.13	-0.843
[-1,0]	205	-0.24	-0.22	90:115	-1.587	-1.401	243	-0.10	-0.06	118:125	-0.451	0.105	-38	-0.14	-0.907
[0,+1]	205	-0.34	-0.24	92:113	-2.422*	-1.122	243	-0.16	-0.05	117:126	-0.270	-0.023	-38	-0.18	-1.167
[-15,-2]	205	-0.15	0.29	105:100	-0.176	0.695	243	0.10	0.14	124:119	1.437	0.876	-38	-0.25	-1.620
[+2,+15]	205	-0.55	-0.38	93:112	-0.991	-0.982	243	1.08	0.65	131:112	1.277	1.774$	-38	-1.63	-10.564***
[-15,+15]	205	-1.06	-0.72	94:111	-1.247	-0.842	243	0.96	0.56	130:113	1.551	1.646$	-38	-2.02	-13.092***

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Table 4 reports the event study output for the rival firms, divided into two subgroups. For large rivals the three-day CAAR and CMAR are –0.35% and –0.44%, respectively, which is significant at the 10% level. The ratio of positive to negative returns is 82:123, which is also significant at the 5% level. For small rivals the three-day CAAR and CMAR are –0.22% and –0.18%, respectively, and the ratio of positive to negative returns is 116:127. Neither SCS Z nor GSIGN Z is significant. The significant negative returns of the large-rival subgroup are unexpected, however the difference between the large, and small, rivals subgroups is not significant, which supports Hypothesis 4.

The pattern of AAR and CAAR for the whole window (day –15 to day 15) for the announcing firms, the large rivals and the small rivals are provided in Figure 4-1 and 4-2, respectively. In Figure 4-1, AARs can be seen to be randomly spread around zero. In Figure 4-2 it can be seen that, CAARs before the announcement date are around zero for the three groups, although after the announcement date the CAARs of the announcing firms and the small rivals move upward, while the CAAR of the large rivals moves downward.

5.2 Placement Announcements of Bank Loan Ratings on *CreditWatch*

5.2.1 Placement with negative implication

Table 5 reports the event study output of the announcing and rival firms for the twenty-eight announcements of bank loan rating placement on *CreditWatch* with negative implication. For the group of announcing firms, the three-day CAAR and CMAR are –3.27% and –3.29%, respectively, with SCS Z of –2.489, which is significant at the 5%

Figure 4-1
AAR of Announcements of Bank Loan Rating Assignment

This figure shows the relationship between days (on the horizontal axis) and the average abnormal returns (AAR) of the announcing firms, large rivals and small rivals around the announcements of bank loan rating assignment. The rival firms; which have same four-digit SIC codes as the announcing firm; are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.

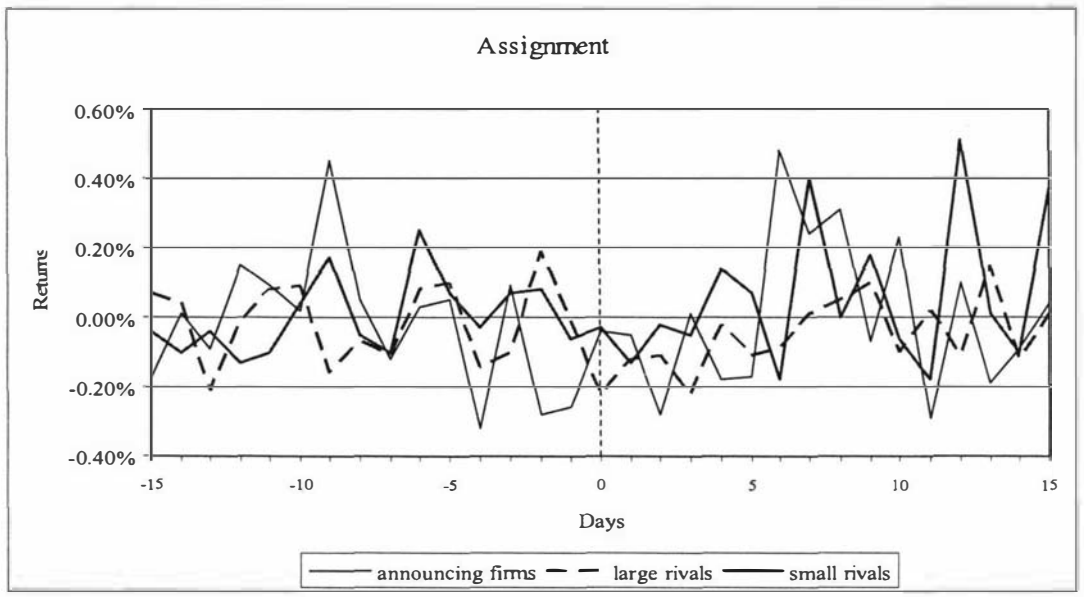
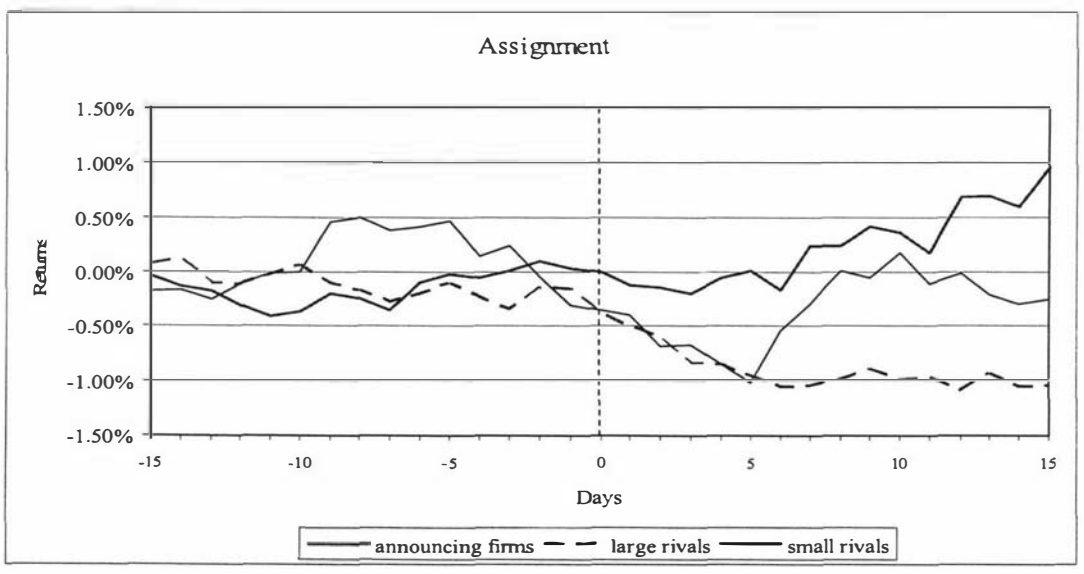


Figure 4-2
CAAR of Announcements of Bank Loan Rating Assignment

This figure shows the relationship between days (on the horizontal axis) and the cumulative average abnormal returns (CAAR) of the announcing firms, large rivals and small rivals around the announcements of bank loan rating assignment. The rival firms, which have same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.



level. The ratio of positive to negative returns is 7:21, with GSIGN Z of –2.523, which is also significant at the 5% level. The results of the two-day window are similar.

For the group of rival firms, the three-day CAAR and CMAR are 1.23% and 0.94%, respectively. SCS Z is 2.517 and is significant at the 5% level. The ratio of positive to negative returns is 17:11 with GSIGN Z of 1.375. The results of the two-day window are similar. The significant and positive reactions from the rival portfolios support Hypothesis 2-1b concerning the competitive effect, that the bad news of negative placement of the announcing firms is good news for other companies in the same industry due to the reallocation of competition forces.

Whether this competitive effect is homogeneous across the rival firms is further examined. Table 6 reports the event study output of the large, and small, rival subgroups. For the large rivals the three-day CAAR and CMAR are 0.61% and 0.12%, respectively, with an insignificant SCS Z of 1.392. The ratio of positive and negative returns is 15:12 that is also insignificant. For small rivals the three-day CAAR and CMAR are 1.97% and 0.63%, respectively, with an SCS Z of 2.463, which is significant at the 5% level. The ratio of positive to negative returns is 16:12, and the GSIGN Z is 1.081. Although both of the groups experience positive returns, the competitive effect is stronger for the small rivals, and their mean difference is significant at the 5% level. These results support Hypothesis 5-1, that the intra-industry effect is found clearly in the groups of small rivals.

