THE INFORMATION CONTENT OF STANDARD AND POORS BANK LOAN RATINGS

by

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Abstract

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Empirical work by James (1987) and Lummer and McConnell (1988) among others has established Bank Credit announcements provoke abnormal equity market responses, particularly for firms displaying information asymmetry. This is theorised to be due to the new information imparted to the market in the announcement. Bank Loan markets have undergone substantial change in recent years as commercial bank loans have been transformed into investment commodities. This has seen Bank loans take on more capital market product characteristics, including the use of independent Bank Loan Ratings to assess the risk of Bank Loans.

In this paper we examine whether Bank Loan Rating Announcements provide the same level of new information to markets. We find they do not provoke a response different from that seen in conventional bond rating announcements. We reason this is due to the fact that the rating agency monitoring certifies firm risk and thereby lowers information asymmetry levels overall. This may be the source of further research.

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Chapter 1

INTRODUCTION

Over the past ten years, commercial lending has undergone a startling transformation. Traditionally a one-off, bilateral "market"... the bank loan market has recently come to operate more like a capital market... [1]

Since the 1980's, the bank loan market has undergone substantial change. The process of financial innovation has markedly changed the way bank loans are treated by lenders.

Traditional bank loans were a bi-lateral relationship between a bank and borrower whereby a bank would originate a loan and retain the loan on its balance sheet. Syndication, securitisation and derivatives have allowed bank loan assets to become liquid assets transferable to third parties. 'Commoditisation' of these assets has allowed them to be on sold to create a liquid secondary bank loan market. Banks can now establish a loan, and sell tranches to other investors to maintain an appropriately risk weighted balance sheet. This process has allowed institutional investors and other non-bank lenders to originate, sell and buy bank loans.

How has this process affected the role of the Bank as a financial intermediary?

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[1] Barnish, K., S. Miller and M. Rushmore "The New Leveraged Loan Syndication Market" *Journal of Applied Corporate Finance*, 10 (1997), 79.

Finance theory traditionally notes that banks exist due to the information advantage they possess. One theory is that they have access to inside information that allows them to make lending decisions based on information unavailable to the public. Another is that they have a competitive advantage in the processing of information that allows them to act as monitors for other stakeholders, and so reduces the overall cost of financing to the borrower[2].

This information advantage has meant that Bank credit announcements provide new information to equity markets. Mikkelson and Partch (1986) noted that Bank loan announcements provided a positive equity market response, whereas announcements of other financing types either elicited no market response or a negative response. James (1987) and Lummer &McConnell (1988) confirmed the positive market response to bank debt announcements.

Since then, empirical studies have further refined the circumstances wherein bank loan announcements impact firm value[3]. It has been found that the impact of bank loan announcements is dependent on the level of information asymmetry displayed by a firm. Typically this is in small, young firms with high growth options in developing industries[4].

These papers reinforced the fact that it was the action of the bank in providing loans to firms, and changing the terms of those loans that provided market information rather than the action of the firm itself in selecting bank debt. That is, if the bank elected to lend money to a firm, this acted as *certification* of the firm's activities.

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[2] See for example Fama (1985), Leland and Pyle (1977), Campbell and Cracaw (1980) and Diamond (1984). Datta et al (1999) show the firms with bank debt have lower public debt financing margins.

[3] See for example, Lummer and McConnell (1988), Wannsley, Elayan et al (1993), Best and Zhang (1993)

Preece and Mullineaux (1994) foreshadowed a change in the structure of Bank loan markets by concluding that non-banks possessed the same information as banks but were less successful in originating bank loans. This was particularly true as information improvements lowered the price of credit analysis and monitoring.

Several factors have reduced the bank advantage: increasing levels of standardisation of bank loans, the introduction of bank loan ratings, growing loan market liquidity and a flat yield curve which makes bank loans more saleable in secondary markets to institutional investors.

Chaffin (1999) notes:

In recent years, merger and acquisition activity has... [increased]... and syndicated loans have proved to be the vehicle of choice to close those deals. Companies favour loans because of secrecy, because their pricing. [is more stable]. More important, unlike bonds, loans can be repaid early, and without penalty... Such deals have brought increased flexibility to companies; they have also brought tremendous opportunity to bankers who are looking to grab the original loan fees, but also those for the future debt or equity underwriting and those for advising on the merger or acquisition. [5]

Chaffin thereby indicates the confidentiality and flexibility provided by the bank loans framework makes them popular with both borrowers, investors and originators.

An important part of the sourcing of bank loan business by non-banks is the 'outsourcing' of risk assessment to independent rating agencies such as Standard

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[4] Krishnaswami et al (1999)

[5] Chaffin (1999), p 4

and Poor's. This allows better analysis of the risk/return profile in secondary markets and is increasingly driving pricing in syndicated loan establishment[6]. It allows investors to compare bank loan investments with other investment alternatives.

The Corporate Credit Rating measures the overall firm risk of default. The Bank Loan Rating is derived from the Corporate Credit Rating and is then notched or adjusted for collateral levels that indicate the likelihood of recovery in the event of default. For example, a firm with a Corporate Credit Rating of B may have a Bank Loan Rating of B+ if there is sufficient collateral in the loan structure. Correspondingly, as Bank debt ranks ahead of Subordinated and Senior debt in a liquidation, the ratings applied to these instruments my reduce to B-, as they would receive a lesser share of the collateral in the event of default.

Empirical research has indicated that stock prices tend not to be influenced by bond ratings. The exception to this is a negative market response to bond rating downgrades. The theoretical underpinning for this being that firms will not divulge bad news until the rating change introduces it to the market, while good news is readily supplied to the market, and the rating change acts as certification of what the market already knows and what is already priced into market prices[7].

Bond ratings (and bank loan ratings) are specifically designed for bond markets, so any information provided to equity markets is peripheral. A firm's risk of default increases (leading to a rating downgrade) where:

- When the volume of expected future cashflows deteriorates, or

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[6] Miller, S. "Bank Loan Ratings Surge: Leveraged Loans Come of Age as an Asset Class" *Standard and Poor's Credit Analysis Reference Disc*, 1997

[7] see for example Ederington and Goh, (1998), Holthausen and Leftwich (1986)

- When expected future cashflows do not change, but they become more risky.

Both situations increase the risk of a bond investment that is subject to fixed returns at the coupon rate.

The first option also represents deterioration in the value of equity as measured by the Net Present Value of expected cashflows. The latter will enhance shareholder value however in accordance with the risk/return framework. Chandra and Nayar (1998) show that most bond rating decreases are due to a change in the volume of cashflows, which also decreases the value of equity. The exception to this is at lower Credit Rating levels where further deterioration in Credit rating may also be associated with increased riskiness in cashflows.

In this paper we examine the influence of Bank Loan Ratings on stock value.

Previous research has indicated that bank loan announcements convey new information to equity markets. In the new bank loan market, have Bank Loan Rating announcements replaced the Bank Loan announcement in providing new information? If this is true, then it can be argued that rating agencies also possess the same information advantages as banks, and the competitive advantage previously possessed by banks has changed.

If this is true, then the question can be asked whether banks possess any advantage in the bank loan market.

We hypothesize that the corporate credit rating, which measures the firm's risk of default, will dictate the response of equity markets to ratings, rather than that of the Bank loan rating. This is because the corporate credit rating measures the

firm's overall risk of default, whereas the Bank Loan Rating is instrument specific and not directly related to firm value except insofar as it influences the CCR.

Any information included in the Bank Loan Rating will also be accounted for in the Corporate Credit rating. This is because both are derived from the same information source (rating agency) with the same level of information about the firm. In accordance with the preceding evidence, we expect to see no response other than where the CCR worsens.

The impact of a worsening of the Corporate Credit rating will depend on whether the reason for deterioration is equity enhancing (increased risk), or equity depressing (lower expected cashflows).

We theorise that the commodotisation of Bank Loans has reduced the information included in these announcements. The Rating procedure has lessened information asymmetries, as it provides a mechanism for the risk of a firm to be disclosed publicly via a rating without the firm having to disclose the details of confidential information publicly. This is an ongoing monitoring procedure that has essentially replaced that provided by Banks credit announcements in the past.

We can therefore suggest that banks have lost their information advantage due to technological advances and the advent of rating agencies that can access the same inside information[8].

If the rating agency has reduced information asymmetry, what is the advantage of bank debt? This question is answered by Chaffin, above, and the answer lies in

[8] Ederington and Yawitz(1987), Holthausen and Leftwich, (1986)

the structure of the debt. It also lies in smaller debt issues for which economies of scale make bank debt the cheapest financing option[9].

Greater monitoring, collateral, prepayment arrangements and covenants of bank loans ensure higher recovery in case of default compared to other debt financing instruments[10]. This provides bank debt with an attractive risk/return ratio for investors. In return, borrowers are allowed early repayment, LIBOR pricing and increased monitoring.

We use event study methodology to investigate the impact on firm value of Bank Loan Rating events (new Bank Loan Rating, improvement and worsening in Bank Loan Ratings).

We also complete a multi-variate regression of the results where we control for the size of the loan facility and the level of rating of the firm, as well as firm outlook and industry.

In this paper, Chapter Two provides a review of literature covering theory and empirical findings on the following aspects of this topic:

- The market value impact of Bank Credit announcements.
- Type of firm preferring bank debt.
- The market value impact of Bond Rating announcements.
- The Bank Loan Rating process.
- Change in the Bank Loan market.

