An Empirical Analysis of the Effects of Market Response to Bank Loan Announcements in Hong Kong Stock Market

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Abstract

This research extends the study of Boscaljon and Ho[1] and test the effect of market response to bank loan announcement in the Hong Kong banking market after the 1997 Asian crisis. The study also investigates whether bank is still "special" in the financial market by comparing the market response to bank loan announcement and non-bank loan announcement. Finally, the study examines how loan characteristics influence the market response to bank loan announcement. The main findings of our study are consistent with the previous results documented for the U.S., Canada and Hong Kong markets, and further confirm the "uniqueness" of banks in the financial market. Moreover, we find that market response is significant positively related to borrower's debt ratio, and there is also a strong evidence of information leakage problem for non-bank loan announcements in the Hong Kong stock market.

1. Introduction

One of the reasons for financial intermediaries' existence is information asymmetries. According to Campbell and Krasaw,[2] the importance of financial intermediate is information transmission, which could reduce the information asymmetry and increase the market efficiency. As discussed by Diamond,[3] financial intermediaries could be very efficient in evaluating and monitoring borrowers. During the process of information transmission, the bank is theoretically and empirically believed to be able to provide unique services in the production of information.

During the information transmission process, the bank is believed to be able to provide unique services in the production of information and resolving the moral hazard problem. There are a large amount of theoretical and empirical studies discussing the issue of whether banks are "special".[4,5] Most of the earlier studies test the "uniqueness" of bank loans by examining the hypothesis that market response to bank loan announcement is different from publicly traded debt and non-bank loan announcement. The literatures confirm Fama[4] and James'[5] findings and suggest banks are more efficient in information gathering and monitoring borrowers. Bank loan announcement should convey valuable information to the market about the borrower's financial situation, and the market response to bank loan announcement positively.[4-8] Aintablian and Roberts[9] report that bank lending is different from non-bank lending (public debt and non-bank private placements) since bank could provide unique monitoring services, and bank loan announcements are associated with positive abnormal returns significantly higher than private placements and public debt. Therefore, banks have comparative advantages in information production and transmission.

James and Smith[10] revisited the issue and questioned the uniqueness role of bank. The authors find that banks are still "special" in providing "commitment based financing to corporations". However, Billett et al. [11] and Fields et al[12] both questioned the "special" role of bank and find the market response to bank loan announcement have diminished since the findings by James.[5] Fields et al[12] suggest the diminishing market reaction to bank loan announcement is consistent with the dramatic change in both financial market and information market.

Apart from comparing the market response to bank loan announcement, public traded debt and non-bank loan announcement have been employed to examine the uniqueness of bank. Several studies have also examined how the factors, such as borrower characteristics, lender characteristics, and loan characteristics could influence the market reaction to loan announcements.[6,13,14] In addition, the information content of bank loan announcement is also generated under different banking system compared to most of the studies in the US, Canada, and UK banking system.[9,15] For example, Boscaljon and Ho[1] investigate the information content of bank loan announcements of Asian firms prior to and after the 1997 Asian crisis. The authors examined the changes in the borrower-lender relationship and found lender quality is the most important factor that could influence the information content of bank loan announcements.

This research extends the study of Boscaljon and Ho[1] and test the effect of market response to bank loan announcement in the Hong Kong banking market after the 1997

Asian crisis. The study also investigates whether bank is still "special" in the financial market by comparing the market response to bank loan announcement and non-bank loan announcement. Finally, we examine how factors, such as loan syndication, loan purpose, loan maturity, debt ratio, firm size and borrower's industry type influence the market response to bank loan announcement. The main findings of this paper are consistent with the previous results documented for the U.S., Canada and Hong Kong market, and further confirms the "uniqueness" of bank in the financial market. Moreover, we find that market response is significant positively related to borrower's debt ratio, and there is also a strong evidence of information leakage problem for non-bank loan announcements in the Hong Kong stock market.

This paper is organized as follows. Section 2 reviews existing literatures on bank loan announcements. Section 3 describes the sample selection and methodology. The analysis of the empirical findings is discussed in Section 4. Section 5 discusses the results for regression analysis, and Section 6 presents the conclusions of the study.

2. Literatures on Bank Loan Announcement

As with any other business relation, Leland and Pyle[16] suggested that bank relationship involves information asymmetry and moral hazard problem. The bank-borrower relation enables them to obtain information not available to other providers of funds. Bank loan contract could also control the borrower's risk-taking propensity, especially in the form of collateral. Fama[4] also discusses the special role of bank, and states that a bank is "special" due to its comparative advantages in gathering information and monitoring debt contracts compare with other financial institutions. The author concludes there are two comparative advantages for bank loans. One is the relatively lower costs for monitoring firms, and the other is the convenience of accessing firms' private information.

James[5] provides a testable hypothesis to test the uniqueness of bank loans by comparing the stock price response among the publicly announced bank credit agreements, private placement and publicly placed debt. In James' finding, there is a non-negative stock price return for bank loan and non-positive stock price return for publicly placed debt which support Fama's argument. However, James[5] reported a non-negative stock price return for private placement. This result is similar to Mikkelson and Partch[17] finding, which is inconsistent with Fama's inside debt argument. Therefore, the inside argument could not completely explain the market reaction to bank loan announcement.[18]

Lummer and McConnell[6] expanded the research from James[5] and Mikkelson and Partch[17] and made a distinction between new bank loans and loan renewals. Their result suggests a positive stock price response to the bank loan announcements, and the authors explained that bank loan announcements could only convey information to the market after the establishment of an ongoing relationship, which is reflected in the loan renewal. In terms of loan maturity, James[5] argued there should be a more positive effect on the market reaction for shorter maturities, since shorter maturity loan could enhance the ability to renew which could increase the monitoring ability. James[5] argument is further confirmed by Aintablian and Roberts[9] and James and Wier.[19]

In addition to loan type and loan maturity, Preece and Mullineaux[13] investigated the impact of loan syndication on the market response to loan announcement. The authors formulated a contractual flexibility hypothesis that as the number of lender increases (syndication increases), the contracting costs will increase and the value of capacity to renegotiate (contractual flexibility) should decline. The capacity to renegotiate is considered as a value of the capacity of the firms to utilize financial situation. Therefore, Preece and Mullineaux[13] argued that there should be a negative relationship between the borrowing firms' abnormal returns and the syndicate size.