The pattern of AAR and CAAR for the whole window (day –15 to day 15) for the announcing firms, large rivals and small rivals are provided in Figures 4-3 and 4-4, respectively. In Figure 4-3, it is obvious that on the announcement date the returns of the

Table 5
Returns of Announcing Firms and Rivals around Announcements of Bank Loan Rating Placement with Negative Implication

This table reports the returns around the twenty-eight announcements of bank loan rating placement on *CreditWatch* with negative implication for the announcing firms and their corresponding rival portfolios. Rival portfolios contain rival firms with the same four-digit SIC codes, grouped into value-weighted portfolios by event. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

		Announcing Firms					**Rival Firms**				
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z
-1	28	-0.73	-0.24	12:16	-1.045	-0.633	0.32	0.36	16:12	1.576	0.996
0	28	-1.84	-1.40	9:19	-2.308*	-1.767$	-0.23	0.37	19:09	1.220	2.131*
1	28	-0.70	-1.37	11:17	-0.684	-1.011	1.13	0.05	14:14	1.079	0.240
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z
[-1,+1]	28	-3.27	-3.29	7:21	-2.489*	-2.523*	1.23	0.94	17:11	2.517*	1.375
[-1,0]	28	-2.57	-1.99	7:21	-2.540*	-2.523*	0.09	0.79	18:10	1.828$	1.753$
[0,+1]	28	-2.54	-2.68	8:20	-1.967*	-2.145*	0.90	0.10	15:13	1.681$	0.618
[-15,-2]	28	-2.87	-1.38	14:14	-1.565	0.124	-1.62	0.02	15:13	-1.548	0.618
[+2,+15]	28	1.14	0.54	15:13	0.042	0.502	-0.13	0.02	14:14	-0.037	0.240
[-15,+15]	28	-5.00	-12.45	10:18	-1.730$	-1.389	-0.53	0.12	15:13	-0.855	0.618

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Table 6
Returns of Large and Small Rivals around Announcements of Bank Loan Rating Placement with Negative Implication

This table reports the portfolio returns of large and small rival firms around the announcements of bank loan rating placement on *CreditWatch* with negative implication. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value in the year prior year to the announcements was larger (smaller) than the market value of the announcing firm in the same base year. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

	Large Rivals						Small Rivals						Difference		
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	SCS Z
-1	27	0.19	0.45	18:9	1.151	1.887$	28	0.82	0.17	16:12	0.810	1.081	-1	-1.43	-2.513*
0	27	0.02	-0.21	12:15	0.365	-0.424	28	0.21	0.49	19:9	1.489	2.217*	-1	-0.65	-1.142
1	27	0.39	-0.16	12:15	1.321	-0.424	28	0.95	-0.02	14:14	0.543	0.323	-1	-1.22	-2.144$
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	SCS Z
[-1,+1]	27	0.61	0.12	15:12	1.392	0.732	28	1.97	0.63	16:12	2.464*	1.081	-1	-1.36	-2.390*
[-1,0]	27	0.22	0.33	18:9	0.908	1.887$	28	1.02	0.67	16:12	1.863$	1.081	-1	-0.80	-1.406
[0,+1]	27	0.41	0.12	14:13	0.961	0.347	28	1.16	0.37	15:13	1.595	0.702	-1	-0.75	-1.318
[-15,-2]	27	-2.40	-1.19	12:15	-1.664$	-0.424	28	-3.48	-2.59	10:18	-1.210	-1.192	-1	1.08	1.898$
[+2,+15]	27	-0.46	-1.74	12:15	-0.332	-0.424	28	1.87	0.81	15:13	0.302	0.702	-1	-2.33	-4.095***
[-15,+15]	27	-2.25	-3.27	11:16	-1.369	-0.809	28	0.36	0.44	14:14	-0.017	0.323	-1	-2.61	-4.587***

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Figure 4-3
AAR of Announcements of Bank Loan Rating Placement with Negative Implication

This figure shows the relationship between days (on the horizontal axis) and the average abnormal returns (AAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating placement with negative implication. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.

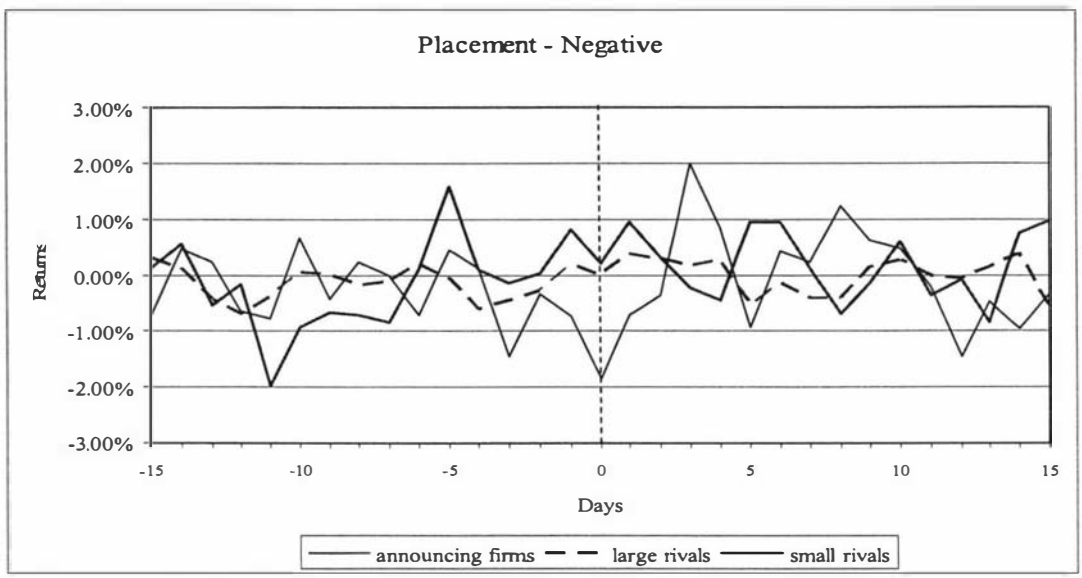
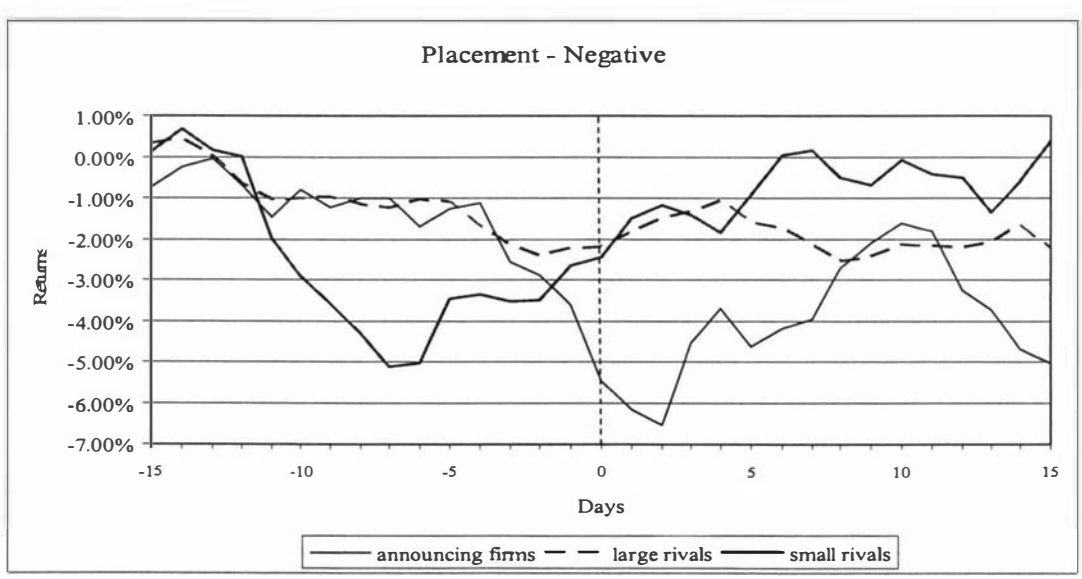


Figure 4-4
CAAR of Announcements of Bank Loan Rating Placement with Negative Implication

This figure shows the relationship between days (on the horizontal axis) and the cumulative average abnormal returns (CAAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating placement with negative implication. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.



announcing firms, the large rivals and the small rivals all fall. Notably, the returns of the rival portfolios, particularly the small rival portfolio, decrease on day 0, but remain above zero. This indicates the interaction of the contagion and competitive effects, while eventually the latter dominants the former effect. This competitive effect for the small rivals can also be found from the upward trend of CAAR in Figure 4-4, while it can be seen that the CAAR of the large rival portfolios is less volatile than the CAARs of the announcing firms and the small rival portfolios.

5.2.2 Placement with positive implication

Table 7 reports the event study output of the announcing and rival firms for the seven announcements of bank loan rating placement on *CreditWatch* with positive implication. For the group of announcing firms, the three-day CAAR and CMAR are 0.36% and 1.82%, respectively, and are insignificant. The ratio of positive to negative returns is 4:3, which is also insignificant. The results of the two-day window are similar.

For the group of rival firms, the three-day CAAR and CMAR are 1.01% and 1.05%, respectively. The ratio of positive to negative returns is 5:2, which is also insignificant. The insignificant reaction from the rival portfolio supports Hypothesis 2-2, that the positive placement announcements of bank loan rating do not contain information about the rivals, although they react in the same direction as the announcing firms, indicating a weak contagion effect. The sample size may, however, be too small to make a generalised conclusion.