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[9] Krishnaswami et al (1999)

[10] This is reflected in the evidence summarised by Krishnaswami et al (1999) which shows firms using bank debt are smaller, younger, less likely to be monitored by regulating agencies and with higher information asymmetries. The ratings dataset provided in this report also indicates the speculative nature of firms with bank loan ratings. Bank debt is shown to have a higher Sharpe Ratio than equity or other debt types.

- The Bank Loan establishment process.

Chapter Three provides a Testable Hypothesis, Chapter Four reviews the data collection process, Chapter Five reviews the methodology used. Chapter Six presents the results and provides discussion. Chapter Seven concludes.

Chapter 2

REVIEW OF LITERATURE

Bank Loan Announcement effects.

The literature covered in this section reviews:

- The impact of Bank Loan Announcements on firm value,
- The impact of Bond rating announcements on firm value,
- Recent developments in bank loan market dynamics,
- Typical bank loan structure and features,
- The bank loan rating process

The impact of Bank Loan Announcements on firm value,

Contrary to the market effect of public debt issuance, the announcement of details of private debt issuance (to bank and non-bank equivalents) can be seen in certain circumstances to have a positive stock effect. This has raised the spectre of whether banks offer a unique role as financial intermediary.

Leland and Pyle (1977), Campbell and Kracaw (1980), Diamond (1984) and Ramakrishnan and Thakor (1984) theorise that banks possess a competitive advantage in information collection and processing, and they may act as 'delegated monitors' for bank depositors, and by default reduce the agency cost of monitoring for other investors in the firm. Datta, Iskandar and Patel (1999) show that yields on public debt are lower for firms with an aspect of bank debt in their balance sheet. As such banks offer a certification effect.

Fama (1985) also noted that due to regulatory restrictions, borrowers must pay a premium for bank debt. There must be something 'special' about bank debt for it to be a marketable commodity. He suggests that banks have a comparative advantage in the collection of credit information due to ongoing relationships with firms via depositor relationships, and repeat short-term loan provision. This viewpoint originates from Black (1975), and Kane and Malkiel (1965).

There may be an opportunity for future researchers to investigate whether the pricing disadvantage of banks, as proposed by Fama still exists given the ability of banks to move loans off their balance sheet via securitisation, syndication and the use of derivatives.

This pricing disadvantage and the information advantage of banks may indicate the reasons that bank loans are structured with a higher degree of monitoring, more flexibility and pricing more subject to change (via LIBOR) than conventional public debt.

This type of lending allows banks to utilise their monitoring infrastructure (in which they have been shown to have a competitive advantage) to provide a higher level of service, and to charge a higher premium for this. It also allows them to monitor higher risk loans and smaller company loans than is achievable with public debt.

Empirical work since has served to show that bank debt announcements can influence stock price, and to define more closely the circumstances and reasons for bank debt adding value.

Mikkleson and Partch (1986) provided empirical support for the impact of bank debt in a study of the stock price impact of various security offerings. Bank debt announcements were found to provide an excess return of 0.89% to stock price. This compared to other forms of corporate financing that provide returns, which are either significantly negative or not different to zero.

James (1987) finds a similar result (1.93% excess return on bank debt announcements over a two day post-announcement window), suggesting

'banks either produce or are given information not available to other capital market participants'[11]

To ascertain whether the bank advantage is a result of inside information resulting from knowledge gained from the customer in an ongoing relationship or whether banks have an information advantage from the outset, i.e. at the initiation of a loan relationship, Lummer and McConnell differentiate between new loan announcements and revisions to existing relationships. An excess return of 1.24% is shown for revisions to loan agreements, while new loan announcements show no significant change. They conclude:

1. The absence of a significant market reaction to announcements of new bank loans is consistent with studies that report an insignificant market reaction to the announcement of new public debt issues and new private placements of debt.

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[11] *Lummer & McConnell p 99.*

2. As suggested by Fama (1985), the bank loan review and renewal process plays an important role in transmitting information in capital markets.

They find that markets react in kind to both upward and downward revisions to the terms of bank debt, and that the strongest positive excess return is seen for loan renewals where the loan is in trouble (allowing the borrower to avoid technical default).

They conclude
'It is the action of the bank rather than the borrower's decision about the use of debt, that signals information.[12]'

Wansley, Elayan and Collins (1993) expand on this to focus on circumstances where bank loan announcements might make a positive contribution to market knowledge. They hypothesize this will be the case where firm value is more difficult to ascertain by the market, either from other sources, or specifically where the firm value of based on growth options rather than fixed assets.

Among their findings:

- Small credit arrangements do not produce significant market effects.
- No evidence of a significant relationship between the prior relationship of a bond rating and the market announcement effect for credit lines.

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[12] *Lummer & McConnell p 99.*

- A positive relationship exists between the market response to the granting of bank lines of credit and the size of growth options held by the firm. (MVE/BVE).
- For firms with clear signals of value in place, some credit arrangements may be redundant signals.
- Applies to renewals and new loans.

Best and Zhang (1993) focus on two issues. They recognise the roles of other institutions in resolving firm information asymmetries, and attempt to control for this. They also note that banks focus their credit analysis more on certain types of firm, and the firms they focus on more will provide more information to the markets.

They find that

- When analysts provide high forecast errors, market response is higher to credit announcements.
- When firm earning forecast revisions are positive, market response is lower.
- The largest response is where analyst errors are higher, and their revisions are downward.
- This applies to renewals and new loans

Analyst forecast errors indicate the market does not have access to sufficient information to assess the future prospects of the firm, they conclude that banks convey more information when future prospects are unknown (high information asymmetry), and revisions are downward.

They note that banks will screen loans using public indicators. If these indicate some risk, banks will further scrutinise the relationship. Incentives to scrutinize are greater where indicators are unreliable. Banks will only scrutinize where benefits exceed costs.

Alam and Walton (1995) test for excess return around the announcement date of straight debt issues for firms with high R&D expenditure (a proxy for growth options and level of information asymmetry). They also find abnormal returns where straight debt is issued under high information asymmetry.

Preece and Mullineaux (1994) note that the literature does not identify the cause of bank's information advantages, and suggest banks are losing their unique position due to

'deregulation and... technological advances which have lowered sharply the costs of information collection and the attendant analyses of credit worthiness.'[13]

They note that banks are now competing with other institution types for commercial loans. The procedures undertaken by these institutions and the facilities they offer are similar to those used by banks. They find that non-banks have the same advantages in offering loan facilities, however are less successful in originating these loans.

They also hypothesize as to the source of uniqueness, and suggest the following:

- Closer monitoring (refer Best and Zhang above)
- Short-term nature of bank loans requires frequent extensions and reconsideration of the firm's cashflows.

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[13] Preece and Mullineaux (1994) p193

- Covenants restrict actions and call for more information from firms.
- These monitoring activities may reduce the risk of the loan without impacting the firm cash flow.

They conclude that it is the characteristics of the loan facility and it's attendant interaction with the lender that provides the advantage, and non-banks have capacity to provide these services also.

Billet, Flannery and Garfinkel (1995) find that lenders with higher credit ratings provide bigger abnormal returns for borrowers following a debt announcement.

Slovin, Johnson and Glascock (1992) report that larger borrowers receive smaller announcement returns consistent with the Fama view that larger firms operate under the scrutiny of external monitors.

Krishnaswami et al (1999) summarise four main reasons why firms issue debt to banks and other private investors, rather than issue public debt.

- They find the predominant reason for issuing private debt is the size of the debt issue, smaller issues are too expensive to complete to the public, therefore smaller issues are more likely to be completed by banks and other private institutions.

- Other reasons are that Banks and private institutions are able to monitor a firm's activities more cheaply than public debt investors. The premiums demanded for this activity is therefore correspondingly lower. Research started by Myers (1977) Galai & Masulis (1976) and Jensen Meckling (1976) states that firms with relatively less real options, but more growth options,

that is those firms that have incurred debt but are yet to invest the funds, require more monitoring to ensure they act within the interests of bondholders.

- Firms that are not regulated or monitored by regulating bodies will tend to display information asymmetry and require more bondholder monitoring.

- Finally firms that have information that is not available publicly but which can be revealed to private investors are likely to receive better pricing from private investors, once again due to information asymmetry.

Battarchea and Chiesa (1995) and Yosha (1995) argue that firms may reveal confidential information more readily to private lenders than publicly.

Krishnaswami et al (1999) conclude that firms with bank debt tend to be younger, smaller and with more growth options. That is smaller firms with information asymmetries due to being smaller with no long track record.

Krishnaswami et al (1999) find that the more restrictive covenants and monitoring of private debt mitigate the costs of that debt for firms with greater debt related moral hazard. They also find that firms with more growth options have higher levels of bank debt, and benefit from the higher monitoring and covenanted control. Regulated firms already with controls over their operations have lower levels of bank debt.

Summary

The research therefore reveals that bank loans are more suited to firms with higher information asymmetry, as banks are able to monitor these firms more cheaply than the market. This is due to the monitoring infrastructure of the bank and the structure of the loan that places risk controls on the firm, to minimise the

risk of the debt. We argue that Banks no longer hold an information advantage with the growth of rating agencies and non-bank lending institutions, and it is now the structure of the loan that provides the advantage of Bank debt.