James[5] tested the excess returns for bank loan announcements by loan purposes and categorized the loan purposes into "repay debt", "capital expenditure", "general corporate purpose", "repay bank loans", and "no purpose given". Slovin et al.[14] also investigated this issue considering "future acquisitions." Both James[5] and Slovin et al.[14] did not find statistically significant result for the above categories except for the loans with general corporate purposes. Boscaljon and Ho[1], however, considered restructuring as an additional category and showed statistically positive result for capital expenditures, no specific purpose and repayment. In contrast, the authors did not find statistically significant result for general corporate purposes, which is not consistent with earlier findings.

Slovin et al.[14] discussed whether the share price responses to bank loan announcement differ between small firms and large firms. Since small firms have relatively short history, less reputation and the problem of moral hazard, therefore adverse selection for small firms is more significant. The authors suggested banks should investigate more on small firms for monitoring and evaluating. On the other hand, large firms are considered to be well monitored and have good reputations, therefore the banks have relatively less comparative advantage on evaluating and monitoring financial decision of large firms. Similarly, Wansley et al.[8] and Aintablian and Roberts[9] also reported that small firms receive greater benefit from banks' monitoring services, which confirmed the finding by Slovin et al.[14]

Chemmanur and Fulghieri[20] used a model to test the choice between bank loan and public traded debt for firms with consideration of the possibility of debt renegotiation in times of financial distress. The authors found that firms in financial distress preferred bank loan with a higher interest rate, and firms with lower probability in financial distress preferred publicly traded debt, because they could avoid competing with high risk firms in bank loans and are able to borrow at a lower equilibrium interest rate.

Best and Zhang[21] re-examined the role of bank loans by looking at not only information production from the bank perspective, but also from the financial analysts perspective, who is capable in evaluating and monitoring the borrowers' behavior. The analysts could gather and monitor information, and thus their services could be considered as a substitute for banks' services. The authors argued that the function of the financial analysts did influence banks' decisions on where to put their best evaluating and monitoring efforts. Banks would put more monitoring and investigating efforts on the borrower if the information of the borrower is initially signal-declining or the financial indicator is noisy and unclear. Their result is consistent with the Slovin et al.'s finding.[14]

Dahiya et al. [22] on the other hand tested the information content of the announcement of a sale of a borrower's loan by the lending bank. The authors suggested that when lenders sell a bank loan to the secondary market, they covey the information to the market as they are not satisfied with the borrowers' situation. Traders also believed that banks know some information which they do not know. This argument confirmed the uniqueness of bank loans suggested by James[5], and the hypothesis from Campbell and Kracaw, [2] Diamond,[3] and Fama,[4] which demonstrated that banks are insiders to the borrowers' information production, evaluation, and monitoring.

Fields et al.[12] revisited the study from Petersen and Rajan,[23] and suggested that the borrowers' information is capable to verify at a much lower cost due to the changes in the information market. The authors also questioned the validity of the information content conveyed by bank loans due to the recent changes in financial markets. The authors suggested that the value of certification provided by bank loans could be reduced, thus lessen the market reaction to the loan announcements.

Different banking environment is also evidenced to influence the market response to bank loan announcements. Armitage's study[15] on the U.K. stock market showed less responsive to loan announcement compared to the U.S. studies. Aintablian and Roberts's study[9] on Canada capital market showed similar result as the U.S. cases, and studies on China market from Bailey et al.[24] reported opposite results to previous studies due to its special politically controlled banking industry.

For the market efficiency of Hong Kong stock market, Wong et al. [25] investigated the abnormal returns associated with insider trading from 1991 to 1993 in the Hong Kong stock market. The authors reported that the abnormal profits associated with insider trading are concentrated on small firms, and insiders for medium-sized and large firms do not earn abnormal profits. The results indicated that Hong Kong stock market of medium and large size firms is efficient in both strong and semi-strong form of market efficiency, and market for small firms is only efficient in semi-strong form of market efficiency.

Wong[26] also found the insider trading problem in the Hong Kong stock market by testing the abnormal price and volume performances associated with corporate news announcements from 1994 to 2002. The author reported little inside trading activities for Hong Kong and the U.S. stocks in the Hong Kong stock market, but a significant inside trading activities in China-affiliated firms listed in the Hong Kong stock market. Cheuk et al. [27] also reported that insiders are able to earn profit from buy and sell activities in Hong Kong sock market.

3. Sample Selection and Methodology

The sample of loan announcements is obtained from the Hong Kong Stock Exchange Database. The database provides comprehensive announcements of all listed companies in Hong Kong Stock Exchange. Besides the full text of the loan announcement, Hong Kong Stock Exchange Database also provides the exact announcement date and time. This information provides a precise assessment of the announcement date. Market data used in this study are collected from the Data Stream Database.