Table 7

Returns of Announcing Firms and Rivals around Announcements of Bank Loan Rating Placement with Positive Implication

This table reports the returns around the seven announcements of bank loan rating placement with positive implication for the announcing firms and their corresponding rival portfolios. Rival portfolios contain the rival firms with the same four-digit SIC codes, grouped into value-weighted portfolios by event. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

		Announcing Firms					**Rival Firms**				
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z
-1	7	0.47	0.96	4:3	0.500	0.556	0.33	0.42	5:2	0.156	1.225
0	7	0.18	-0.74	3:4	0.424	-0.202	0.61	0.34	4:3	0.308	0.469
1	7	-0.29	0.58	4:3	-0.305	0.556	0.07	0.04	4:3	0.050	0.469
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z
[-1,+1]	7	0.36	1.82	4:3	0.385	0.556	1.01	1.05	5:2	0.199	1.225
[-1,0]	7	0.65	1.13	4:3	0.742	0.556	0.94	0.98	5:2	0.249	1.225
[0,+1]	7	-0.11	-0.16	3:4	0.162	-0.202	0.68	0.54	4:3	0.214	0.469
[-15,-2]	7	2.36	6.29	5:2	0.832	1.313	2.60	1.59	5:2	1.395	1.225
[+2,+15]	7	-2.90	-3.40	3:4	-0.757	-0.202	-6.59	-0.93	2:5	-1.101	-1.044
[-15,+15]	7	-0.17	2.97	4:3	0.167	0.556	-2.99	4.31	5:2	1.028	1.225

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Table 8
Returns of Large and Small Rivals around Announcements of Bank Loan Rating Placement with Positive Implication

This table reports the portfolio returns of the large and the small rival firms around the announcements of bank loan rating placement on *CreditWatch* with positive implication. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value in the year prior to the announcements was larger (smaller) than the market value of the announcing firm in the same base year. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

	Large Rivals						**Small Rivals**						**Difference**		
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	SCS Z
-1	6	0.89	0.93	5:1	0.741	1.806$	7	0.00	0.09	5:2	-0.291	1.251	-1	0.89	0.814
0	6	0.43	0.46	4:2	0.554	0.988	7	0.12	0.21	4:3	-0.221	0.494	-1	0.31	0.283
1	6	0.16	-0.36	2:4	0.438	-0.649	7	0.17	1.05	4:3	-0.346	0.494	-1	-0.01	-0.009
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	SCS Z
[-1,+1]	6	1.48	0.57	4:2	0.633	0.988	7	0.29	-0.59	3:4	-0.319	-0.262	-1	1.19	1.088
[-1,0]	6	1.32	1.55	4:2	0.733	0.988	7	0.12	-0.21	3:4	-0.247	-0.262	-1	1.20	1.097
[0,+1]	6	0.59	-0.08	3:3	0.514	0.169	7	0.29	-0.68	3:4	-0.315	-0.262	-1	0.30	0.274
[-15,-2]	6	2.34	3.42	4:2	1.391	0.988	7	5.64	1.11	4:3	1.231	0.494	-1	-3.30	-3.018*
[+2,+15]	6	-1.68	-0.68	2:4	-0.883	-0.649	7	-6.82	-0.67	3:4	-0.346	-0.262	-1	5.14	4.700***
[-15,+15]	6	2.14	0.58	3:3	1.160	0.169	7	-0.89	3.85	4:3	0.661	0.494	-1	3.03	2.771*

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Table 8 reports the event study output of the large rivals and the small rivals. For the large rivals the three-day CAAR and CMAR are 1.48% and 0.57%, respectively, and the ratio of positive to negative returns is 4:2. Both SCS Z and GSIGN Z are insignificant. For the small rivals the three-day CAAR and CMAR is 0.29% and –0.59%, respectively, and the ratio of positive to negative returns is 3:4. Both SCS Z and GSIGN Z are also insignificant. The mean difference is also insignificant, which supports Hypothesis 5-2, that the reaction of large and small rivals toward the positive placement announcements of bank loan rating should be indifferent, however, again the sample size may not be large enough to make a generalised conclusion.

The pattern of AAR and CAAR for the whole window (day –15 to day 15) for the announcing firms, the large rivals and the small rivals are provided in Figures 4-5 and 4-6, respectively. It can be seen in both Figure 4-5 and 4-6 that the AARs and CAARs of the announcing firms, the large rivals and the small rivals are random, while the returns of the small rivals are the most volatile.

5.3 Action Announcements of Bank Loan Ratings

5.3.1 Downgrade

Table 9 reports the event study output of announcing and rival firms for the 111 announcements of bank loan rating downgrade. For the group of announcing firms, the three-day CAAR and CMAR are –3.18 % and –2.45%, respectively, with SCS Z of –5.12, which is significant at the 0.1% level. The ratio of positive to negative returns is 39:72,

Figure 4-5
AAR of Announcements of Bank Loan Rating Placement with Positive Implication

This figure shows the relationship between days (on the horizontal axis) and the average abnormal returns (AAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating placement with positive implication. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.

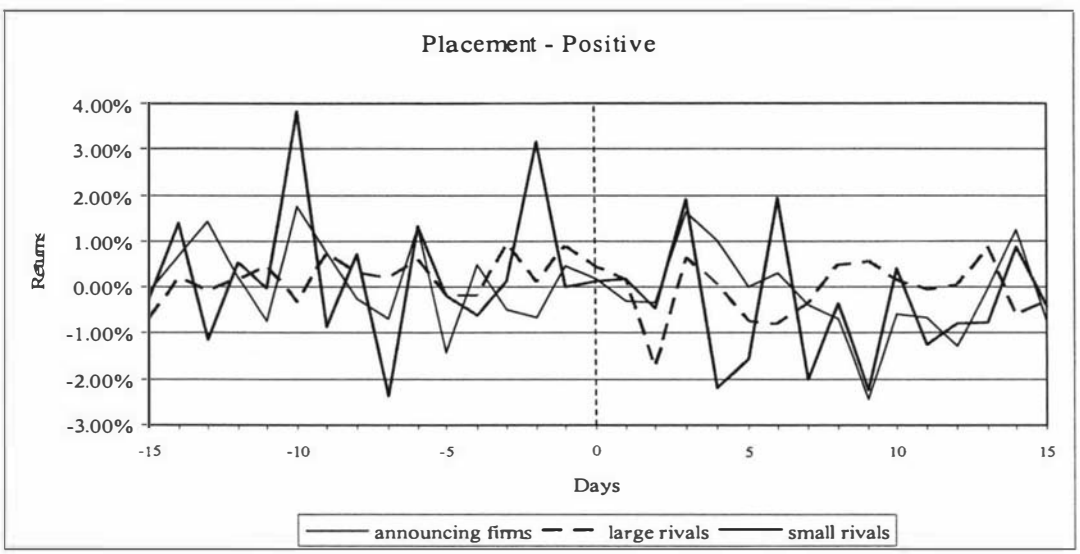
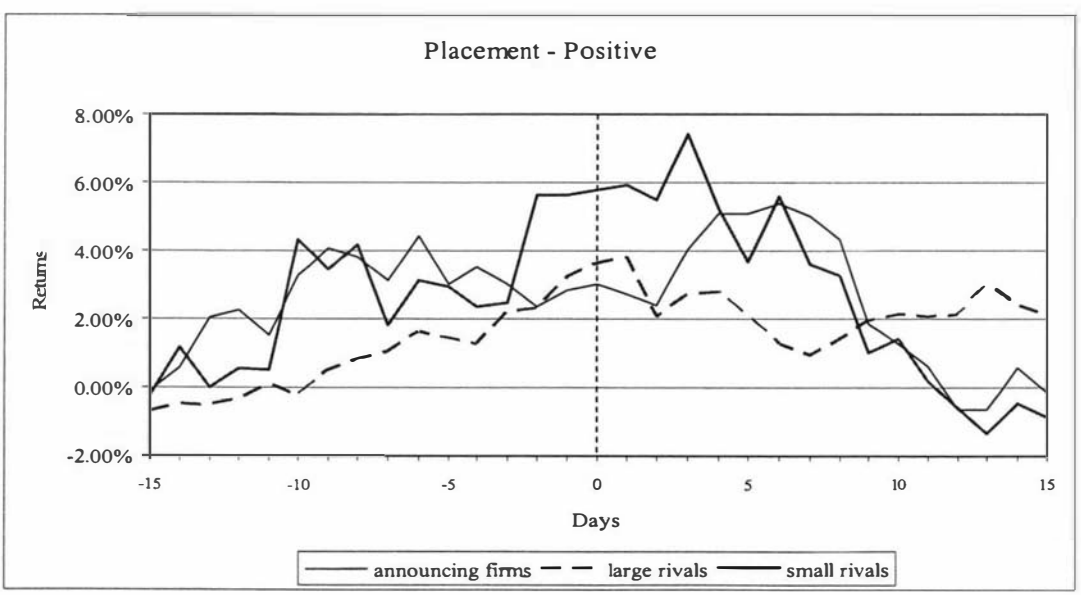


Figure 4-6
CAAR of Announcements of Bank Loan Rating Placement with Positive Implication

This figure shows the relationship between days (on the horizontal axis) and the cumulative average abnormal returns (CAAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating placement with positive implication. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.



with GSIGN Z of –2.963, which is also significant at the 1% level. The results of the two-day window are similar.

For the group of rival firms, the three-day CAAR and CMAR are –0.57% and –0.42%, respectively, with an insignificant SCS Z of –0.191. The ratio of positive to negative returns is 46:65, with an insignificant GSIGN Z of –1.384. The results of the two-day window are similar. The negative, but insignificant abnormal returns support Hypothesis 3-1c, that the bank loan rating downgrade is a firm-specific event only, and has no influence on other companies in the same industry.

If the rival firms are divided in terms of size, however, then different results are found. Table 10 reports the event study output of the large rival and small rival subgroups. For large rivals, the three-day CAAR and CMAR are 0.17% and 0.30%, respectively, with an insignificant SCS Z of 1.003. The ratio of positive to negative returns is 52:42, which is also insignificant. For small rivals the three-day CAAR and CMAR are –0.72% and –0.78%, respectively, with a SCS Z of –1.928, which is significant at the 10% level. The ratio of positive to negative returns is 40:67, with GSIGN Z of –2.018, which is significant at the 5% level. The mean difference between these two portfolios is significant at the 1% level, which supports Hypothesis 6-1, that the intra-industry effect is stronger for the rivals which are smaller than the announcing firms. Furthermore, while the downgrade announcements cause a contagion effect for small rivals, in contrast, for large rivals, these announcements cause an insignificant competitive effect. The opposite directions of the returns from the large, and small, rival portfolios support the findings of Lang and Stulz (1992) that rivals with different characteristics may experience different intra-industry effects.