The impact of bond ratings on firm value.

The literature on Bond Ratings notes that markets only react to bond downgrades, however there has been substantial work examining the reasons for this. The implications of this are that Bank Loans are taken to allow confidential information to be withheld from public consumption. Ratings also allow a mechanism for the company's risk to be assessed publicly without making the information public.

If markets do not respond to Bond rating adjustments, and Nayar and Rozeff (1998) view monitoring of rating agencies as substituting for the monitoring of banks, can formal rating of Bank Loans provide the same level of information to markets as Bank Loan Announcements? The following literature relates the progress made to date tracking market response to Bond rating adjustment. The conclusion can be drawn that Bond ratings are not a major source of information to equity markets despite the access of Bond rating agencies to inside information.

Ederington and Goh (1998) note that Bond ratings communicate information to bondholders, but good or bad news for bondholders may not reflect good or bad news for stockholders. Rating revisions may be due to:

- An upward or downward revision of expected future cashflows, or
- A change in the perceived riskiness of those cashflows.

A downward revision of the total level of expected cashflows will be bad news for both bond and stock holders, whereas an increase in the perceived riskiness

of cashflows will have a positive stock value effect (as per the risk/return framework) but negative bond value effect.

Goh and Ederington (1998) find that most rating downgrades reflect a downward revision in the firm's prospective cashflows and therefore have negative implications for both stock and bondholders..

Chandra and Nayar (1998) also conclude that commercial paper rating downgrades are associated with reduced earnings expectations unless the downgrade is 'severe', in which case it may also be associated with an increase in perceived riskiness. This indicates that positive bond rating changes should be associated with positive stock valuation implications, and negative bond rating changes will be associated with negative stock valuation implications.

Despite this, research indicating markets react to bond rating downgrades, but not upgrades is attributed to two aspects of information asymmetry[14]:

1. Companies voluntarily release good news to markets, so this information is built in to stock prices and is not new to markets, hence a rating upgrade does not provide new information to the market.

   Companies do not release bad news to markets, so only becomes publicly available when reflected in the bond ratings from ratings agencies with access to private information.

2. Ratings firms examine more carefully for deterioration in credit arrangements than upgrades. They only examine publicly available information when

[14] Chandra and Nayar (1998)

assessing an upgrade, but access more private information to assess downgrades, thereby introducing more information to the market.

Ederington and Goh (1998) complete granger causality testing to conclude differently however:

Bond rating downgrades are partially a response to information already publicly available to analysts and the market, however they are viewed as possessing new information as negative stock returns follow. Analysts respond to bond rating downgrades by revising forecasts down, a reaction to the certification aspect of the lower rating rather than the negative information already possessed by the market.

Markets assimilate downgrade information more efficiently than analysts 'while market returns show no post-downgrade pattern, analysts are still revising their forecasts months later. Downgrades presage declines in actual earnings.'

Upgrades appear to be a response to information the market already has – there is no market response to an upgrade. Bond rating upgrades follow periods of positive stock returns and positive revisions to earnings forecasts. Despite this, bond rating upgrades will lead to more revisions of analyst forecasts, but the responses to that and market responses are lower.

Bond downgrades tend to occur following periods of negative abnormal returns on stocks. Similarly, upgrades follow positive abnormal returns. (Holthausen and Leftwich (1986), Wansley and Clauretie (1985), Motolisy and Lianto (1995).

Research has revealed the market reacts negatively to bond downgrade announcements, but not to bond upgrade announcements. (Holthausen and

Leftwich (1992), Wansky and Clauretie (1985), Camell, Landsman and Shapiro (1989) and Motolisy and Lianto (1995).

Best (1997) finds that debt issues up to six months prior to a firm rating down grade will suffer a negative abnormal return at the announcement of the debt issuance. Like wise, debt issuance prior to a rating upgrade receives positive abnormal returns.

Rating agencies claim to receive inside information unavailable to Stock Analysts due to required arms length transacting and Chinese Walls (Ederington and Yawitz (1987), Holthausen and Leftwich (1986)).

Shyam-Sunder finds 'we do not find a statistically significant difference between the stock price effects of investment grade and lower grade issues, or a monotonic effect across ratings classes' and suggests that the elimination of information asymmetries occurs due to the application of bond ratings. The study refers to straight debt issues. Mikkelson and Partch (1986), and Slovin, Sushka and Hudson (1988) also find similar results for commercial paper.

Elayan, Maris and Young (1996) find a negative response to rating announcements where the borrower has a negative Standard and Poor's outlook.

Holthausen and Leftwich (1986) discuss the views that rating agencies use only publicly available information and implies that investors and researchers can replicate bond raters, meaning asset prices are unresponsive to rating introduction and changes. Holthausen and Leftwich (1986) note however that management does communicate private information to rating agencies (as noted above by Ederington and Goh 1998).

Nayar and Rozeff (1998) find that highly rated commercial paper issues are associated with positive stock effects, while lower rated issues experience no return. The evidence suggests that rating agencies 'certify' the future prospects of firms entering the short-term debt market, and changes to those ratings can influence stock value. Negative effects are most severe where the downgrade impedes the marketing of paper and where the long-term debt ratio is high.

Nayar and Rozeff (1998) regard Commercial paper as a public debt alternative for bank debt and raises some issues to be resolved for the issue of commercial paper to be successful.

1. Information supplied to the market is costly to verify and signal.
2. Reluctance to expose information to the market when it is beneficial to keep it confidential.
3. The market may view the firm as attempting to by pass the monitoring effects of banks.

They believe these issues can be resolved via use of a Rating agency, and use of a bank letter of credit. The rating agency indicates the level of risk without the firm having to divulge confidential information. (the rating agency retains information to avoid other rating agencies gaining access to this information, and to retain the business of the firm).

Nayar and Rozeff (1998) conclude that rating agencies help the market sort firms by their future prospects and 'in this respect ratings agencies play a certification role similar to and apparently independent of banks (James (1987), Lummer & McConnell (1989)'.

Summary

The bond rating literature therefore would suggest only negative bond rating changes supply new information to the markets, although it is unclear if the information is new, or if it is the certification effect of the debt rating which effects stock value. Best (1997) results show that markets are able to predict the rating changes accurately from other events in the market. This confirms the granger causality conclusions of Ederington and Goh (1998).

Development of the Bank loan market

In this section we will review changes in the Bank loan market place, followed by reasons for those changes. We then review reasons for the popularity of bank loans as a financing option and examine the typical loan structure.

Barnish et al.(1997) provide a history of the evolution of the leveraged bank loan market. They note that loan syndication was practiced as early as the early 1970's, however growth in the market occurred in the mid-1980's as a tool to finance Leveraged buyouts. A small group of money centre banks established desks that underwrote and set up syndicated loans, then sold smaller parts of the loan to other investors. This allowed them to retain structuring and under writing fees, and take a part of the credit spread from the loan. The largest investors in the syndicated loans were Japanese and other non-US banks, which used the loans to gain access to US clients. Syndicators also began to attract other investors, including mutual funds, insurance companies, to establish a more stable investor base. These investors were attracted to

"wide margins, a stable return due to the floating interest rate, and considerable protection from principal loss in the form of covenants and security"[15]

The syndicated loan facility was also popular with investment grade borrowers who had traditionally maintained bi-lateral arrangements with a number of banks. This reduced the administrative cost of corporates and provided them with an available lender group.

The market was impacted by a high number of defaults in the early 1990's, however has since developed further:

"The leveraged loan market now offers issuers and investors most of the key features of public capital markets, including a robust secondary market, derivatives, independent credit ratings, and research. The net effect of these innovations is a sophisticated, diversified leveraged finance market that issuers can tap to finance strategic transactions or simply to refinance debt."[16]

The entrance of non-bank investors has been advantageous for banks. Agent banks have been able to use institutional investors' preference for long dated maturities to keep their clients from going to the long-term debt markets by offering them term loan structures that are popular with institutional investors.

This syndicated leveraged loan market has followed a classic development pattern for financial products. This development pattern involves banks (1) identifying a market opportunity to create a financial product (2) building a track record and investor base for the product and, ultimately, (3) ceding the financing segment to less expensive, more liquid markets alternatives.

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[15] Barnish et al. p 80

[16] Barnish et al p 81

Culp and Neves (1998) note the development of bank loans from one-off arrangements to saleable securities is due to a two-step process of asset transformation and market liquification. Transformation involves packaging the cashflows from one asset to allow the risk and return to be transferred from one party to another. Securitisation and derivatives are used to complete this process. Liquification is the process of then commoditising the product to allow the risk and return to be transferred form one party to many.

The dramatic growth of institutional loan investors in the bank debt market has been attributed to a myriad of factors[17], including:

- High Sharpe ratio (risk return indicator)
- Flat yield curve
- Collateral and covenant protection
- Growing liquidity
- Development of structured products and derivatives;
- Marketing by syndicators and traders;
- Increasing use of professional managers;
- Proliferation of credit ratings; and
- Data access and research.

Leveraged Loans are almost always secured by all assets of the borrower or by the capital stock of operating units, and are the senior-most obligations in a borrowers capital structure. This has translated into an average loss, given default for secured leveraged loans, of 17%, according to a number of studies reviewed by Standard and Poor's. Subordinated bonds, by comparison, suffer an average loss given default of 60-70%.