Following the method employed by Billett et al.,[7] key words such as "credit agreement", "credit extension", "credit facility", "credit line", "new loan", "bank loan", and "term loan" are used to search the loan announcement for the period from 2002 to 2007. Initially a total of 606 announcements are obtained. According to Boscaljon and Ho,[1] any announcement which contains "contaminated information," such as information on dividends, earnings, stock issues, debt issues, divestitures, bankruptcy filings, management changes, joint ventures, stock repurchases, and asset sales are deleted from the initial sample. Further deletion is applied if the borrower is no longer a listed company in the Hong Kong Stock Exchange in 2008, or the announcement is announced by the parent company for the indirect/direct wholly/non-wholly owned subsidiaries. Another 24 observations are eliminated due to the incomplete daily stock return data from DataStream, and 14 more are deleted since the lenders are bank and non-bank with mixed loans. Therefore, the initial sample of 606 observations is reduced to 85 uncontaminated announcements, consisting 63 bank loan announcements and 17 non-bank loan announcements. Similar to the study by Aintablian and Roberts[9] in Canadian market and Boscaljon and Ho[1] in Hong Kong market, our sample size is much smaller than the earlier U.S. studies. This is due to the shorter time period, data availability, and the relatively smaller financial market capitalization.

Based on Lummer and McConnell's study,[6] loans are classified into new loans and renewal loans. Renewal loans are further divided into favorable renewals and unfavorable renewals based on the context of each announcement. Loan agreements are classified as new loans if it indicates it is new or does not indicate it is renewal. Due to the short period of the study, only 11 renewal loan announcements are obtained, including 1 bank loan favorable renewal, 1 bank loan unfavorable renewal, and 9 favorable renewals for loans from non-bank financial institutions. The small sample size in loan renewal also limited to further test between new loan and loan renewal.

Following Slovin et al.'s study,[14] firm size is classified by using the median market value/total assets of all listed firms in the Hong Kong Stock Exchange in that relevant year. The total sample is then divided into small and large groups. Firms are defined as small if the market value/total assets is less than the median market value/total assets or large if greater than the median value. Under this classification, 48 firms are grouped as large firms and 14 are grouped as small firms by market capitalization; 50 firms are grouped as large firms and 12 are grouped as small firms by total assets.

Based on the information content of announcement, 43 loans are classified as syndicated loan and 19 are considered as non-syndicated. However, the number of lenders for syndicated loan is not observable.

Following James[5] and Aintablian and Roberts,[9] loan size is adjusted into relative loan size by using the dollar value of loan size divided by total assets of the firm. Loan amount valued as foreign currency are converted into Hong Kong dollar at the exchange rate of that specific day of signing the loan contract. The exchange rate is obtained from the historical exchange rates in OANDA forex trading and currency

information database, which is one of the world's largest historical high frequency, filtered currency database.

Following the small sample and large number of mixed purpose loans, loan purposes are classified into four groups: "general purpose", "refinancing and capital expenditure mixed purpose", "no purpose stated", and "other purpose". Under this classification, 8 announcements are defined as general purposes, 24 as refinancing and capital expenditure mixed purpose loan announcements, 20 as no specific purpose, and 10 of the announcements are for other purposes.

Based on Bhushan's study,[28] firm's industry type is an important firm characteristics and Brumm[18] reported that industry type of borrowing firm could influence the market response to bank loan announcement. Industry types of sample firms were collected from PREFACE database. Firms' industry types that were not included in the PREFACE database are further obtained from the Hong Kong Stock Exchange website. Industry types include finance company, utilities, property, consolidated enterprises, industrial, hotel, and others. Industry groups are further classified into property, consolidated enterprise, industrial, and others.

Debt ratio is obtained by using total debt divided by total assets of the borrower following the methodology of Ongena and Roscovan.[29] The data for total debt and total assets are collected from DataStream Database. Loan maturity data is collected from the content of each announcement. Most of the bank loans are short term loan between 1 to 5 years. The total sample is then grouped into 3 categories: less than 3 years, 3 years, and longer than 3 years.

Daily return data and daily share prices are obtained from DataStream Database, as well as the information for total assets, market value, and total debts of the borrowing firms. Data for daily market return is obtained from the DataStream Database and the proxy for the market from the DataStream value-weighted market portfolio.

Standard market model of event study is employed in our study. Based on James[5], Armitage[15], and Boscaljon and Ho's studies,[1] our estimation period is 120 days starting from 130 days prior to the announcement date and ending at 10 days before the announcement date (as shown by period T_0, T_1 in Figure 1 below). The event period in this study is 21 days, which includes 10 trading days (-10) piror to the announcement date (t=0) to detect any information leakage and 10 trading days (+10) after the announcement to test the price adjustment.

Most of the U.S. studies tested the period from -1 to 0, 0 or from 0 to +1 as the event window. Mikkelson and Partch[17], James[5], and Lummer and McConnell[6] used the day the announcement appears in the Wall Street Journal as the event date. They assumed the announcements are made during trading hours of the previous day and reported with one-day lag. Based on this methodology, the event window they choose is days (-1,0). Following the previous studies, our event window is defined as (-1,0) to detect the market response to bank loan announcement.
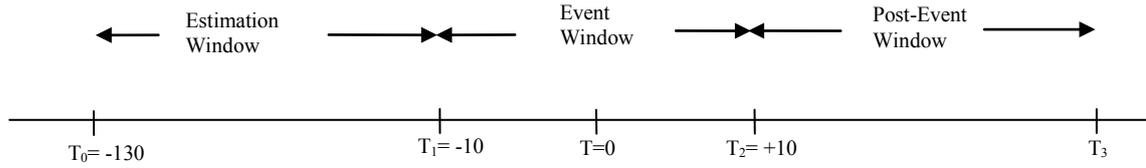
Figure 1. Event Study Timeline for Loan Announcement

If there is a favorable market response to loan announcement, a positive abnormal return is expected for the borrower's stock. Abnormal return is defined as the difference between the actual return during the event window and the expected normal return (the return expected if the event did not take place) estimated over the estimation period. The expected normal return is generated by the market model of event study.

On the other hand, there is a possibility of information leakage before the announcement is made. For example, James[5] and Armitage[15] both considered the information leakage problem in the process of market response to bank loan announcements in the U.S. market and use 41-trading-days event period in their research. Armitage tested this problem by calculating cumulative average standardized abnormal returns for the period of –11 to -2.[15] However, their results are not significant, which indicate there is little or no leakage of loan information.