Table 9
Returns of Announcing Firms and Rivals around Announcements of Bank Loan Rating Downgrade

This table reports the returns around the 111 announcements of bank loan rating downgrade for the announcing firms and their corresponding rival portfolios. The rival portfolios contain rival firms with the same four-digit SIC codes, grouped into value-weighted portfolios by event. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

		Announcing Firms					**Rivals Firms**				
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z
-1	111	-0.91	-0.39	46:65	-2.417*	-1.634	-0.03	-0.02	54:57	-0.766	0.136
0	111	-1.43	-0.85	42:69	-3.269**	-2.394*	-0.12	-0.17	48:63	0.158	-1.004
1	111	-0.85	-0.96	44:67	-2.299*	-2.014*	-0.43	-0.17	48:63	-0.979	-1.004
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z
[-1,+1]	111	-3.18	-2.45	39:72	-5.120***	-2.963**	-0.57	-0.42	46:65	-0.919	-1.384
[-1,0]	111	-2.34	-1.58	40:71	-3.989***	-2.773**	-0.15	-0.12	54:57	-0.411	0.136
[0,+1]	111	-2.27	-1.83	38:73	-4.405***	-3.153**	-0.54	-0.24	47:64	-0.574	-1.194
[-15,-2]	111	-1.05	0.97	59:52	-0.245	0.834	0.20	-0.23	52:59	0.662	-0.244
[+2,+15]	111	-0.93	0.27	56:55	0.315	0.265	0.53	-0.57	49:62	0.049	-0.814
[-15,+15]	111	-5.17	-1.31	53:58	-1.056	-0.305	0.16	-0.83	49:62	0.187	-0.814

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Table 10
Returns of Large and Small Rivals around Announcements of Bank Loan Rating Downgrade

This table reports the portfolio returns of the large and small rival firms around the announcements of bank loan rating downgrade. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value in the year prior to the announcements waslarger (smaller) than the market value of the announcing firm in the same base year. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

	Large Rivals						**Small Rivals**						**Difference**		
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	SCS Z
-1	94	-0.03	-0.10	43:51	-0.370	-0.590	107	0.06	0.00	53:54	-0.691	0.500	-13	-0.09	-0.274
0	94	0.17	-0.06	46:48	1.374	0.029	107	-0.26	-0.23	46:61	-1.020	-0.856	-13	0.43	1.310
1	94	0.02	0.13	52:42	0.785	1.267	107	-0.52	-0.27	47:60	-1.449	-0.662	-13	0.54	1.645$
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	SCS Z
[-1,+1]	94	0.17	0.30	52:42	1.003	1.267	107	-0.72	-0.78	40:67	-1.928$	-2.018*	-13	0.89	2.712**
[-1,0]	94	0.14	-0.04	46:48	0.748	0.029	107	-0.19	-0.51	40:67	-1.199	-2.018*	-13	0.33	1.006
[0,+1]	94	0.19	0.10	48:46	1.424	0.442	107	-0.78	-0.75	41:66	-1.963*	-1.824$	-13	0.97	2.956**
[-15,-2]	94	0.41	-0.25	44:50	0.386	-0.384	107	1.39	-0.15	52:55	0.919	0.306	-13	-0.98	-2.986**
[+2,+15]	94	-1.78	-0.82	41:53	-1.377	-1.003	107	2.23	-0.18	51:56	0.325	0.112	-13	-4.01	-12.219***
[-15,+15]	94	-1.21	-0.15	47:47	-0.443	0.235	107	2.90	-2.06	44:63	0.309	-1.243	-13	-4.11	-12.524***

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Figures 4-7 and 4-8 provide the pattern of AAR and CAAR, respectively, for the whole window (day –15 to day 15) for the announcing firms, the large rivals and the small rivals. In Figure 4-7, the significant drop of announcing firms' returns on the announcement date is apparent. It is also visible that the returns of the small rivals fall to their lowest point on the first day after the announcement date. In contrast, the competitive effect for the large rivals is shown in the increase in returns, which is even higher than zero. In Figure 4-8, it is again shown that the announcements of bank loan rating downgrade have the most severe influence on the announcing firms, while the CAARs of the rivals is less impacted.

Figure 4-7
AAR of Announcements of Bank Loan Rating Downgrade

This figure shows the relationship between days (on the horizontal axis) and the average abnormal returns (AAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating downgrade. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.

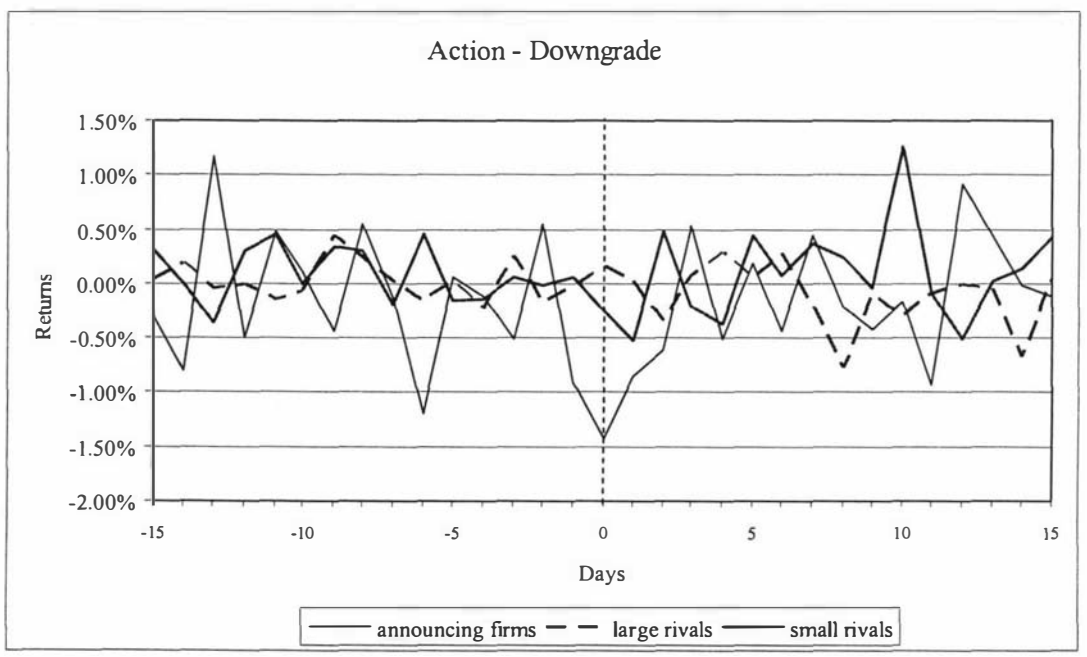
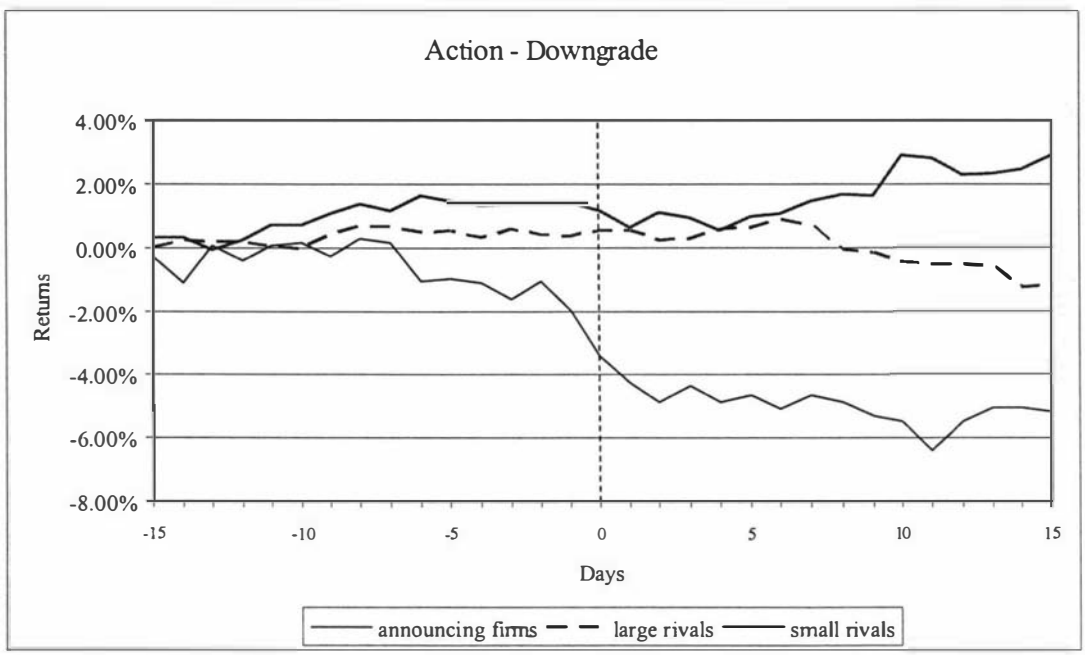


Figure 4-8
CAAR of Announcements of Bank Loan Rating Downgrade

This figure shows the relationship between days (on the horizontal axis) and the cumulative average abnormal returns (CAAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating downgrade. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.



5.3.2 Upgrade

Table 11 reports the event study output of the announcing and the rival firms for the sixty-five announcements of bank loan rating upgrade. For the group of announcing firms, the three-day CAAR and CMAR are 0.11% and 0.02%, respectively, and are both insignificant. The ratio of positive to negative returns is 33:32, which is also insignificant. The results of the two-day window are similar.