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[17] This section is sourced from: Miller, S. "Bank Loan Ratings Surge: Leveraged Loans Come of Age as an Asset Class" *Standard and Poor's Credit Analysis Reference Disc*, 1997, but see also Culp and Neves (1998)

In addition, loans have mandatory prepayment covenants that require prepayments from asset sales, excess cash flow and capital markets issuance. As a result syndicated leveraged loans are repaid on average 40% prior to default, according to an LPC study. Unsecured bonds, by contrast, typically have bullet maturities and call protection and, therefore, experience little, or no, repayments prior to default.

This collateral and covenant protection has made loans an attractive investment relative to unsecured high-yield bonds, particularly for issuers and industries where prospects are uncertain.

Standard & Poor's have provided a comparison of the Sharpe Ratio of various investment instruments.

Risk Adjusted Return Comparisons.

Risk Adjusted Return Comparisons			
	Annual Returns %	SD of monthly returns %	Sharpe Ratio
S&P 500	13.8	31.4	0.30
High Yield Bonds	11.8	13.0	0.57
Leveraged Loans	8.0	4.2	0.84
Corporate Bonds	7.7	16.1	0.21
7-10 year Treasuries	7.1	19.2	0.14
3-5 year Treasuries	6.1	12.4	0.14
Source Standard & Poor's "Leveraged loans come of age as an asset class" p 1			

Slightly higher returns on leveraged loans reflects the higher risk companies they are extended to (as per the conventional risk/return framework)

However the standard deviation of returns is much lower for two reasons:

- Pricing is based on floating rates to ensure leveraged loan tranche prices do not vary by more than one or two percent (unlike conventional fixed rate loans).
- Recovery of loans is a lot higher due to loan structure, which lowers the loss in event of default. This effectively lowers the risk of the loan and return of the investors' funds (and improves the BLR) despite the higher risk company.

The flat yield curve has made the return on these facilities more attractive compared to bonds. This is because they are priced from floating rates, compared to bonds, which are fixed rate. The flat yield curve has ensured returns on loan are comparable to those on fixed rate instruments.

SYNDICATED LEVERAGED LOAN CHARACTERISTICS

Leveraged loans are typically divided into tranches, with longer-dated, term loan facilities (Institutional Term Loans) carved out for institutional investors. These "B", "C" or "D" term loans have back-end loaded maturities and are priced incrementally higher than amortizing bank term loans.

Ranking: Senior secured instruments that sometimes have pari passu public or private debt.

	Stated Maturity	Pricing (over LIBOR)
Revolving Credit	Bullet maturity	125-300
Amortizing Tranche	3-5 years	125-300
Tranche B	5-7 years	150-300
Tranche C	6-7.5 years	250-350
Tranche D	7-8.5 years	250-400

Pricing options

Borrowers tend to use a loan's fixed-rate, LIBOR option, which is reset every one to 12 months at the borrower's option. A short term, Prime option is also available. This is almost always a more costly alternative and, therefore, is used mainly for overnight or short-term borrowings.

Covenants

Tight financial compliance is required. Leveraged loans usually have at least one coverage and one leveraged covenant, both set tightly to projections. The borrowers ability to take on more debt, sell assets, pay dividends or make investments is restricted.

Optional prepayments

The borrower is always allowed to prepay, usually without penalty.

PARTICIPANTS

In a typical Syndicated loan transaction there are four types of participant:

1. The borrowing firm.
2. The loan originator (typically a Bank).
3. Rating agencies.
4. Secondary loan market participants (institutional investors, foreign banks).

Typically the borrowing firm and loan originator negotiate a loan facility, the loan will be subject to certain conditions (including being rated by a rating agency). The originator will retain that portion of the loan facility on it's own balance sheet that meets it's risk profile, and will on-sell the rest of the loan to participants on the secondary loan market. The original loan will be structured to be saleable in different tranches on the secondary market. The Bank Loan Rating process is an integral part of this. The rating agency is contracted to the borrowing company, and is not required to make the rating public.

Bank Loan Rating Process[18]

Rating Methodology

Standard and Poor's first determine the borrowers general default risk, this is the Corporate Credit rating and is an analysis of the firm's business strength and financial risk.

Once the Corporate Credit Rating or risk of default has been ascertained, analysis of the recovery in event of default is analysed.

The Bank Loan Rating assesses the 'likelihood of ultimate repayment of loan obligations'. The likelihood is affected by the ability to recover the loan in event of default. This is dependent on a number of areas:

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[18] This section sourced from: Bailey, J.M. "Bank Loan Rating Criteria in Hong Kong" *Standard and Poor's Credit Analysis Reference Disc,* 1999.

- Legal structure of the loan (and legal framework it is structured in)
- Financial covenants in place
- Loan tenor
- Planned amortization
- Collateral

Collateral Analysis centres on the valuation of assets held as security. This will be an 'enterprise value analysis' or 'discrete asset value analysis'. If security has been taken over the operating assets of the firm, enterprise value analysis assesses the value of secured assets if sold as a going concern in event of liquidation. Discrete Value Analysis indicates value in the event of asset liquidation.

Enterprise Value Analysis (EVA)

EVA is determined using the firm earnings before interest, depreciation and tax, and a cash flow multiple. It is projected to simulate value in the event of default. Once the enterprise value has been ascertained, prior claims are deducted to ascertain the value remaining for bank loan repayment. It is assumed revolving facilities are fully drawn.

Discrete Asset Value. (DAV)

DAV ascertains the current market value of discreet assets (real estate, securities, plant and equipment) and ascertains any likely effect on them of volatility, liquidity, the nature of the assets, and the ability of the firm to divest the assets in a default scenario.

Secured lender shortfall on divestment of the security is treated as unsecured in line with other unsecured obligations.

The assets ability to retain value over the term of the facility time is critical in establishing the Bank Loan Rating

Collateral value is generally the most important influence beyond the default risk of the firm to ascertaining the Bank Loan Rating. Other issues that may affect the Bank Loan Rating are briefly discussed:

Legal structure:

Legal opinions on the loan facility, and the enforceability of security and covenants are examined. An important aspect is how the legal system resolves bankruptcy and the timing risk in gaining recovery from the enforcement of security and covenants. This will obviously differ across the legal systems of different countries.

Covenants

Covenants are another aspect in protecting the value of the loan. Standard and Poor's advise that a typical non-investment grade loan would contain the following credit covenants:

- Limitations on incurring additional debt
- Fixed charge coverage at a specified level
- Restrictions on distributions to shareholders and subordinated debt holders.
- Limitations on further security being assigned (negative pledge).
- Restrictions on the sale of assets.

Covenants do not generally provide superior protection without other aspects of the loan, however they do serve to protect the rights of the lender and are instrumental in guiding firm behaviour and maintaining the recovery of bank debt in the event of liquidation by accounting for early repayment on trigger occurrences. (refer to the section entitled 'Bank Loan Market Development', above for an account of the recovery levels on bank debt compared to other debt)

Tenor

Shorter term loan provide for higher Bank Loan Ratings for two reasons:

- Longer-term debt constrains the Corporate Credit Rating as it places a long-term obligation on the firm.
- Longer-term debt means asset valuations are less reliable and the chance for obsolescence and regulatory restrictions increases.

Amortization of debt improves the debt rating as it improves the security coverage ratio over time. A Tranches with shorter amortization schedules may be rated higher than the longer term tranches (this is reflected in pricing).

Information requirements

Standard and Poor's advise they review the following documentation when conducting a Bank Loan Rating assessment:

- The bank book (bank loan equivalent of a prospectus), or copies of term or revolving debt documentation; copies of term sheets and covenants.

- Security and pledge agreements
- Legal Opinions
- Independent appraisal if collateral is in the form of discrete assets.
- Audited accounts of the firm for three years, or the guarantor (if applicable) on which the CCR is based.
- Budgets, forecasts and creditor classes.

The Rating Methodology:

1	2	3	4	5
Assess default risk	Evaluate Legal Structure	Loan Terms and Conditions	Collateral Analysis (Enterprise Value Analysis, Discrete Value Analysis)	Assign Bank Loan Rating

Bank Loan Rating Notching process.

"Ratings on specific debt issues may be notched up or down from the issuer's corporate credit rating to reflect whether the holder of the issue is substantially advantaged or disadvantaged compared to other creditors of the issuer in the event of default. Well-secured bank loans may be rated higher than the borrowers corporate rating, if Standard and Poor's believes that the security provides adequate protection in a projected post-default workout scenario. The time it takes to realise the ultimate recovery is also critical. Likewise, subordinated debt or unsecured debt whose repayment prospects are adversely affected by their position in the capital structure may be notched down from the corporate credit rating.[19]".

[19] Bailey, J.M. "Bank Loan Rating Criteria in Hong Kong" *Standard and Poor's Credit Analysis Reference Disc*, 1999. P 3

Standard and Poor's has a systematic matrix for evaluating this. The policy of enhancing issue rating (above the Corporate Credit Rating) is based on ultimate recovery prospects and only applies if expected recovery in default is greater than 100%.