Wong et al. [25] and Wong[26] investigated the abnormal returns associated with insider trading in the Hong Kong stock market. By testing the abnormal returns during the pre-announcement period, this study reveals further evidence on the inside trading activities in the Hong Kong stock market. Following James[5] and Armitage's information leakage theory and methodology, [15] according to Research Question One, the cumulative standardized abnormal returns (CSARs) are calculated for days –10 to –2 to detect any information leakage.

Market model is used in our research to test the abnormal returns from the bank loan announcements. The model is given as follows:

$$R_{jt} = \alpha_j + \beta_j R_{mt} + \varepsilon_{jt} \tag{1}$$

Where R_{jt} is the rate of return on security j on day t, α_j and β_j are market model parameters for firm j estimated by OLS regression, R_{mt} is the rate of return on the value-weighted market index on day t and ε_{jt} is the random error term for security j on day t. Based on Fama[30], Beja[31], and Fama,[32] the estimation assumes the joint distribution of the returns is stationary throughout time.

The abnormal return for firm j on day t is calculated as follows:

$$AR_{jt} = R_{jt} - (\alpha_j + \beta_j R_{mt}) \tag{2}$$

Where AR_{jt} is the abnormal return on security j on day t. The significance test of abnormal returns is based on standardized abnormal returns (SAR$_{jt}$). Standardized abnormal return is calculated as follows:

$$SAR_{jt} = \frac{AR_{jt}}{S_{jt}} \tag{3}$$

Where S_{jt} is the standard error of the abnormal returns based on the prediction error adjustment. S_{jt} is calculated as follows:

$$S_{jt} = \sqrt{V_j^2 C_{jt}} \tag{4}$$

Where V_j^2 is residual variance of firm j's market model regression, C_{jt} is the increase in variance due to prediction outside the estimation period. C_{jt} is calculated as follows:

$$C_{jt} = \sqrt{\left(1 + \frac{1}{T} + \frac{(R_{mt} - \overline{R_m})^2}{\sum_{i=1}^{T}(R_{mi} - \overline{R_m})^2}\right)} \tag{5}$$

Where $\overline{R_m}$ is the mean market return over the estimation period, R_{mt} is the market return during event period, R_{mi} is the market return during estimation period, and T is the number of days in the estimation period for firm j. T could be different among different firms.

Abnormal returns are aggregated to obtain the general market response to bank loan announcements. Abnormal returns are summed (cumulative abnormal returns) for multiple event windows to test the market efficiency, and cross securities by different groups for day (-1,0) to test the factors that could influence the market response to loan announcement. During the aggregation process, it is assumed that there is no clustering or overlapping in the event windows of the included securities. The absence of clustering or overlapping shows that the abnormal returns or the cumulative abnormal returns will be independent across securities.

The average standardized abnormal return for the portfolio is calculated as follows:

$$ASAR = \frac{1}{N} \sum_{j=1}^{1} SAR_{jt} \tag{6}$$

Where N is the number of loan announcements. ASAR for firm j on $t_1 = -1$ and $t_2 = 0$ are summed to generate the two-day cumulative average standardized abnormal returns (CASAR) and is defined as follows:

$$CASAR_{(t_1, t_2)} = \sum_{t_1}^{t_2} ASAR_t \tag{7}$$

By assuming that individual abnormal returns are cross-sectionally independent and normally distributed, t-statistic could be tested as follows:

$$T = \sqrt{N} CASAR_t \tag{8}$$

Under the null hypothesis of no announcement effect, the average standardized two-day abnormal return ($ASAR_{-1,0}$) of N loan announcements is distributed N $(0,1/\sqrt{N}$) Ho: $CASAR_t = 0$ The sign of the $CASAR_t$ will indicate whether the abnormal return is positive or negative. The full sample is classified into sub-groups by lender identity, syndication, loan purpose, borrower's industry type, firm size, loan size, loan maturity, and debt ratio to further investigate the factors that could influence the market response to bank loan announcement.

4. Empirical results
4.1 Market response to loan announcements

Two forms of method are available for testing the efficiency of the market, strong form and semi-strong form. The strong form efficiency tests whether insiders could earn abnormal profits by using non-public available information and the semi-strong form efficiency test whether non-insiders could earn abnormal profit from the information publicly available.[26] Based on Wong[26] and Wong et al. [25] studies and since the data for stock trade volume is not available in our study, we apply only the semi-strong efficiency test in our study.

As shown in Table 1 Panel A, for the share price movement before the announcement date, the excess abnormal returns for the period (-10,-2) is significant for non-bank loan announcement. Armitage[15] discussed the information leakage problem when testing the market response to bank loan announcements in the U.K. market. The author suggested if there is any information leakage, abnormal return should appear in the pre-announcement period. Non-bank loan announcement with a value of 2.51 is significant at the 0.05 level of significance in the pre-announcement period (-10,-2). This suggested a strong information leakage problem about the non-bank loan announcement. In terms of bank loan announcement, the CASAR is not statistically significant in the pre-announcement period, which does not indicate any information leakage problem.

For the period -1 to 0, both full sample and bank loan announcement have significant CASARs. The result for non-bank loan announcement is not statistically significant as shown in Table 1 Panel B.