For the group of rival firms, the three-day CAAR and CMAR are –0.42% and –0.18%, respectively, and the ratio of positive to negative returns is 28:37, which are also insignificant. The insignificant reaction from the rival portfolio supports Hypothesis 3-2,

Table 11
Returns of Announcing Firms and Rivals around Announcements of Bank Loan Rating Upgrade

This table reports the returns around the sixty-five announcements of bank loan rating upgrade for the announcing firms and their corresponding rival portfolios. The rival portfolios contain rival firms with the same four-digit SIC codes, grouped into value-weighted portfolios by event. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

		Announcing Firms					**Rival Firms**				
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z
-1	65	0.44	0.36	37:28	0.931	1.597	0.01	0.08	33:32	-0.276	0.527
0	65	-0.19	-0.14	29:36	-0.089	-0.391	-0.34	-0.08	32:33	-0.482	0.278
1	65	-0.14	-0.59	26:39	-0.220	-1.137	-0.08	-0.14	25:40	0.197	-1.461
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z
[-1,+1]	65	0.11	0.02	33:32	0.294	0.603	-0.42	-0.18	28:37	-0.289	-0.715
[-1,0]	65	0.25	0.18	37:28	0.588	1.597	-0.33	-0.25	30:35	-0.503	-0.219
[0,+1]	65	-0.33	-0.30	32:33	-0.238	0.355	-0.42	-0.01	32:33	-0.175	0.278
[-15,-2]	65	0.90	0.38	33:32	0.520	0.603	-0.32	0.18	33:32	1.621	0.527
[+2,+15]	65	-0.71	-1.84	31:34	-0.114	0.106	-0.26	0.64	34:31	0.735	0.775
[-15,+15]	65	0.30	-0.04	31:34	0.399	0.106	-1.00	-0.60	32:33	1.323	0.278

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

that the announcements of bank loan rating upgrade do not contain information about the rivals, although they react in the opposite direction to the announcing firms, indicating a weak competitive effect.

Table 12 reports the event study output of the large rivals and the small rivals. For large rivals the three-day CAAR and CMAR are –0.14% and –0.24%, respectively, and the ratio of positive to negative returns is 24:36. Both SCS Z and GSIGN Z are insignificant. For small rivals the three-day CAAR and CMAR are 0.39% and 0.31%, respectively, and the ratio of positive to negative is 34:30. Both SCS Z and GSIGN Z are also insignificant. The mean difference is also insignificant, which supports Hypothesis 6-2, that the reaction of large and small rivals toward the announcements of bank loan upgrade should be indifferent. Notably, similar to the case of bank loan rating downgrade, the signs of the returns from the large, and small, rival portfolios are different. The competitive effect is dominant for the large-rival portfolio, and the contagion effect is dominant among the small rivals, although neither are significant enough to reach a generalised conclusion.

The pattern of AAR and CAAR for the whole window (day –15 to day 15) for the announcing firms, the large rivals and the small rivals are provided in Figures 4-9 and 4-10, respectively. It can be seen in both Figure 4-9 and 4-10 that the AARs and CAARs of the announcing firms, the large and the small rivals are random, while the returns of the announcing firms and the small rivals are more volatile than the returns of the large rivals.

Table 12
Returns of Large and Small Rivals around Announcements of Bank Loan Rating Upgrade

This table reports the portfolio returns of the large and small rival firms around the announcements of bank loan rating upgrade. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolios if their market value in the year prior to the announcements was larger (smaller) than the market value of the announcing firm in the same base year. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

	Large Rivals						**Small Rivals**						**Difference**		
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	SCS Z
-1	60	0.23	-0.19	28:32	0.386	-0.207	64	0.17	-0.06	31:33	0.396	0.194	-4	0.06	0.149
0	60	-0.36	-0.29	28:32	-1.517	-0.207	64	-0.08	0.27	36:28	0.801	1.446	-4	-0.28	-0.695
1	60	-0.01	-0.02	29:31	0.149	0.052	64	0.30	-0.11	28:36	0.237	-0.558	-4	-0.31	-0.769
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	SCS Z
[-1,+1]	60	-0.14	-0.24	24:36	-0.418	-1.240	64	0.39	0.31	34:30	0.657	0.945	-4	-0.53	-1.315
[-1,0]	60	-0.13	-0.29	27:33	-0.575	-0.465	64	0.09	0.07	33:31	0.750	0.694	-4	-0.22	-0.546
[0,+1]	60	-0.37	-0.44	25:35	-0.822	-0.982	64	0.21	0.13	35:29	0.659	1.195	-4	-0.58	-1.439
[-15,-2]	60	1.13	0.91	31:29	0.813	0.569	64	0.12	1.11	36:28	1.814$	1.446	-4	1.01	2.506*
[+2,+15]	60	-0.43	-1.18	27:33	-0.726	-0.465	64	-0.09	0.46	36:28	1.027	1.446	-4	-0.34	-0.844
[-15,+15]	60	0.56	-2.12	23:37	0.100	-1.499	64	0.41	2.92	33:31	1.805$	0.694	-4	0.15	0.372

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Figure 4-9
AAR of Announcements of Bank Loan Rating Upgrade

This figure shows the relationship between days (on the horizontal axis) and the average abnormal returns (AAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating upgrade. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.

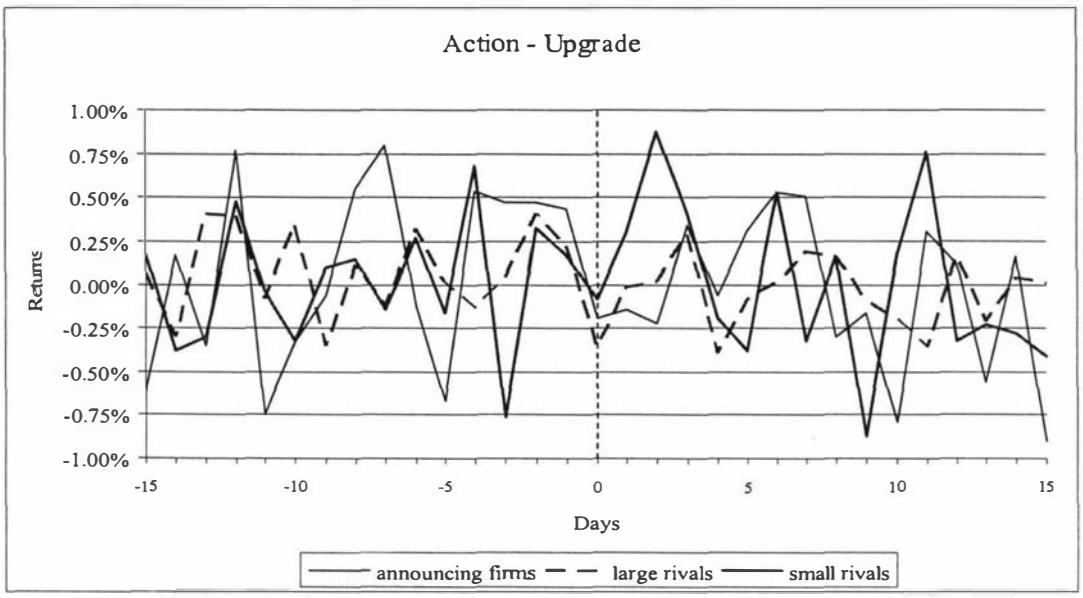
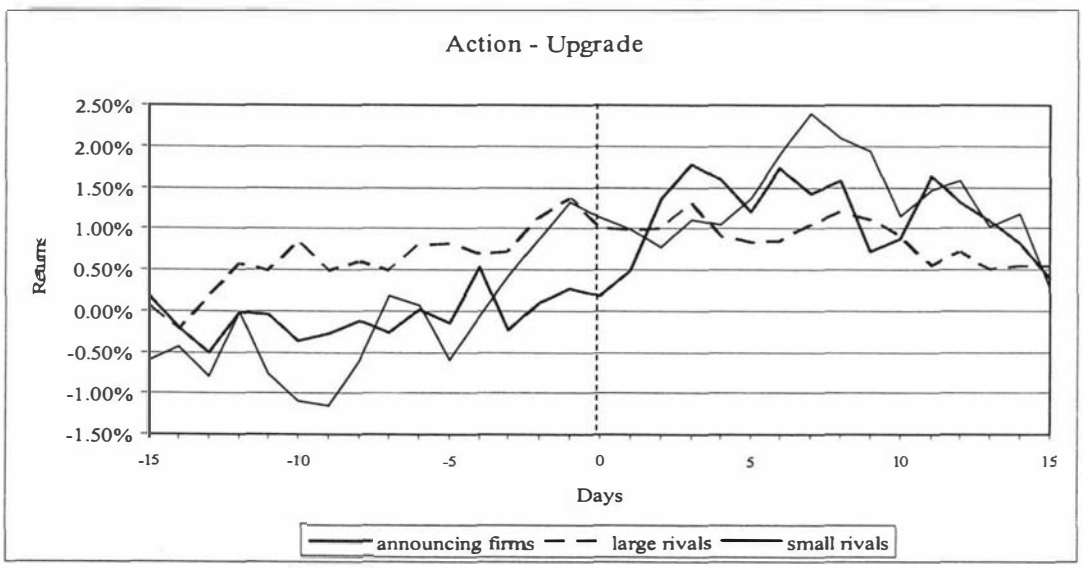


Figure 4-10
CAAR of Announcements of Bank Loan Rating Upgrade

This figure shows the relationship between days (on the horizontal axis) and the cumulative average abnormal returns (CAAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating upgrade. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.



5.3.3 Affirmation

Table 13 reports the event study output of the announcing and the rival firms for the sixty-nine announcements of bank loan rating affirmation. For the group of announcing firms, the three-day CAAR and CMAR are –0.51% and –0.59%, respectively, and are insignificant. The ratio of positive to negative returns is 30:39, which is also insignificant. The results of the two-day window are similar.

For the group of rival firms, the three-day CAAR and CMAR are 0.01% and 0.63%, respectively, which are also insignificant. The insignificant reaction from the rival portfolio supports Hypothesis 3-3, that the announcements of bank loan rating affirmation do not contain information about the rivals, and these announcements do not convey any additional information about the announcing firms, either.