Bank Loan Rating Criteria[20]

	Expected recovery time after default.		
	Within 24 months	Within 6 months	Within 60 days
Corporate Credit Rating BB, B			
Reasonable confidence of full recovery of principal (over 1x collateral coverage after stress)	+1 notch	+1 or 2 notches	+2 or 3 notches
Highly confident of full recovery (over 1.25x collateral coverage, after worst-case stress)	+2 notch	+2 or 3 notches	+3 or 4 notches
Highly confident of recovering principal and interest (over 1.65x collateral coverage, after worst case stress)	+3 notch	+3 or 4 notches	+4 notches
Corporate Credit Rating A, BBB			
Reasonable confidence of full recovery of principal (over 1x collateral coverage after stress)	+1 notch	+1 notch	+1 notch
Highly confident of full recovery (over 1.25x collateral coverage, after worst-case stress)	+1 notch	+2 notches	+2 notches
Highly confident of recovering principal and interest (over 1.65x collateral coverage, after worst case stress)	+2 notches	+2 notches	+2 or 3 notches

[20] Bailey, J.M. "Bank Loan Rating Criteria in Hong Kong" *Standard and Poor's Credit Analysis Reference Disc*, 1999.

Summary

Bank Loan Announcements have effects where new information is imparted to markets, and that information is considered important enough to change the value of the firm. (Where the firm displays information asymmetries)

Typically this is where there are changes to existing arrangements implying the bank knows something the market does not. It also takes effect where the market does not have complete information about the firm, acts as a certification effect.

Bank loan announcement impact on stock prices may be due to the monitoring or certification effect by the bank, or due to the insider information the bank has access to which is signalled to stock markets in the Bank loan announcement.

Recent articles (Preece and Mullineaux (1994), Nayar and Rozeff (1998)), and the growth of non-bank participants in this market over the last decade indicate that banks no longer hold a competitive advantage in this market. Other institutions are able to provide the same loan agreements, and monitor compliance to those. In addition they are able to outsource the risk assessment to rating agencies such as Standard and Poor's.

What is the future of banks? Neve and Culpan (1998) state:

'Recent Innovations in loan markets also promise to reinforce the existing trend in banking away from financial intermediation and toward what has been called information intermediation... this trend is helping to ensure the viability of commercial banks.[21]

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[21] Culp and Neve (1998) p 79

They note that banks are well capitalised, have economies of scope in the collection and analysis of information and are perfectly suited to be intermediaries in all types of capital market activities. They state the process of liquification has enabled them to transfer risk and return to the capital market and allowed them to focus more on fee based transaction, originating and monitoring activities.

Chapter 3

HYPOTHESES

The hypothesis of this paper is that changes in the Bank loan market have made bank loans directly comparable to other financing instruments.

Rating assessment by Standard and Poor's has reduced information asymmetry, and made the provision of information to the market more efficient. Research shows that only rating downgrades have any impact on firm value despite the access of the rating agency to inside information.

Standard and Poor's separate analysis of the default risk of the firm and the risk attached to a certain financing instrument (in this case the Bank Loan Rating).

We hypothesise that all information known to the rating agency will be reflected in the Corporate Credit rating as well as the Bank Loan Rating. As the Corporate Credit Rating reflects the risk of the firm rather than the bank loan instrument, no Bank Loan Rating effect is expected.

We therefore expect there will be no abnormal returns around the announcement of a Bank Loan Rating except where associated with a downgrade of the Corporate Credit Rating (as per the Bond rating literature).

We will also use multivariate analysis to test the impact of:

- Standard and Poor's firm outlook.
- Facility size
- Level of Corporate Credit rating
- Speculative and Investment grade differentiation in Corporate Credit rating.
- New Bank Loan ratings and Corporate Credit ratings.
- Level of change in Bank Loan Ratings and Corporate Credit ratings.

In accordance with the literature, we are not expecting any result from the regression, other than the impact of the Standard and Poor's firm outlook, as indicated by Best (1997) and Elayan, Maris and Young (1996). Eleyan et al specifically test for rating agency outlook, while Best tests market response to new straight debt announcements where the announcement is followed by a rating upgrade or downgrade. (and confirms Leftwich and Holthausen finding that market reaction precedes bond rating announcements).

A weak response to the change in the Corporate Credit rating may also been seen, to confirm the event study result, but the negative result is likely to be weakened by the lack of a positive CCR change relationship.

Chapter 4

DATA COLLECTION

Data collection proceeded in a number of stages

Stage 1: Bank Loan Rating Data Collection

The initial sample of data was sourced from the Standard and Poor's Global High Yield Bond and Bank Loan Ratings website[22] (hereinafter referred to as the Event data).

This provided details of 1,079 firms with Bank Loan Rating events between July 1996 and July 2000. The dataset recorded

- Firm name,
- Bank Facility size (USDm),
- Bank Loan Rating,
- Corporate Credit Rating,
- Senior Debt Rating,
- Bank Loan rating event date.

The database recorded the details of the firm as at the last 'event date'. The event pertained to any announcements by Standard and Poor's including:

[22] http://www.standardandpoors.com/ratings/highyield/index.htm

- New Bank Loan Ratings
- Better Bank Loan Ratings
- Worse Bank Loan Ratings
- Affirmed Bank Loan Ratings.

Ratings are from AAA+ to D, with ratings greater than A- rated investment grade, and those below rated speculative. A full definition and explanation of different ratings is in Appendix 1

Stage 2: Announcement Data collection

The relevant announcement details were then sourced from the Standard & Poor's Credit Analysis Reference Disc. Bank Loan Rating affirmations and entries from non-US countries were excluded from the sample at this stage.

Due to time constraints (refer Data Collection Issues: Section below) a random sample of entries were selected. This was done on an alphabetic system, whereby letters of the alphabet were selected at random and all companies with names beginning with that letter were selected and data collected.

Letters collected were A,C,F,K,L,O,Q,R.U,V,and W, X, Y, Z. The only bias this may present may be one of industry bias, for example whereby there are likely to be more Technology companies starting with the letter T. Analysis of SIC codes however shows no obvious industry concentrations.

Rating List

Data was collected in two forms: The first is a list of Standard and Poor's ratings for the company and includes the following data:

- Facility type
- Facility size
- Rating
- Rating date
- Former Rating
- Corporate Credit Rating
- Outlook

Inexplicably it excludes former Corporate Credit ratings. Note several rating dates may be evident where for example, a Bank Loan Rating has been introduced without changing the Subordinated debt rating, the original subordinated debt rating will remain and a new and different date will be added for the Bank Loan rating.

Please refer to Appendix 2 for an example of this.

Announcement Report

The second type of data is an announcement of a rating change, this includes the date, the name of the firm, the name of the Standard and Poor's office providing the report.

The typical format is:

1. List the ratings of the firm (and related companies if applicable). If there has been a change, both the new and old ratings will be listed.
2. A reason for any change.
3. A background to the firms' activities including main activities, long-term history and short-term performance.
4. A discussion on the firms' outlook, and reason for any viewpoint in this regard (For example positive/negative outlook implications).

Please refer to Appendix 2 for an example of this.

Of the data collected, in many cases, both types of information were collected for a particular event. In some cases however only one of the data types were collected.

Where the rating list only was collected, as it provided no historical Corporate Credit Rating information, it needed to be excluded.

The following data was added to the data already held:

- The previous Bank Loan Rating
- The previous Corporate Credit Rating.

The rating announcement reports also provided information on the circumstances surrounding the rating change.

This stage reduced the data set to 354 entries primarily due to the time constraints illustrated above, but also due to the reduction of those entries which had experienced default ratings 'D' or 'SD'.

Stage 3: Stock Price Data collection

The Standard and Poor's data was matched to CRSP data files by name to find stock price data about the relevant event date.

Stock prices were required for at least 50 of 251 days before the event.

The CRSP database identifies firms by an Identifier number labelled a CUSIP. As this data was not available, matches by firm name were required. Where the name in the current CRSP file was not available, a file listing historical names and CUSIPs was sought to account for firm name changes.

This process reduced the data set to 198 entries. The CRSP data only included entries to 31 December 1999, this excluded all those Bank Loan Rating Events requiring stock price data after that date and provided a final data set of 146 entries.

The following data was retained:

- CUSIP,
- NAME,
- Industry Code
- DATE,
- FACILITY SIZE,
- BLR,

- CCR,
- Previous BLR,
- Previous CCR,
- OUTLOOK,
- NOTCHING

As the Bank Loan Rating, Corporate Credit Rating was expressed in letters, and the outlook expressed in words, these were converted to number format to aid analysis.

The data was then split into the following groups to allow analysis:

Group	BLR Change	CCR Change	Dataset Size 146
1	New	All	108
2	New	New	77
3	New	Improve	10
4	New	Worsen	6
5	New	Same	15
6	Improve	Improve	15
7	Worsen	Worsen	23
8	All	Worsen	29
9	All	Better	24

There was one example of the BLR worsening, but the CCR remaining the same. This entry was discarded.

Descriptive Statistics are as follows:

	Average	Median
Facility Size	USD$602m	USD$350m
Bank Loan Rating	BB+	BB+/BBB-
Corporate Credit rating	BB+	BBB-

S&P Firm outlook	Frequency
Watch Pos	3
Positive	11
Stable	100
Negative	19
Watch Neg	13

Data Collection Issues:

The size of the dataset was limited by the non-availability of Standard and Poor's data. The cost to access this data was USD$16,000 per annum which was beyond the budget for this project.