Table 1.   Cumulative Average Standardized Abnormal Return (CASAR) for for the following event period days: -10 to -2 and -1 to 0 for the full sample, bank loan announcements and non-bank loan announcements

Panel A: CAARs, CASARs and the T-Stats for Event Days -10 to Day -2

	CAAR (-10,-2) (%)	CASAR(-10,-2)	t Statistics
Full Sample	0.36	0.0993	0.88
Bank Loan	-0.68	-0.0403	-0.31
Non-Bank Loan	4.14	0.6084	2.51**

Panel B: CAARs, CASARs and the T-Stats for Event Days -1 to Day 0

	CAAR (-1, 0) (%)	CASAR(-1,0)	t Statistics
Full Sample	1.16	0.2399	2.13**
Bank Loan	0.97	0.2595	2.04**
Non-Bank Loan	0.18	0.1684	0.69

CAAR: Cumulative Average Abnormal Return
CASAR: Cumulative Average Standardized Abnormal Return
* Significant at 10% level ** Significant at 5% level *** Significant at 1% level

Wong et al.[25] also reported a significant insider trading activities for the firms in Hong Kong stock market. The authors reported an average cumulative abnormal return of 1.85% for the period −5 to −1. In addition, Wong[26] examined the efficiency of the Hong Kong stock market and reported strong insider-trading activities among the listed firms. The author reported that the price increases significantly around day −10 and reach almost 10% at the announcement date.

Table 2 shows the results of the stock price response to loan announcements for the full sample. The average excess return for all bank loans is 0.9% and is statistically significant at the 0.05 level of significance. In addition, based on the 62 observations (one unfavourable bank loan announcements is excluded), 50% of the excess returns are positive. The average excess return for non-bank loan announcement is 1.86%, which is not statistically significant. The results suggest that bank has comparative advantage in gathering information and monitoring debt contract compare with other financial institutions. Thus bank loan announcements should convey valuable information to the market and the market should react favourable to bank loan announcements. This result is consistent with Fama's inside debt argument.[4]

Based on Fama's insider debt argument, both bank loans and non-bank loans are inside debts, and the market react to both type of loans significantly positive. Inconsistent with Fama's inside debt argument, Mikkelson and Partch[17] and James[5] reported insignificant excess return to non-bank loan announcement. Consistent with Mikkelson and Partch[17] and James,[5] average excess return for non-bank loan is found insignificant in our study. Our result further confirms the uniqueness role of bank in financial market.

4.2 Results based on loan characteristics

Panel B in Table 2 shows the results for two-day CASAR and AR for the sample divided by loan characteristics based on the sample of favourable bank loan announcement.

Bank loan announcements are first categorized by loan syndication. Rajan[33] and Houston and James[34] reported a positive relationship between loan syndication and abnormal return. They both explained that single lender may cause information monopoly which may lead to hold-out problems. Multiple lenders could reduce hold-out problems and enhance contractual flexibility. Recent research from Le[35] examined the impact of syndicated loan announcements on the share price of the borrowing firms in the U.S. market, and reported that syndicated loans elicit positive market reaction. Our result is consistent with the finding from Rajan[33], Houston and James[34],

and Le.[35] A significant positive abnormal return of 1.24% is found for syndicated loan with a t-value of 2.473 and statistically significant at the 0.01 level of significance. The abnormal return for non-syndicated bank loan is 0.37% and is not statistically significant. The results indicate that the Hong Kong stock market reacts positively to syndicated bank loans.

In terms of loan size, Slovin et al. [14] examined the loan size effect to the market response to bank loan announcement, but their result is insignificant. Aintablian and Roberts[9] also tested the loan size factor and found a negative relationship between the loan size and the abnormal returns. Our research result is consistent with Aintablian and Roberts's findings.[9] The two-day excess return for large size loan is 1.4% with a t-value of 0.699, but not statistically significant. For small size loan, the abnormal return is 0.7% with a t-value of 1.999, and is statistically significant at the 0.05 level of significance. It suggests that the bank has more information advantage for small size loan.

In the third section of Panel B in Table 2, we classify the observations by loan purpose. Consistent with Boscaljon and Ho's findings,[1] the abnormal return for loans with general purpose is not statistically significant. The two-day excess return is 0.3% and t-value is 0.185. The abnormal returns for refinancing and capital expenditure group and no specific purpose are 1.55% and 0.7% with a t-value of 1.426 and 1.936, and statistically significant at the 0.1 level and the 0.05 level of significance respectively. Excess returns for other purpose category is not statistically significant.

We further categorize bank loan announcements by loan maturity. According to James' study,[5] short-term debt is associated with less risk compared to longer term debt, and expect greater excess returns for shorter maturity loan. However, James's result for loan maturity hypothesis is insignificant. James and Wier[19] found a negative effect on the market reaction for loan maturity. Aintablian and Roberts[9] also reported a positive effect of shorter maturity loan to the excess returns.

Our results are consistent with James loan maturity argument.[5] Bank loans with maturity of less than 3 years have a positive abnormal return of 2.47% with a t-value of 2.063 and statistically significant at the 0.1 level of significance. The abnormal returns of loans with maturity equal and longer than 3 years are not statistically significant, which failed to confirm the negative effect on market react to longer maturity loans.[19,9]

4.3 Results based on Borrower Characteristics

Panel C in Table 2 shows the CASAR and AR results for the period −1 to 0 with relevant t-values for the sample divided by borrower characteristics based on favourable bank loan announcement.

Ongena, Smith and Michalsen[36] suggested industry type could be a factor to influence market response to bank loan announcement. Boscaljon and Ho[1] grouped industry types as computer, conglomerate, real estate, construction, and chemistry. The authors reported a significant positive abnormal return for computer industry and a significant negative abnormal return for construction industry. Consistent with Cheuk et al.[27], following the classification of PACAP database, the types of industry in our study is

divided into property, consolidated enterprises, industrial, and others. Our result shows significant positive abnormal returns in property and industrial groups. The mean excess returns are 2.1% and 1.5% with t-value of 2.086 and 1.836 respectively and are statistically significant at the 0.05 level of significance. The results for consolidated enterprises and others are not statistically significant.