Table 14 reports the event study output of the large rivals and the small rivals. For large rivals the three-day CAAR and CMAR are 0.38% and 0.54%, respectively, and the ratio of positive to negative returns is 28:25. Neither SCS Z nor GSIGN Z are significant. For small rivals the three-day CAAR and CMAR are 0.02% and 0.27%, respectively, and the ratio of positive to negative returns is 37:31, with both SCS Z and GSIGN Z also insignificant. The mean difference is also insignificant, which support Hypothesis 6-3, that the reaction of the large and the small rivals toward the announcements of bank loan rating affirmation should be indifferent.

Table 13
Returns of Announcing Firms and Rivals around Announcements of Bank Loan Rating Affirmed

This table reports the returns around the sixty-nine announcements of bank loan rating affirmations for the announcing firms and their corresponding rival portfolios. The rival portfolios contain rival firms with the same four-digit SIC codes, grouped into value-weighted portfolios by event. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are taken from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

		Announcing Firms					**Rival Firms**				
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z
-1	69	0.15	-0.36	33:36	-0.269	0.064	-0.09	-0.18	30:39	-0.645	-0.717
0	69	-0.31	-0.49	29:40	-1.107	-0.900	0.01	0.17	36:33	-0.172	0.730
1	69	-0.35	-0.32	29:40	-1.341	-0.900	0.09	0.13	39:30	0.328	1.453
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z
[-1,+1]	69	-0.51	-0.59	30:39	-1.565	-0.659	0.01	0.63	42:27	-0.248	2.176*
[-1,0]	69	-0.16	-0.45	32:37	-0.918	-0.177	-0.08	0.10	36:33	-0.532	0.730
[0,+1]	69	-0.66	-0.49	31:38	-1.815$	-0.418	0.10	0.25	40:29	0.103	1.694$
[-15,-2]	69	2.28	0.13	37:32	0.831	1.029	0.83	0.60	36:33	0.102	0.730
[+2,+15]	69	2.40	-0.09	34:35	1.112	0.305	-0.35	0.99	36:33	-0.614	0.730
[-15,+15]	69	4.16	1.50	36:33	0.800	0.788	0.49	0.36	36:33	-0.356	0.730

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Table 14
Returns of Large and Small Rivals around Announcements of Bank Loan Rating Affirmed

This table reports the portfolio returns of the large and small rival firms around the announcements of bank loan rating affirmation. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value in the year prior to the announcements was larger (smaller) than the market value of the announcing firm in the same base year. N is the number of observations. AAR is the average abnormal return. MAR is the median abnormal return. Pos: Neg shows how many of the firm returns are positive or negative on a given day. SCS Z is the statistic which tests for a significant difference of the average abnormal return from zero. GSIGN Z is the generalised sign Z, which is the non-parametric test statistic for a significant difference from zero, considering the ratio of positive to negative returns. AAR and MAR are from the market model using the standardised residual method. CAAR is the equally weighted cumulative average abnormal returns and CMAR is the median cumulative abnormal returns.

	Large Rivals						Small Rivals						Difference		
Day	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	MAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	AAR (%)	SCS Z
-1	53	0.07	0.02	27:26	-0.110	0.333	68	-0.07	-0.15	31:37	-0.410	-0.364	-15	0.14	0.421
0	53	0.25	0.23	28:25	0.148	0.608	68	-0.11	0.03	35:33	-0.346	0.607	-15	0.36	1.083
1	53	0.07	0.05	29:24	0.238	0.883	68	0.20	0.13	38:30	0.365	1.335	-15	-0.13	-0.391
Days	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	CMAR (%)	Pos: Neg	SCS Z	GSIGN Z	N	CAAR (%)	SCS Z
[-1,+1]	53	0.38	0.54	28:25	0.140	0.608	68	0.02	0.27	37:31	-0.200	1.093	-15	0.36	1.083
[-1,0]	53	0.31	0.08	29:24	0.025	0.883	68	-0.18	0.07	35:33	-0.483	0.607	-15	0.49	1.475
[0,+1]	53	0.31	0.55	32:21	0.260	1.708$	68	0.10	0.23	40:28	0.011	1.821$	-15	0.21	0.632
[-15,-2]	53	0.94	0.62	29:24	0.479	0.883	68	0.61	0.50	35:33	-0.031	0.607	-15	0.33	0.993
[+2,+15]	53	-0.25	1.10	29:24	-0.389	0.883	68	-0.69	-0.11	34:34	-0.694	0.364	-15	0.44	1.324
[-15,+15]	53	1.06	1.02	29:24	0.104	0.883	68	-0.06	-0.03	34:34	-0.496	0.364	-15	1.12	3.370***

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

The pattern of AAR and CAAR for the whole window (day –15 to day 15) for the announcing firms, the large rivals and the small rivals are provided in Figure 4-11 and 4-12, respectively. It can be seen in Figure 4-11 that the AARs of announcing firms, large and small rivals are randomly spread around zero, and in Figure 4-12 that the CAARs of the rivals are reasonably flat with an insignificant upward trend of the announcing firms' CAAR.

Figure 4-11
AAR of Announcements of Bank Loan Rating Affirmed

This figure shows the relationship between days (on the horizontal axis) and the average abnormal return (AAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating affirmation. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior year to the announcements.

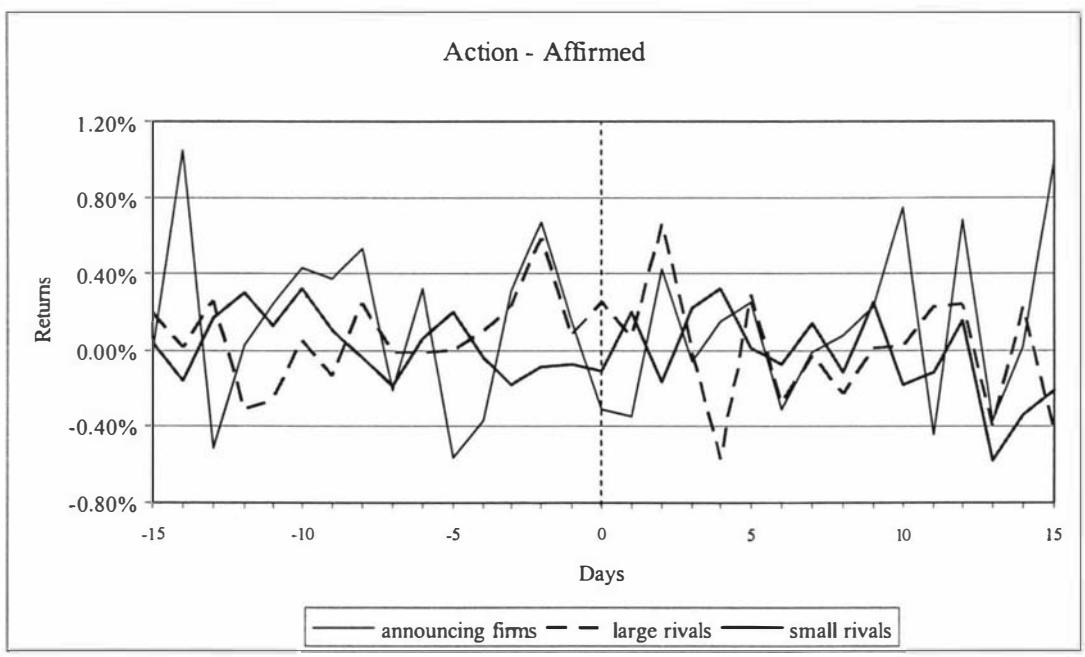
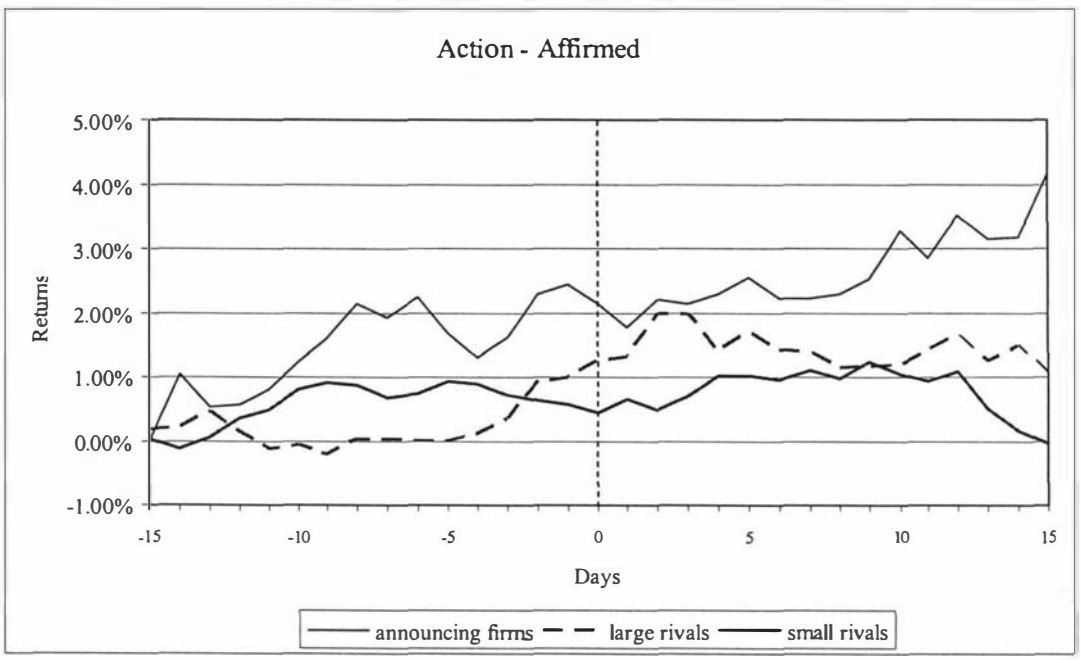


Figure 4-12
CAAR of Announcements of Bank Loan Rating Affirmed

This figure shows the relationship between days (on the horizontal axis) and the cumulative average abnormal return (CAAR) of the announcing firms, the large rivals and the small rivals around the announcements of bank loan rating affirmation. The rival firms, which have the same four-digit SIC codes as the announcing firm, are grouped into the large rival (small rival) portfolio if their market value was larger (smaller) than the market value of the announcing firm in the year prior to the announcements.