This data was eventually received from the Standard and Poor's Credit Analysis Reference Disc held by ANZ Bank (the employer of the writer) at its Melbourne headquarters. This data collection was completed at the end of a business trip, and due to flight schedules, only 6 hours was available for data collection. As there was no previous opportunity to view the database, collection was very much on an ad hoc basis.

Chapter 5

METHODOLOGY

Event Study

The hypotheses are tested using the event-study methodology detailed by Mikkelson and Partch (1986) as well as others, and ordinary-least-square regressions of the standardised prediction errors on bank facility and rating specific variables.

We first estimate the market model using returns from 251 days prior to the event through 41 days before the announcement date. The announcement window begins 40 days before the announcement date and continues 40 days after the announcement.

The effect of the announcement is checked in the following periods

- A two day period (AD-1,AD)
- A three day period (AD-1,AD+1)
- An eleven day period (AD-5,AD+5)

Where AD represents the announcement date.

The estimation equation is as follows:

$$PE_{jt} = R_{jt} - (a_j + b_j R_{mt}).$$

Where R_{jt} is the rate of return on security j over time t, R_{mt} is the rate of return on the CRSP equal weighted market index over period t, and a_j and b_j are Ordinary Least Squares estimates of firm j's market model parameters. The equation estimates the Prediction Error (PE) of the market model of firm j at time t.

The daily prediction errors are averaged over all firms within each group to produce a daily portfolio average prediction error (APE_t).

$$APE_t = 1/N \sum_{j=1}^{N} PE_{jt}.$$

Tests of statistical significance of the Average prediction errors are based on standardised prediction errors. The eleven day standardised prediction error for firm j is defined as:

$$SPE_j = \sum_{t=-5}^{5} PE_{jt} / S_j.$$

Where

$$S_j = \left[2V_j^2 \left[1 + \frac{1}{M} + \frac{(R_{mt} - R_m)^2}{\sum_{i=1}^{M} (R_{mi} - R_m)^2}\right]\right]^{1/2}$$

V_j^2 is the residual variance of the market model regression for firm j, M is the number of days in the estimation period (251), and R_m is the mean market return over the estimation period.

The average standardised prediction error is

$$ASPE_t = \frac{1}{N}\sum_{j=1}^{N} SPE_{jt}.$$

Assuming the individual prediction errors are cross sectionally independent, the following Z-statisic can be computed:

$$Z_t = \sqrt{N}(ASPE_t).$$

This is asymptotically distributed unit normal under the hypothesis that the average standardised prediction error equals zero.

This is analogous to the empirical procedure followed by James (1987) and Lummer and McConnell (1989) and other researchers in the intervening period.

Linear Regression

The prediction errors calculated using the event study procedure are used in multivariate linear regressions to control for a number of factors. The Dependent variable is the abnormal return in the eleven-day announcement window. The independent variables are:

1. Facility Size (USDM)
2. The level of notching of the Bank Loan Rating above the Corporate Credit rating.
3. A numerical indicator of Standard and Poor's Firm Outlook.
4. The size of the adjustment in Bank Loan Rating (+ve and -ve).

5. The size of the adjustment in Corporate Credit Rating (+ve and -ve)
6. The absolute level of the Corporate Credit rating (numerical indicator).
7. The absolute level of the Bank Loan Rating (numerical indicator).
8. A dummy variable to indicate 1 if the loan is speculative grade or 0 if investment grade.
9. A dummy variable to indicate 1 if the Bank Loan Rating is new, 0 otherwise.
10. A dummy variable to indicate if the Corporate Credit rating is new.

Regressions are estimated for the full sample of 146 entries. No adjustment has been made for Heteroskedasticity, and Ordinary Least Square Regression has been completed as per Best and Zhang (1993). The regression takes the standard form:

$$PE_{j,-5,+5} = \beta_0 + \beta_1(VAR1) + \beta_2(VAR2)... + \beta_{10}(VAR10) + \varepsilon_j$$

The regression excludes any degree of Information asymmetry testing, and the testing of the size of the facility uses only the absolute size of each facility. A more accurate interpretation of the impact of the size of the facility to the firm value, would have been to divide facility size by Market Value of Equity to provide an indication of how large the loan is relative to the size of the firm.

To complete the information set, it would have been appropriate to investigate the size of the loan compared to the Market value of the firm to indicate the impact of the bank loan size and purpose of the loan. In this case, a larger market value impact would have been expected for firms with higher bank debt ratios. This is expected from research by Wansley, Elayan et all, and a body of research summarised by Smith (1986) and Smith and Jensen (19887)

Previous research is mixed on whether there is a rating level and outlook effect for bond rating of public debt.

Another useful explanatory variable may been an indicator of leverage, as firms displaying higher leverage provide more risky cashflows to shareholders, and debt announcements may elicit a greater response from shareholders. Both these variables were beyond the scope of this project however.

Chapter 6

RESULTS

Event Study and Regression results are analysed. It is found they match the hypothesised results.

Event Study Results

BLR Change	CCR Change	APE (11 day window)	% Negative	Z-value	Size	40 days prior	40 days after
Improve	Improve	1.36	53%	0.01	15	2.08*	
New	Improve	-0.76	60%	-0.44	10		-1.70**
New	New	-0.08	53%	0.06	77		-2.45*
New	Same	-0.15	47%	0.61	15	2.17*	
New	Worse	0.24	50%	0.06	6		1.70**
Worse	Worse	-1.78*	65%	-2.19*	23		
New		-0.11	54%	-0.03	108		-2.15*
	Worse	-1.77*	72%	-2.29*	29		1.79**
	Better	1.61	54%	-0.11	24		
Total			56%				

*Significantly different to zero at a=0.05, **Significant at a=0.10

The null hypothesis is that the ASPE equals zero. Inside the two and three day announcement windows there were no significant results.

The eleven-day window reported above ((AD-5, AD+5) where AD is the Announcement Date), produces significant results are reported for occasions where:

- The Corporate Credit rating worsens, and where
- The Bank Loan Rating follows the Corporate Credit Rating.

Some significant results may have been affected by sample size.

The largest market response to the rating change announcement came in the period three to five days after the announcement date, making the 11-day window a more responsive response window .

Reasons for this are unknown, but it may reflect the fact that the information being produced may not be widely publicly available in the market place until three to five days after the announcement (or may reflect inefficient markets, but this is considered unlikely given typical response times to bank loan announcements are a two day window).

The results support the hypotheses that Bank Loan Ratings do not replicate bank loan announcements in providing additional valuable information to markets, and support the hypothesis that markets only respond to downgrades of corporate credit ratings.

There is a positive response to Corporate Credit rating improvement, but not significant.

Results may have been affected by sample size.

40-day window analysis.

A point of interest is the number of significant results shown over the 40-day window, before and after the announcement date.

Although there may be little response during the announcement window itself, there is evidence in some cases the credit announcement certifies value changes that have been made in the preceding 40-day period. Thus there is an abnormal adjustment in the period prior to the credit rating adjustment.

This is seen in the abnormal positive returns in the 40-day window prior to an improvement in the Corporate Credit Rating, and supports the hypothesis that good news is released early to the markets while bad news is delayed. (Worsening of the Corporate Credit Rating provides a negative response only after the rating change announcement)

There are significant value impacts in the eighty-day announcement window surrounding new Bank Loan Rating announcements, but the timing of these suggests that although the Bank Loan Rating may be part of the reason for the change in value, it is not directly bringing new information to the market.

New Bank loan ratings associated with new and improved corporate credit ratings have a negative value impact after the announcement date.

This may be due to the adjustment to the riskiness of the firm's cashflows. A new Bank Loan and an improvement in the Corporate Credit rating implies cashflows will become less risky, the risk of default has lowered (as implied by the improved Corporate Credit Rating) and the firms use of free cash flow to enhance shareholder value may be limited by Bank monitoring and covenants. A new

Bank Loan Rating and Corporate Credit Rating implies closer monitoring also, and may imply a more conservative approach.

New Bank Loan Ratings associated with Corporate Credit ratings, which are the same or worsen are associated with an increase in market value.

Again, this may be due to the impact on the riskiness of cashflows, a new Bank loan coupled with a worsening of the Corporate Credit rating implies an increase in leverage, it may also be associated with a share buyback or merger and acquisition activity. Both these activities are likely to enhance shareholder value. The timing of abnormal returns in this instance may be due to the timing of full information of proposed deals to the markets.

Interestingly, the worsening of the Corporate Credit Rating leads to an initial decrease in share price in the ten days surrounding the announcement date, but positive abnormal responses in the following 35 days.

The abnormal results in the eighty-day window around the credit rating announcement my be spurious due to the size of the sample and time frame involved, or they may represent several possible variables at work.

- The release of new information related to the rating change either before or after the rating change.
- Market inefficiency.

No adjustment has been made for levels of information asymmetry. Studies of both credit rating and bank loan announcements have shown they can produce value adjustments where they introduce new information to the market about firms displaying information asymmetry.

Regression Analysis

The following table provides the results of a linear regression of possible explanatory variables of abnormal results associated with Bank Loan rating Events.