With regard to firm size, the two-day excess returns for small and large firms are 3.4% and 0.4% with t-values of 2.009 and 1.291 respectively. The result for small firms is statistically significant at the 0.05 level of significance and not statistically significant for large firms (see Table 2 Panel C). Our results are consistent with previous studies. For example, Slovin et al.[14] concluded that monitoring services associate with private information structure of bank loans have a greater value for small firms than large firms. Wansley et al.[8] and Aintablian and Robert[9] confirmed that small firms receive more benefit from bank monitoring services. Slovin et al.[14] explained that small firms have relatively more severe moral hazard and adverse selection problem. Moreover, compare to large firm, small firm has relatively shorter history, less information generated, and poor reputation. Therefore, the authors concluded the screening and monitoring services offered by bank is more valuable for small firms. Recent research by Andre et al.[37] also found market response to loan announcements is more significant for small firms than large firms.

Similar test is evaluated under the total asset classification for firm size. Our results are consistent with previous tests.[14,8,9] The two-day excess returns for small firms are 2.99% with a t-value of 1.681 and 0.39% with a t-value of 1.414 respectively, both statistically significant at 0.1 level of significants and confirm market response is more significant for small firms.

Bank loan announcements are further classified based on the level of debt ratio. The two-day excess returns for high debt ratio are 2.22% with a t-value of 3.148 and statistically significant at the 0.01 level of significance. The abnormal return for low debt ratio is −0.05% with a t-value of −0.098 and not statistically significant. No previous study has examined the market response to bank loan announcement from the borrower's debt ratio perspective. However, Bhandari[38] tested the relationship between DE ratio and stock expected returns by combining DE ratio with the CAPM, and reported a coefficient of 0.13% for DE ratio and is significantly positive. Bhandari[38] explained that as the DE ratio increase, the common equity of the firm also increase, including the risk involved, therefore, a positive relationship is expected between DE ratio and stock expected returns.

Debt ratio measures the leverage of the firm, and the level of leverage is often a measurement for the risk level of the firm. Moreover, the high debt ratio indicates the total debt relative to firm's assets is high, which means a bigger burden for the firm. In addition, interest payment for the debt would take a bigger amount in firm's cash flows. Firm would also carry more risk for the increase of interest rate. The high debt ratio then could indicate that firm could take more advantages from the extra risk taken. On the other hand, low debt ratio indicates a low degree of leverage. Firm have relatively smaller burden for paying back the debt. However, low debt ratio also indicates that firm has an opportunity to use leverage as a means of responsibly growing the business that it is not taking advantage of. Therefore, low expected excess return is expected with low debt ratio. Consistent with the explanation from

Bhandari,[38] the two-day excess returns for higher debt ratio borrower is significantly positive, but lower debt ratio borrower is statistically insignificant, which confirms the significant positive relationship between debt ratio and the excess returns to bank loan announcements. Based on the results, the Hong Kong stock market reacts positively to borrowers with higher debt ratio for the bank loan announcement.

Table 2.   Cumulative Average Standardized Abnormal Return (CASAR) for Event Day -1 to 0

Categories	N	CAAR (%)	CASAR	T-Statistics	Percent positive AR	Percent positive SAR
Panel A: Full Sample disaggregated by Lender Characteristics						
Bank Loan	62	0.90	0.259	2.043**	50.00%	50.81%
Non-Bank Loan	17	1.86	0.168	0.694	64.17%	59.50%
Panel B: Sample of Bank Loans disaggregated by loan Characteristics						
By Syndication						
Syndicated	43	1.24	0.377	2.473***	55.81%	51.10%
Non-Syndicated	19	0.37	-0.007	-0.029	36.84%	50.00%
By Loan Size (Relative Loan Size)						
Large	20	1.40	0.156	0.700	55.00%	55.00%
Small	42	0.70	0.309	1.999**	47.62%	47.62%
By Loan Purpose						
General	8	0.30	0.065	0.185	37.50%	50.00%
Refinancing and Capital Expenditure	24	1.55	0.291	1.426*	50.00%	50.00%
No Specific Purpose	20	0.70	0.433	1.936**	55.00%	55.00%
Others	10	-1.00	-0.008	-0.026	40.00%	50.00%
By Loan Maturity						
< 3 year	4	2.47	1.032	2.063*	75.00%	62.50%
3 year	18	-0.10	0.063	0.268	50.00%	47.22%
> 3 year	32	1.30	0.198	1.122	43.75%	47.54%
Panel C: Sample of Bank Loans disaggregated by Borrower Characteristics						
By Industry						
Property	7	2.10	0.789	2.086**	42.85%	57.14%
Consolidated Enterprises	14	-0.90	-0.133	-0.497	50.00%	46.43%
Industrial	33	1.50	0.320	1.836**	48.49%	51.52%
Others	8	1.20	0.235	0.665	62.50%	50.00%
By Firm Size (Total Asset)						
Large	50	0.40	0.183	1.291	46.00%	50.00%
Small	12	3.40	0.580	2.009**	66.67%	54.20%
By Firm Size (MV)						
Large	48	0.39	0.204	1.414*	45.83%	48.96%
Small	14	2.99	0.449	1.681*	64.29%	57.14%
By Debt Ratio						
High	28	2.22	0.595	3.148***	60.71%	57.14%
Low	34	-0.05	-0.017	-0.098	41.18%	45.59%

CAAR: Cumulative Average Abnormal Return
CASAR: Cumulative Average Standardized Abnormal Return

* Significant at 10% level
** Significant at 5% level
*** Significant at 1% level

4.4 Insider Trading

There is a significant information leakage and inside trading activity before the announcement date for non-bank loan announcement. The excess return for the pre-announcement period (-10,-2) is 4.14% with a t-value of 2.51, and statistically significant at the 0.05 level of significance (see Table 1 Panel A). The excess return from day -10 to day -2 is not statistically significant for bank loan announcement. Therefore, there is no evidence of information leakage problem for bank loan announcement, but a strong information leakage and inside trading activity for non-bank loan announcement during the pre-announcement period (see Table 1 Panel A).