6. CONCLUSION

Many studies have previously examined the intra-industry effect, mainly using the events or announcements which are released by the firms themselves. This essay, in contrast, employs the announcements of bank loan ratings, which are released by an outside party (the rating agency). Extending Essay One and the work of Akhigbe et al. (1997), the purpose of this essay is to reconfirm the value of rating agencies. This essay is to examine whether the rating agencies convey any additional information, or perform monitoring services for investors in the capital market, particularly in the presence of another information providers and monitors (lending banks).

The findings of this essay are consistent with Essay One, in that the value of rating agencies lies on their detection of firms' deteriorated prospects of financial position via placement on *CreditWatch* with negative implication and downgrade. As rating agencies claim that industrial analysis is incorporated into their rating process, the announcements of negative placement and downgrade of bank loan ratings contain information about rival firms in the same industry, as well as about the announcing firms themselves. Nevertheless, this intra-industry effect of negative placement and downgrade is only found among the rival firms who are smaller than the announcing firms.

Furthermore, the intra-industry effects for announcements of negative placement and downgrade are different. The negative placement of announcing firms' bank loan ratings will alter the competitive balance within the industry, and cause a rise in small rivals' returns. In contrast, announcements of bank loan rating downgrade are more likely to convey information about deteriorated prospects for the industry as a whole. Therefore,

these bad news events are contagion events for the rivals, which means that the rivals in the same industry experience the same, or similar, negative market reaction as the announcing firms.

Appendix 4-1
Hypotheses on Anticipated Response of the Equity Market's Reaction and the Empirical Results for All Rival Firms

This table provides the results of the equity market's reaction of the announcing firms to the announcements of bank loan ratings, the summary of the hypotheses of anticipated response and the empirical results of the equity market's reaction of the rival firms to the announcements of bank loan ratings.

	Announcing firms	**Rival firms**	
		Expected results	Empirical results
1) Assignment Placement on *CreditWatch*	Insignificant	Insignificant	Insignificant
2-1) negative implication	Significantly negative *	Significantly uncertain	Significantly positive *
2-2) positive implication	Insignificant	Insignificant	Insignificant
Action			
3-1) downgrade	Significantly negative ***	Significantly uncertain	Insignificant
3-2) upgrade	Insignificant	Insignificant	Insignificant
3-3) affirmed	Insignificant	Insignificant	Insignificant

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Appendix 4-2
Hypotheses on Anticipated Response of the Equity Market's Reaction and the Empirical Results for Rival Firms by Size

This table provides the results of the equity market's reaction of the announcing firms to the announcements of bank loan ratings, the summary of the hypotheses of anticipated response and the empirical results of the equity market's reaction of the rival firms to the announcements of bank loan ratings. The rival firms are divided into two groups (large and small), depending on the comparison of their market value with the announcing firms.

	Expected results		**Empirical results**	
	Large rival firms	Small rival firms	Large rival firms	Small rival firms
4) Assignment	Insignificant	Insignificant	Insignificant	Insignificant
Placement on *CreditWatch*				
5-1) negative implication	Insignificant	Significantly uncertain	Insignificant	Significantly positive *
5-2) positive implication	Insignificant	Insignificant	Insignificant	Insignificant
Action				
6-1) downgrade	Insignificant	Significantly uncertain	Insignificant	Significantly negative $
6-2) upgrade	Insignificant	Insignificant	Insignificant	Insignificant
6-3) affirmed	Insignificant	Insignificant	Insignificant	Insignificant

***, **, * and $ indicates significance at the 0.1%, 1%, 5% and 10% level, respectively.

Appendix 4-3
Summary Statistics of Market Value of Announcing Firms and Rivals for Assignment Sample

This table presents the summary statistics of the market value of the announcing firms who were assigned bank loan ratings by rating agencies and their corresponding rivals with the same four-digit SIC code. N is the number of announcements and rivals in total, respectively, MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation, MIN is the minimum value and MAX is the maximum value. All market values are displaced on the basis of millions of United States dollars.

	Market value of announcing firms	Market value of rivals
N	246	8,743
MEAN	1,952.52	2,033.81
MEDIAN	706.34	165.06
STD	3,747.08	10,014.01
MIN	13.20	0.01
MAX	37,439.39	342,558.13

Appendix 4-4
Summary Statistics of Market Value of Announcing Firms and Rivals for Placement Sample

This table presents the summary statistics of the market value (MV) of the announcing firms whose bank loan ratings were placed on *CreditWatch* with negative and positive implication, and their corresponding rivals with the same four-digit SIC code. N is the number of announcements and rivals in total, respectively. MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation, MIN is the minimum value and MAX is the maximum value. All market values are listed on the basis of millions of United States dollars.

	NEGATIVE		POSTIVE	
	MV of announcing firms	MV of rivals	MV of announcing firms	MV of rivals
N	28	657	7	311
MEAN	1,469.63	2,264.11	1,533.80	1,902.30
MEDIAN	344.73	203.76	706.34	197.50
STD	2,631.25	8,372.74	1,306.07	5,857.70
MIN	21.74	0.01	494.75	1.26
MAX	9,813.53	101,713.39	3,701.17	70,848.06

Appendix 4-5
Summary Statistics of Market Value of Announcing Firms and Rivals for Action Subgroup

This table presents the summary statistics of the market value (MV) of the announcing firms whose bank loan ratings were downgraded, upgraded, or affirmed and their corresponding rivals with the same four-digit SIC code. N is the number of announcements and rivals in total, respectively. MEAN is the arithmetic average, MEDIAN is the middle observation, STD is the standard deviation, MIN is the minimum value and MAX is the maximum value. All market values are listed on the basis of millions of United States dollars.

	DOWNGRADE		UPGRADE		AFFIRMED	
	MV of announcing firms	MV of rivals	MV of announcing firms	MV of rivals	MV of announcing firms	MV of rivals
N	111	2,565	65	2,130	69	2,247
MEAN	974.66	2,338.16	2,541.02	2,589.95	7,126.03	3,793.70
MEDIAN	296.70	173.34	831.94	276.26	1,704.39	254.94
STD	2,598.39	11,549.27	5,436.87	10,319.95	19,298.63	19,070.61
MIN	10.22	1.16	22.58	0.02	30.50	0.13
MAX	21.78	208,370.77	37,867.77	181,072.45	150,609.68	507,216.65

CHAPTER FIVE

CONCLUSION

This chapter provides a brief summary of the key findings and implications from each of the three essays. A discussion of potential areas for further research is also included.

1. SUMMARY OF KEY FINDINGS

This thesis employs bank loan ratings to examine the valuation effect of announcements by rating agencies. Bank loan ratings yield a unique sample for the purpose of this thesis, as this is an instrument which relates rating agencies and banks to each other. It provides a unique opportunity to investigate the interrelationship between the two institutions, because rating agencies and banks perform many similar functions, such as accessing private information and monitoring their clients. The first essay answers the question of whether the rating agencies provide additional value to the equity market in the presence of lending banks. The second essay, answers the question of whether the lending banks' quality influences a firm's valuation in the presence of rating agencies. The third essay answers the question of whether announcements of bank loan ratings also provide additional information to other, non-rated firms.

The first essay examines whether the announcements of bank loan ratings affect firms' share prices. All the firm in the sample first have a relationship with their lending banks (having bank loans granted), and then a relationship with the rating agencies (having bank loan ratings assigned). Since firms are certified and monitored by a bank, the question is whether the secondary information providers; rating agencies in this case; provide additional information to the equity market. It is hypothesized that rating agency announcements cause significant market reactions, but only for adverse news.

The empirical results from the first essay find that the equity market has significantly negative reactions to the placement announcements of bank loan ratings on *CreditWatch* with negative implication, and also reacts negatively to the downgrade announcements.

These findings indicate that the value of the rating agencies in the presence of banks monitoring exists as information providers and monitors. Rating agencies provide information and monitoring functions, which are different from that developed by the lending banks. The value of the rating agencies depends on their recognition of deteriorated prospects of companies. This essay contributes to the existing rating agency literatures in two different ways. First, it adds additional evidence that rating announcements are informational by employing the bank loan ratings as sample data for the first time. Second, it provides evidence that rating agencies provide different information and monitoring from that developed by banks.

The first essay proves, in the presence of banks, the non-redundant value of rating agencies via adverse news. The second essay, on the other hand, examines the value of lending banks' quality to the borrowers, when those firms are monitored effectively by rating agencies. It is hypothesized that when the deteriorated borrowers have a relationship with a high-quality lender, the negative reaction associated with adverse rating news will be mitigated. This is because investors believe that banks' have specialised access to private information.