Results of OLS Linear Regression of Bank Loan Rating Changes. (R-sq=0.11)		
Variable	Standardised Coefficient	T-Statistic
Intercept	9.982	1.445
Facility	-0.106	-1.175
BLR Notching	0.095	1.078
S&P Outlook	-0.266	-3.023*
BLR level	-0.127	-0.922
CCR level	0.303	0.800
CCR change	-0.76	-0.495
BLR change	0.120	0.815
CCR new (DV)	0.159	0.396
BLR new (DV)	0.087	0.795
Speculative CCR (DV)	0.077	0.678

* Significantly different to zero at the a=0.05% level.

The table reflects regressions of the 11 day common stock prediction errors for the announcement by Standard and Poor's of Bank Loan Rating changes.

As hypothesised, the linear regression shows no significant results other than a significant response to the Standard and Poor's firm outlook.

A numeric value has been placed on the Standard and Poor's Variables in this case, from 1 as Watch Positive, to 5 as Watch Negative.

The slope of the regression co-efficient shows that market response to Bank loan rating events is correlated to the S&P outlook on the firm. This is related to the work of Best (1998) who noted that markets responded positively to Straight debt offering which was followed by a rating upgrade, and negatively to an offering preceding a rating downgrade. The result also confirms the work of Elayan, Maris et al. (1996) who noted a negative market reaction to firm placement on the negative Watch list by Standard and Poor's.

One result that might have been expected from the Event Study was a significant relationship between the change in the Corporate Credit Rating and the abnormal return. However the Event Study only showed a significant response to Corporate Credit rating Downgrades, and no response to Corporate Credit rating Upgrades. Both events are included in this variable, and the size of the non response to upgrades must be sufficient to offset the downgrade patterns.

Other noticeable results that are not evident, but not large enough to be significantly different to zero are a negative relationship between facility size and market response and a positive relationship between notching level and market response.

This indicates that firms with smaller bank facilities tend to get more negative announcement effects. This may be size specific as there is no correlation between facility size and S&P outlook, or facility size and Corporate Credit rating.

The result also indicates firms which provide high collateral on their loans to enhance Bank Loan Ratings may receive a positive market response.

Chapter 7

CONCLUSION

The Bank Loan market has undergone significant change in the last ten years, and this has brought into question the traditional role of the participants in that market. The role of banks has been traditionally seen as one of a financial intermediary that possesses an advantage in the acquisition and processing of information. The process of financial evolution has sent this role change as there have been new entrants to the bank loan market. The bank loan has transformed from a bi-lateral product to a capital market product, with banks as one of a number of institutions competing to sell the same products.

Rating agencies have provided an independent assessment of the risk of bank loans through Bank loan ratings. This paper tests the impact of Bank Loan Rating announcements on borrowing firm value.

The results confirm the hypothesis that Bank Loan rating announcements do not convey any new information to the market except insofar as they influence the Corporate Credit Rating.

Reasons for this are that firms subject to Bank Loan Rating analysis are also subject to an assessment of overall default via the Corporate Credit rating. This is most relevant to the market as it indicates the risk of default of the firm as a whole. It also incorporates exactly the same information as the Bank Loan Rating.

The research performed here re-confirms that provided by others researchers that indicates markets only react to credit rating downgrades.

The rating agency indicates the impact on firm default risk by providing a standardised measure of the default risk with regard to any new undertaking. This has lowered the incidence of abnormal results around bank loan announcements.

This result would indicate that Bank Loan rating announcements do not convey the same amount of new information to the market than Bank credit announcements. The reasons for this are unclear however.

The study does not indicate however if this result is due to the fact that firms rated by rating agencies have lower information asymmetry, if rating agencies act to convey information to markets more efficiently than banks, or if rating agencies have access to less new information than banks.

Further research can measure if there is a separate Bank debt credit announcement for firms with Bank Loan Ratings, and, if so, are significant returns are still received on those announcements. If not the rating process may be shown to have reduced the information asymmetry that originally provoked the bank loan response.

Our results showed that Standard and Poor's firm outlook influenced market response to Bank Loan Rating announcements.

BIBLIOGRAPHY

Bailey, J.M. "Bank Loan Rating Criteria in Hong Kong" *Standard and Poor's Credit Analysis Reference Disc*, 1999.

Barnish, K., S. Miller and M. Rushmore "The New Leveraged Loan Syndication Market" *Journal of Applied Corporate Finance*, 10 (1997), 79-88.

Best, R. and H. Zhang "Alternative Information Sources and the information content of Bank Loans" Journal of Finance, 48 (1993), 1507-1522

Best, R.W., "The role of default risk in determining the market reaction to debt announcements" *Financial Review* 32 (1997) 87-105

Bhattarcharya, S., and G. Chiesa. "Proprietary Information, financial intermediation, and research incentives." *Journal of Financial Intermediation* 4 (1995), 328-357.

Billet, M., M. Flannery and J. Garfinkel "The effect of lender identity on Borrowing firm's equity return" *Journal of Finance*, 50 (1995), 699-718

Campbell, T.S. and W.A. Kracaw. "Information Production and Market Signalling, and the Theory of Financial Intermediation." *Journal of Finance*, 35 (1980), 863-882

Cartledge, R. "Syndicated Loans – meeting today's needs" *The Treasurer* (04/2000), 34-35.

Chaffin, J. "Leveraged Finance – Gateway Financial Service" *Financial Times* (29/10/1999), 4.

Chandra, U. and N.Nayar, "The information content of Commercial Paper Rating Downgrades:Further Evidence" *Journal of Accounting, Auditing and Finance*, 13 (1998) 460-479.

1[1] Culp, C.L. and Neves, A.M.P., "Financial Innovations in Leveraged Commercial Loan Markets" *Journal of Applied Corporate Finance*, 11(2), (1998) 79-94

1[1] Datta, S., Iskandar-Datta, M. and A. Patel, "Bank Monitoring and the pricing of Corporate Public Debt" *Journal of Financial Economics* 51 (1999), 435-449.

1[1] DeGannaro, R.P., F.A. Elayan and J.W. Wansley "Information Content in Bank Lines of credit: Evidence from the Lender's Perspective" *Research in Finance* 17 (1999) 65-80.

Diamond, D.W. "Financial Intermediation and Delegated Monitoring." *Review of Economic Studies* (July 1984), 393-414.

Ederington, L.H. and J. Yawitz. "The Bond Rating Process" In *Handbook of Financial Markets and Institutions, 6th ed.*, E. Altman, ed., 1987 John Wiley and Sons, New York

Ederington, L.H. and J.C. Goh, "Bond Rating agencies and Stock Analysts: Who knows what when?" *Journal of Financial & Quantitative Analysis*, 33(4), (1998), 569-585.

Elayan, F.A., B.A. Maris and P.J. Young, "The effect of commercial paper rating changes and credit watch placement on common stock prices" *Financial Review* 31 (1996) , 149-167

Fama, E.F. "What's Different About Banks?" *Journal of Monetary Economics*, 15 (1985), 29-39.

Holthausen, R.W and R.W. Leftwich "The effect of Bond Rating Changes on Common Stock Prices" *Journal of Financial Economics*, 17 (1986), 57-89

Hsueh, P.L. and Liu, A.Y. "Market Anticipation and the effect of Bond Rating changes on Common Stock Prices" *Journal of Business Research*, 24(3), 1992, 225-239.

James, C. "Some Evidence on the Uniqueness of Bank Loans." *Journal of Financial Economics*, 19 (1987), 217-235.

Jensen, M.C., and C.W. Smith, Jr. "Stockholder, Manager and Creditor Interests: Applications of Agency Theory," in E.Altman and M. Subrahmanyam, eds., *Recent Advances in Corporate Finance* (Homewood, IL: Richard D Irwin, 1985), 93-131.

Kane, E and B. Malkiel "Bank Portfolio Allocation, Deposit Variability and the Availability Doctrine." *Quarterly Journal of Economics* 79 (1965), 113-134.

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

Leland, H.E., and D.H.Pyle. "Informational Asymmetries, Financial Structure, and Financial Intermediation" *Journal of Finance*, 32 (1977) 371-387.

Lummer, S.L., and J.J. McConnell. "Further Evidence on the Bank Lending Process and the Capital Market Response to Bank Loan Agreements." *Journal of Financial Economics*, 25 (1989), 99-122.

Mikkelson, W.H., and M.M. Partch. "Valuation Effects of Security Offerings and the Issuance Process." *Journal of Financial Economics.* 15(1986),31-60

Miller, S. "Bank Loan Ratings Surge: Leveraged Loans Come of Age as an Asset Class" *Standard and Poor's Credit Analysis Reference Disc,* 1997.

Nayar, N. and M.S. Rozeff., "Ratings, Commercial Paper and Equity Returns" *Journal of Finance,* 49(4), (1994), 1431-1449.

Pervaiz, A. and K.S. Walton, "Information Asymmetry and Valuation Effects of Debt Financing" *The Financial Review,* 30 (1995), 289-311.

Preece, D.C. and D.J. Mullineaux. "Monitoring by Financial Intermediaries: Banks vs. Nonbanks" *Journal of Financial Services Research,* 8(1994, 193-202.

Shepherd, W. "Spotting for the market – As leveraged loans become more like bonds, they're facilitating deals around the globe" *Investment Dealers Digest,* (6/12/1999),

Shyam-Sunder, L. "The stock Price effect of Risky Versus Safe Debt" *Journal of Financial & Quantitative Analysis,* 26(4) (1991), 549-558.