Wong et al. [25] and Cheuk et al. [27] tested the insider trading in the Hong Kong stock market and reported that abnormal price performance associated with insider trading are concentrated on smaller firms. Our result is consistent with Wong et al. and Cheuk et al.'s findings.[25,27] Following Wong et al.[25] and Cheuk et al.'s study,[27] our research sample is divided into two equal parts according to firm size, which is measured by market capitalization and the insider trading period is defined from days -10 to -2. Our result showed the average excess return in period -10 to -2 for small firms is 7.1% with a t-value of 2.66, and statistically significant at the 0.05 level of significance. For large firms, the abnormal return is 0.8% with a t-value of 0.83, and is not statistically significant (see Table 3 Panel A).

Since the separation of management and ownership is rare for small firms, managers or owners are more informed about the business situation of their own firms, insider trading which involves the director of small firms are most likely to be profitable.[27]

Wong[26] investigated the insider trading problem in the Hong Kong stock market and concluded very little unusual price and volume behaviour for both Hong Kong and the U.S. stocks. However, Wong's result showed a strong evidence of insider-trading activities among the Red-Chips and H-Share stocks of the China-affiliated firms listed in the Hong Kong stock market. Our result also confirms the finding from Wong.[26]

The average excess return from day -10 to -2 is 0.3% for China-affiliated firms with a t-value of 2.80, and is statistically significant at the 0.05 level of significance. For non-China-affiliated firms, the average excess return is 2.3% with a t-value of 1.31 and is not statistically significant (see Table 3 Panel B).

Table 3.   CAARs, CASARs, and the T-Stats for Event Days -10 to Day -2 (For Non-Bank Loan Announcement disaggregated by Firm Size and Firm's Location)

Categories		Number of Observation	CAAR (%)	CASAR	T-Statistics	Percent positive Abnormal Returns
Panel A:	**Sample disaggregated by firm size**					
	small firm	9	7.1	0.88	2.66**	77.78%
	large firm	8	0.8	0.29	0.83	50.00%

Panel B:	Sample disaggregated by firm's location					
	non-China-affiliated	13	2.3	0.36	1.31	61.54%
	China-affiliated	4	0.3	1.40	2.80**	75.00%

CAAR: Cumulative Average Abnormal Return
CASAR: Cumulative Average Standardized Abnormal Return
** Significant at 5% level
*** Significant at 1% level

Based on Wong[26], severe poor disclosure, low transparency, and relation-based system problem existed for Chinese firms' entities. Therefore, although these firms are listed in the Hong Kong stock market, since the parents of both Red-Chips and H-shares are regulated from Beijing, the Hong Kong Securities, and Futures Commission could not sufficient regulate these firms, and the insider trading problem is more severe for China-affiliated firms listed in Hong Kong stock market.

5. Regression Analysis

We estimate a multivariate regression for the 62 bank loan announcements with a two-day announcement period (-1, 0), and using standardized excess return as the dependent variable. The regression analysis could validate the results from the earlier tests (see Table 2) in two ways. First, the problem of small sample sizes in the earlier tests could be avoided by employing dummy variables. Second, the joint test on all major variables studied addresses the problem of potential interdependencies between the loan characteristic variables.

The independent variables, $D_1, D_2, D_3,$ and $D_4,$ are dummy variables representing (1) if the loan is a syndicated loan (2) the if loan is for refinancing purpose loan, (3) if the loan has no specific purpose, and (4) if the loan is for other purposes, or zero otherwise.

$D_5, D_6, D_7,$ and D_8 are dummy variables presenting (1) if the borrower is property industry type, (2) if the borrower is industrial industry type, (3) if the borrower is other industry type, and (4) if the borrower is large sized firm, or zero otherwise. $X_1, X_2,$ and X_3 are continuous variables. X_1 indicates the relative loan size defined as loan size divided by the market value of the firm, X_2 is loan maturity, and X_3 is the debt ratio defined as total debt divided by total asset of the firm.

The regression results are presented in Table 4. The first four dummy variables ($D_1,$ $D_2, D_3,$ and D_4) test whether the loan syndication and loan purpose could affect excess returns. The coefficient for loans with refinancing purpose and no specific purpose is 1.1967 and 1.2784, with t-values of 1.933 and 2.061, respectively and both are statistically significant at the 0.05 level of significance. Our result shows that excess returns are significantly higher when the loans are for refinancing purpose and no specific purpose. This support the finding of Boscaljon and Ho[1] and the results tested in the earlier tests.

$D_5, D_6,$ and D_7 show test how the borrower's industry type could influence the market response to bank loan announcement. According to Table 4, the coefficients for property industry and industrial industry are 1.609 and 0.931, with t-values of 2.84 and 2.32 respectively, and both are statistically significant at the 0.05 level of

significance. The results indicate that the excess returns are significantly positive and higher for borrowers with "property" and "industrial" industries. After eliminating the problem of small sample size by using dummy variables, the regression results further support the finding in the previous tests, where only property industry and industrial industry have statistically significant abnormal returns (see Table 2).

Moreover, the significance of D_8 suggests that small firm size is associated with more excess returns. The coefficient for D_8 is -0.7322 with a t-value of -1.37, and statistically significant at the 0.1 level of significance. The significant negative coefficient further confirms the negative relationship between the borrower's firm size and excess returns. This enhances the argument by Slovin et al., Wansley et al., and Aintablian and Robert.[14,8,9] The authors suggested that small firms have relatively higher moral hazard and adverse selection problem, lower reputation and less information produced, therefore, small firms receive more benefit from bank screening and monitoring services than large firms.