The second essay finds that lenders' quality has an impact on the deteriorated borrowers when borrowers have downside ratings news. The negative market reactions from bank loan rating announcements of negative placement on *CreditWatch* and of downgrade are mitigated when the borrowers are associated with high-quality banks. These findings indicate that banks have access to private information which is not available to the market and the rating agencies. When the bank loans are granted and monitored by the high-quality banks, investors are willing to trust the banks' speciality and reassess the

value of deteriorated firms. This essay also finds that the lead lending banks are not significantly affected by the borrowers' bad rating news. This essay contributes to the banking literatures by providing new evidence in value of lending relationship. This paper is also unique by evaluating bank's effect to borrowers by employing adverse news which is released by other reputable outsiders; that is, rating agencies.

If the announcements by rating agencies contain industry-wide information, it is expected that the rating announcements should affect the share price of competitors in the same industry as the announcing firms. The third essay examines the value of bank loan rating announcements from the aspect of intra-industry effects. It is found that announcements of placement on *CreditWatch* with negative implication and of downgrade produce significant impacts for rival firms in the same industry, but only for those which are smaller than the announcing firms. In addition, the intra-industry impact is different for the announcements of negative placement and of downgrade. The former generates a competitive effect, which means that rival firms benefit from the firm-specific deteriorated prospects of the announcing companies because the competitive balance is changed. The latter generates a contagion effect, indicating that downgrade announcements convey the industry-wide deteriorated prospects of whole industry, and investors also decrease the value of rival firms.

These findings re-confirm the conclusions from the first essay from a different aspect. Rating agencies convey additional information to the equity market via adverse news, which contains information beyond the specifically rated-firms. This essay contributes to the literatures of intra-industry effect by two ways. First, announcements of bank loan ratings is employed as new sample data, and this study investigates the complete subgroup

of announcements; that is, assignment, placement on *CreditWatch* and action. Second, this essay provides additional evidence that size effect is important in investigating intra-industry effect.

These three essays produce two generalised conclusions. First, investors in the equity market perceive that the value of information and monitoring from rating agencies and lending banks is different. Second, the value of rating agencies depends on their recognition of deteriorated prospects of the financial position of a firm. The implications arsing from this thesis are important to three parties. For investors in equity market, the adverse news from rating agencies regarding a firm's bank loan rating is informational. For companies, having relationship with a high reputation bank is advantageous. For rating agencies, it is practical to devote time and resources to scrutinising deterioration of financial prospects of a company.

2. AREAS FOR FURTHER RESEARCH

This thesis initiates the examination of interactive activities between rating agencies and lending banks. As both institutions are regarded as reputable outsiders who convey inside information and provide monitoring abilities, whether they will influence each other's behaviour is an interesting area for future research. First, extending the second essay, the influence of lending banks could be applied to the case of assignment announcements. For a company, either having loans granted by a bank, or having bank loan ratings assigned by a rating agency, indicates that its value is certified by a reputable outsider. It is known from the first essay that the certification function from announcements of assignment is not significant, however, for those firms who are associated with lower-quality banks, the certification effect from rating agencies may be stronger.

Second, the second essay also finds the borrowers' bad news in bank loan ratings do not have significant impact on the lead lending banks. It may be argued that a single bad news event of one borrower's loans may only have a mild impact, if any, on the lender. Further examinations, therefore, could be considered for those lenders who experience a number of simultaneous adverse rating news regarding the borrowers' bank loans. Multiple events may send a clearer signal about the impact of deteriorated borrowers on lenders' portfolio management.

Third, instead of investigating the share prices of firms, the interactive activities between rating agencies and lending banks will be even clearer if announcements of bank loan ratings are found to influence banks' management of loan portfolios. To be specific, this

will show whether the rating agencies' actions subsequently affect the banks' decisions regarding the bank loans.

Last, under the recent trend of securitisation, if the banks no longer keep the loans in their balance sheets, the question is whether the banks' monitoring role will be diminished and the monitoring function performed by the rating agencies will gain more emphasis. Securitisation should provide an opportunity to observe whether the uniqueness of lending banks due to on-going relationship with the clients will transfer to rating agencies.

Appendix A

Methodology of Event Study[1]

A market model is used to estimate the abnormal security returns associated with bank loan rating announcements. The model assumes that realised rates of return are represented by the following relationship:

$$R_{j,t} = \alpha_j + \beta_j * R_{m,t} + \varepsilon_{j,t} \quad \textbf{(1)}$$

where $R_{j,t}$ = the rate of return on security j on day t;

$R_{m,t}$ = the rate of return on the value-weighted market index on day t;

α_j = the intercept of the linear relationship for security j, which is given by $E(R_j) - \beta_j * E(R_m)$;

β_j = the slope of the linear relationship between security j and the return on the market index; and

$\varepsilon_{j,t}$ = the unsystematic component of security j's return on day t.

The estimated return for security j on day t based on the actual market return on day t is given by the following equation:

$$\hat{R}_{j,t} = \hat{\alpha}_j + \hat{\beta}_j * R_{m,t} \quad \textbf{(2)}$$

where $\hat{\alpha}_j$ and $\hat{\beta}_j$ are estimates of α_j and β_j.

These estimates are obtained by regressing the daily returns for security j on the daily returns for the market, over the 150-day period from day t = -240 through day t = -91. The abnormal return for each security j on day t is given by the following equation:

$$A_{j,t} = R_{j,t} - (\hat{\alpha}_j + \hat{\beta}_j * R_{m,t}) \quad \textbf{(3)}$$

The average abnormal return (AAR_t) on day t is the sample mean:

[1] This section is mainly adapted from the *Eventus: User's Guide* (Cowan Research, 1998).

$$AAR_t = \left[\frac{1}{N} * \sum_{j=1}^{N} A_{j,t}\right] \quad (4)$$

where t is defined in trading days relative to the event day (e.g. t-90 means 90 trading days before the event). Over an interval of two or more trading days, beginning with day T_1 and ending with T_2, the cumulative average abnormal return ($CAAR_{T1,T2}$) is devised through applying Equation (5):

$$CAAR_{T1,T2} = \left[\frac{1}{N} * \sum_{j=1}^{N} \sum_{t=T_1}^{T_2} A_{j,t}\right] \quad (5)$$

Under the null hypothesis, each $A_{j,t}$ has a mean of zero, and $\sigma^2_{Aj,t}$. The maximum likelihood estimate of the variance is:

$$S^2_{Aj,t} = S^2_{Aj} * \left[1 + \frac{1}{Dj} + \frac{(Rm,t - \bar{R}m)^2}{\sum_{k}^{Dj} (Rm,k - \bar{R}m)^2}\right] \quad (6)$$

where

$$S^2_{Aj} = \left[\frac{1}{Dj - 2} * \sum_{k=1}^{Dj} A^2_{j,k}\right];$$

$R_{m,t}$ = the observed return on the market index on day t;

$\bar{R}_m$ = the mean market return over the estimation period; and

D_j = the number of non-missing trading-day returns used to estimate the parameters for firm j.

Define the standardised abnormal return ($SAR_{j,t}$) as:

$$SAR_{j,t} = \left[\frac{A_{j,t}}{SA_{j,t}}\right] \quad (7)$$

Under the null hypothesis, each $SAR_{j,t}$ follows a Student's t distribution with D_j - 2 degrees of freedom. Summing the $SAR_{j,t}$s across the sample produces the total standardised abnormal return (TSAR) as follows:

$$TSAR_t = \sum_{j=1}^{N} SAR_{j,t} \qquad \textbf{(8)}$$

The expected value of $TSAR_t$ is zero. The variance of $TSAR_t$ is given as follows:

$$Q_t = \left[\sum_{j=1}^{N} \frac{Dj-2}{Dj-4} \right] \qquad \textbf{(9)}$$

The test statistic for the null hypothesis, that $CAAR_{T1,T2} = 0$ is:

$$Z_{T1,T2} = \left[\frac{1}{\sqrt{N}} * \sum_{j=1}^{N} Z^{j}_{T_1,T_2} \right] \qquad \textbf{(10)}$$

Where

$$Z^{j}_{T_1,T_2} = \left[\frac{1}{\sqrt{Q^{j}_{T_1,T_2}}} * \sum_{t=T_1}^{T_2} SAR_{j,t} \right] \quad \text{and}$$

$$Q^{j}_{T_1,T_2} = (T_2 - T_1 + 1) * \frac{Dj-2}{Dj-4}$$

Under cross-sectional independence of $Z^{j}_{T_1,T_2}$ and other conditions (see Patell, 1976), $Z_{T1,T2}$ follows the standard, normal distribution under the null hypothesis.

The precision-weighted cumulative, average, abnormal return (PWCAAR) is constructed using the same relative weights as those implied in the definition of $Z_{T1,T2}$. The formula for the PWCAAR is given in Equation (11) below:

$$PWCAAR_{T1,T2} = \sum_{j=1}^{N} \sum_{t=T_1}^{T_2} w_j A_{j,t} \qquad \textbf{(11)}$$

where $$w_j = \left[\frac{\left(\sum_{t=T_1}^{T_2} S_{A_{j,t}}^2 \right)^{-1/2}}{\sum_{j=1}^{N} \left(\sum_{t=T_1}^{T_2} S_{A_{j,t}}^2 \right)^{-1/2}} \right]$$

Appendix B

Methodology of Difference in Means

The calculation of t-statistics for the difference between two groups is shown below:

$$t = \frac{x_1 - x_2}{\sqrt{\sigma_p^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

This statistic uses a t-distribution with (n_1+n_2-2) degrees of freedom, where:

$$\sigma_p^2 = \frac{(n_1 - 1)\sigma_1^2 + (n_2 - 1)\sigma_2^2}{n_1 + n_2 - 2}$$

where

x_1 = the mean of group one;

x_2 = the mean of group two;

σ_p = the pooled standard deviation of the two groups;

n_1 = the number of observations in group one;

n_2 = the number of observations in group two;

σ_1 = the standard deviation of group one; and

σ_2 = the standard deviation of group two.

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