Slovin, M.B., M.E. Sushka and C.D. Hudson, "External Monitoring and it's effect on seasoned common stock issues" *Journal of Accounting and Economics,* 12 (1990), 397-417

Slovin, M.B., S.A. Johnson and J.L. Glascock, "Firm Size and the Information content of Bank Loan Announcements", *Journal of Banking and Finance,* 16, 1057-1071.

Smith, C.W. "Investment Banking and the Capital Acquisition Process." *Journal of Financial Economics,* 15(1986), 3-29.

VandeCastle, K and S Miller "Leveraged Loan Pricing – Ratings Matter." *Standard and Poor's Credit Analysis Reference Disc,* 1999.

Wakeman, L.M. "The real function of bond rating agencies" in Jensen, M.C. and Smith, C.W. Jr. *The Modern Theory of Corporate Finance,* 1984 McGraw Hill, New York

Weidner, D. "Syndicated Loans Gaining Leverage on Junk Bonds" *American Banker,* 11/02/2000, 3.

Yosha, O., "Information disclosure costs, and the choice of financing source" *Journal of Financial Intermediation,* 4 (1995), 3-20

APPENDICES

Appendix 1. Credit Rating Definitions[23].

Issue Credit Rating Definitions

(Editor's note: Effective Feb. 17, 1999, separate preferred stock rating definitions have been eliminated).

A Standard & Poor's issue credit rating is a current opinion of the creditworthiness of an obligor with respect to a specific financial obligation, a specific class of financial obligations, or a specific financial program (including ratings on medium term note programs and commercial paper programs). It takes into consideration the creditworthiness of guarantors, insurers, or other forms of credit enhancement on the obligation and takes into account the currency in which the obligation is denominated. The issue credit rating is not a recommendation to purchase, sell, or hold a financial obligation, inasmuch as it does not comment as to market price or suitability for a particular investor.

Issue credit ratings are based on current information furnished by the obligors or obtained by Standard & Poor's from other sources it considers reliable. Standard & Poor's does not perform an audit in connection with any credit rating and may, on occasion, rely on unaudited financial information. Credit ratings may be changed, suspended, or withdrawn as a result of changes in, or unavailability of, such information, or based on other circumstances.

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[23] source: http://www.standardandpoors.com/ratings/highyield/index.htm

Issue credit ratings can be either long-term or short-term. Short-term ratings are generally assigned to those obligations considered short-term in the relevant market. In the U.S., for example, that means obligations with an original maturity of no more than 365 days - including commercial paper. Short-term ratings are also used to indicate the creditworthiness of an obligor with respect to put features on long-term obligations. The result is a dual rating, in which the short-term rating addresses the put feature, in addition to the usual long-term rating. Medium-term notes are assigned long-term ratings.

Long-term issue credit ratings

Issue credit ratings are based, in varying degrees, on the following considerations:

1. Likelihood of payment - capacity and willingness of the obligor to meet its financial commitment on an obligation in accordance with the terms of the obligation;
2. Nature of and provisions of the obligation;
3. Protection afforded by, and relative position of, the obligation in the event of bankruptcy, reorganization, or other arrangement under the laws of bankruptcy and other laws affecting creditors' rights.

The issue rating definitions are expressed in terms of default risk. As such, they pertain to senior obligations of an entity. Junior obligations are typically rated lower than senior obligations, to reflect the lower priority in bankruptcy, as noted above. (Such differentiation applies when an entity has both senior and subordinated obligations, secured and unsecured obligations, or operating company and holding company obligations.) Accordingly, in the case of junior debt, the rating may not conform exactly with the category definition.

AAA

An obligation rated 'AAA' has the highest rating assigned by Standard & Poor's. The obligor's capacity to meet its financial commitment on the obligation is extremely strong.

AA

An obligation rated 'AA' differs from the highest rated obligations only in small degree. The obligor's capacity to meet its financial commitment on the obligation is very strong.

A

An obligation rated 'A' is somewhat more susceptible to the adverse effects of changes in circumstances and economic conditions than obligations in higher rated categories. However, the obligor's capacity to meet its financial commitment on the obligation is still strong.

BBB

An obligation rated 'BBB' exhibits adequate protection parameters. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity of the obligor to meet its financial commitment on the obligation. Obligations rated 'BB', 'B', 'CCC', 'CC', and 'C' are regarded as having significant speculative characteristics. 'BB' indicates the least degree of speculation and 'C' the highest. While such obligations will likely have some quality and protective characteristics, these may be outweighed by large uncertainties or major exposures to adverse conditions.

BB An obligation rated 'BB' is less vulnerable to nonpayment than other

speculative issues. However, it faces major ongoing uncertainties or exposure to adverse business, financial, or economic conditions which could lead to the obligor's inadequate capacity to meet its financial commitment on the obligation.

B

An obligation rated 'B' is more vulnerable to nonpayment than obligations rated 'BB', but the obligor currently has the capacity to meet its financial commitment on the obligation. Adverse business, financial, or economic conditions will likely impair the obligor's capacity or willingness to meet its financial commitment on the obligation.

CCC

An obligation rated 'CCC' is currently vulnerable to nonpayment, and is dependent upon favorable business, financial, and economic conditions for the obligor to meet its financial commitment on the obligation. In the event of adverse business, financial, or economic conditions, the obligor is not likely to have the capacity to meet its financial commitment on the obligation.

CC

An obligation rated 'CC' is currently highly vulnerable to nonpayment.

C

A subordinated debt or preferred stock obligation rated 'C' is CURRENTLY HIGHLY VULNERABLE to nonpayment. The 'C' rating may be used to cover a situation where a bankruptcy petition has been filed or similar action taken, but payments on this obligation are being continued. A 'C' also will be assigned to a preferred stock issue in arrears on dividends or sinking fund payments, but that is currently paying.

D

An obligation rated 'D' is in payment default. The 'D' rating category is used when payments on an obligation are not made on the date due even if the applicable grace period has not expired, unless Standard & Poor's believes that such payments will be made during such grace period. The 'D' rating also will be used upon the filing of a bankruptcy petition or the taking of a similar action if payments on an obligation are jeopardized. Plus (+) or minus(-): The ratings from 'AA' to 'CCC' may be modified by the addition of a plus or minus sign to show relative standing within the major rating categories.

r

This symbol is attached to the ratings of instruments with significant noncredit risks. It highlights risks to principal or volatility of expected returns which are not addressed in the credit rating. Examples include: obligations linked or indexed to equities, currencies, or commodities; obligations exposed to severe prepayment risk – such as interest-only or principal-only mortgage securities; and obligations with unusually risky interest terms, such as inverse floaters.

N.R.

This indicates that no rating has been requested, that there is insufficient information on which to base a rating, or that Standard & Poor's does not rate a particular obligation as a matter of policy.

Appendix 2: Standard and Poor's Announcement Date report and Bank Loan Rating Announcement example sheet

suer[LT/OL/ST])escription	Rating	Rating Date	Former Rating	CUSIP/ISIN No.
NET Inc. [A-/Stable/A-2]				
)0 mil 6 7/8% unsecd nts due 2004	A-	05-Oct-1999	A	053807AC7
)0 mil bank ln due 2000	A-	05-Oct-1999	A	
)0 mil bank ln due 2000	A-	22-Nov-1999		
50 mil 7 7/8% unsecd nts due 2005	A-	09-Feb-2000		053807AF0
۸)3 CP prog auth amt $400 mil	A-2	05-Oct-1999	A-1	

NET Inc.

ET's Rtgs Lowered by S&P;Off Watch

YORK (Standard & Poor's CreditWire) Oct. 5, 1999--Standard & Poor's today ered its ratings on Avnet Inc. (see list below). The ratings are removed n CreditWatch, where they were placed with negative implications on June 1999.

The downgrade reflects Standard & Poor's expectation that AVNET will ntain a more leveraged financial profile going forward.

The outlook is stable.

Phoenix, Ariz.-based AVNET's ratings reflect the company's leading istry position, diversified revenue base and good industry growth spects. AVNET is one of the world's largest distributors of electronic onents and computer products. While AVNET is well positioned to benefit n long-term growth prospects in the more than $30 billion global tronics distribution industry, cyclical weakness in electronic component ing and demand have negatively impacted profitability. AVNET's operating gin (before depreciation and amortization) is expected to remain below 6% he near term, compared with historical levels in excess of 7%.

Recently announced acquisitions are expected to be financed with a mix of and equity. AVNET is expected to maintain total debt to capital of about although near-term levels may be moderately higher. Debt protection ures should be adequate for the rating, although cyclical industry ness has negatively impacted interest coverage and cash flow measures in past two years. Financial flexibility is provided by a highly liquid nce sheet, and a $700 million credit facility.

OUTLOOK: STABLE

AVNET's strong market position and moderately leveraged financial profile ide downside protection. Competitive industry conditions limit the ntial for ratings improvement, Standard & Poor's said. -- CreditWire

NGS LOWERED AND REMOVED FROM CREDITWATCH

		To	From
T Inc.			
rporate credit rating		A-	A
ort-term corporate credit rating		A-2	A-1
nior unsecured debt		A-	A
nk loan rating		A-	A
mmercial paper		A-2	A-1
elf debt	(prelim.)	A-/BBB+	A/A-

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