The variable X_1 tests the relationship between loan size and the market response to bank loan announcement. The coefficient of X_1 is -0.0006, with a t-value of -1.364, and statistically significant at the 0.1 level of significance. The significant negative coefficient of loan size suggests that smaller size loan is associated with larger excess returns and can be explained by the risk consideration. Risk increases as the size of loan increases, and market response to larger size loan negatively.[39] Our regression result is consistent with the results in earlier tests, where small size loan has a significant positive abnormal returns. In addition, our regression result further confirms the finding of Aintablian and Roberts that larger loans are associated with smaller excess returns.[9]

The variable X_3 is debt ratio calculated using total debt divided by total asset. The coefficient is 3.366 with a t-value of 2.568, statistically significant at the 0.05 level of significance. The significant positive coefficient indicates that higher debt ratio is associated with a higher excess returns. The abnormal return for borrowers with high debt ratio is statistically significant at the 0.05 level of significance and not statistically significant for borrowers with low debt ratio. The coefficient further confirms the positive relationship between debt ratio and excess returns. It also confirms the finding of Bhandari that DE ratio is significant and positively related to stock expected returns.[28]

Table 4. **Results of Regression of Standardized Abnormal Returns on various Standardized Dummy Variables for a Sample of 63 Bank Loans**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Intercept	-1.9762	0.9371	-2.1089	0.041
Adjusted R-squared	0.1311			
D1	0.1211	0.4257	0.285	0.7774
(1 if syndicated loan,0 otherwise)				
D2	1.1967	0.6191	1.933**	0.06
(1 if refinancing purpose, 0 otherwise)				
D3	1.2784	0.6202	2.06**	0.0455
(1 if no specific purpose, 0 otherwise)				

D4	1.0092	1.3546	0.75	0.4604
(1 if other purpose, 0 otherwise)				
D5	1.6090	0.5676	2.84**	0.007
(1 if property industry type, 0 otherwise)				
D6	0.9310	0.4009	2.32**	0.0251
(1 if industrial industry type, 0 otherwise)				
D7	0.3497	0.5650	0.62	0.5393
(1 if other industry type, 0 otherwise)				
D8	-0.7322	0.5348	-1.37*	0.1782
(Yearly market capitalization)				
X_1	-0.0006	0.0004	-1.364*	0.1799
(loan size divided by market capitalization)				
X_2	0.0349	0.1336	0.2616	0.7949
Loan Maturity				
X_3	3.3660	1.310686	2.568**	0.0139
(total debt divided by total asset)				

R^2: 0.093
F-statistic: 4.54
Durbin-Watson statistics: 1.46

* Significant at 10% level
** Significant at 5% level
*** Significant at 1% level

6. Conclusions

Our results show that the Hong Kong market response to bank loan announcement is positively significant, but insignificant for non-bank loan announcement. Furthermore, our results show no evidence of information leakage problem for bank loan announcement, and no continuous abnormal return during the post-event period. In addition, the abnormal return only occurred during the two-day event window. Our results confirm the findings from previous studies, [5,17,9] which suggested banks are "special" in financial market based on the comparative advantages in screening and monitoring borrowers by accessing borrowers' private information not available to other market participants. Our results also indicate that the Hong Kong stock market is efficient in both strong form and semi-strong form for bank loan announcement. For non-bank loan announcement, there is a strong evidence of information leakage problem.

We test the special role of bank in Hong Kong financial market by comparing the difference between the market response to bank loan announcements and non-bank loan announcements. Our results suggest that the Hong Kong market response to bank loan announcements is statistically positively significant at the 0.05 level of significance, whereas, the abnormal return for non-bank loan announcements is not statistically significant. The result further confirms the uniqueness role of bank in Hong Kong financial market.

In addition, market response to bank loan announcements could be partially explained by loan maturity, loan purpose, loan size, borrower's firm size, borrower's debt ratio, and borrower's industry type. Our results demonstrate that Hong Kong market response to bank loan announcement is positively related to loan syndication, shorter

maturity loan, refinancing and capital expenditure purpose bank loan, no specific purpose bank loan, borrower's debt ratio, borrowers with property industrial type and borrowers with property industry type. The market on bank loan announcement reacts negatively to borrowers' firm size and loan size. These results are generally consistent with existing literatures.[5,17,33,14,9,1] Our results show consistent findings under a different banking system and environment are robust for the Hong Kong market compared to previous studies conducted in the US, Canadian, and the U.K. market.

However, the low R^2 value in regression model reveals that there are other variables which could also influence market response to bank loan announcement. For example, loan type (new loan or renewal loan), lender reputation, and borrower reputation are not included in our study which could potentially influence the market response to bank loan announcement.

There are certain limitations in our study. First, the only data source used in our research is the Hong Kong Exchange database (HKEX). This limits the number of loan announcements obtained for our study. In addition, the requirement for announcement submission of soft copy is only mandatory for all listed companies after February 15, 2002 for HKEX database, and this limits our research period from May 1st, 2002 to December 31st, 2007. Based on the relatively short testing period, the number of renewal loan announcements obtained is quite small. This limits the test of Fama's renewal hypothesis,[4] which compared the market response between new bank loan announcement and renewal bank loan announcements.

Small sample size is another limitation in our study. The initial number of loan announcements obtained is 606. However, further deletion is proceeded to select "clean" loan announcements, which results in 63 bank loan announcements and 17 non-bank loan announcements as our final research sample. The small sample size is consistent with the relatively smaller market capitalisation in Hong Kong stock market compared to the U.S. market. The sample size could be increased by expanding research period and using multiple data source, however, both of these two solutions are limited in the HKEX database.

The lack of data for pre-announcement period is another limitation. Our results indicate there is a strong information leakage problem for non-bank loan announcement. Based on the studies from Wong et al.[25] and Wong,[26] in order to test whether insiders could earn profits based on the information not publicly available during the pre-announcement period, data of stock trade price and stock trade volume are needed. Since the data for stock trade price and volume are not available, we could not test the strong-form of market efficiency for non-bank loan announcement.

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