

**Market Reaction to Corporate Loan Announcements  
and Mergers of Financial Institutions :  
The Canadian Evidence**

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in partial fulfillment of the requirements  
for the degree of  
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by

Sebouh Aintablian

a dissertation submitted to the Faculty of Graduate Studies of  
York University in partial fulfillment of the requirements for the  
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## **Abstract**

In this thesis, we conduct three empirical studies examining market response to corporate loan announcements in Canada, the relationship between lender environmental liability and bank loan announcements, and the market response to announcements of mergers of Canadian financial institutions.

The first study validates the key results of prior studies of bank loan announcement effects using a common data set drawn from the Canadian capital market. Announcements of bank loans are associated with positive abnormal returns significantly higher than for private placements. Announcement effects are most pronounced when monitoring is most intense and when an announcement signals that the bank's private information is favorable. Conclusions of prior studies on bank loan announcements, conducted exclusively on U.S. data, are robust for a different banking system.

The second study re-examines loan announcement effects to establish a relationship with environmental liability. We find that the market reaction to the announcement of bank debt to "environmental" firms is more positive and significant than for "non-environmental" firms. This implies that, for firms with exposure to environmental hazards, the announcement of bank debt is "extra good news". Within the class of "environmental" firms, the market reaction to announcements by firms in industries with a higher likelihood of experiencing spill events is more positive and

significant than for those with lower likelihood. This study provides further evidence on the “uniqueness” of bank loans, by demonstrating the superior monitoring capacity that banks possess with respect to corporate borrowers that are exposed to environmental liability.

The third study examines a sample of mergers of Canadian financial institutions to determine whether those mergers are value-enhancing. The overall results support the generality of findings of prior U.S. studies that the average abnormal return for both the acquiring and target firms is positive and statistically significant. This result suggests that acquisitions in the financial industry are, in Canada as elsewhere, driven by value-maximizing motivations. The study also shows that acquiring institutions’ shareholders benefit more when the acquisition is of a similar type. Finally, we find that foreign acquisitions add less value for Canadian banks than do domestic ones.

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## **Chapter 1**

### **Introduction**

The banking industry is experiencing enormous changes. The role of the financial intermediary takes new forms as traditional products and services evolve rapidly in a global market. Research on financial intermediation attempts to understand the existence of financial intermediaries, the services they provide, the contractual nature of the claims they issue, and the regulatory framework under which they operate.<sup>1</sup>

Theories of financial intermediation have focused on the “special” or “unique” role banks play in facilitating the flow of funds between providers and users . One aspect of “specialness” is their role as transmitters of information . The view is that banks have a cost advantage over other lenders in producing information about borrowers, either because there is something intrinsic about the intermediation process [ Leland and Pyle (1977), and Diamond (1984)] or because banks obtain access to information not available to other lenders by providing transaction and other intermediary services to their borrowers [ Kane and Malkiel (1965) , Black (1975), and Fama (1985) ] . An implication of this view is that bank loans are different from public or private non-bank loans because banks know more about the borrower’s prospects than other lenders do.

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<sup>1</sup> Bhattacharya and Thakor (1993) provide an extensive review of contemporary banking theory addressing these issues.

Another aspect of banks' "specialness" is their role as delegated monitors. The argument is that bank monitoring reduces adverse selection and moral hazard problems that are present in other types of financing. Since incentive and asymmetric information difficulties are prevalent with small and less prestigious firms, these firms begin to acquire reputation by being monitored by banks and later switch to publicly traded debt. The "specialness" of banks arises from the assumption that banks are able to monitor borrowers, while other lenders are unable to do so. Diamond (1991) develops a model where the focus is on reputation acquisition by borrowers. In contrast, Chemmanur and Fulghieri (1994) focus on reputation acquisition by banks. They suggest that banks have an advantage over bondholders because of their ability to acquire a reputation for financial flexibility when confronted with firms in financial distress.

A number of researchers empirically examine the "uniqueness" of bank loans. They conduct event studies around the announcement of bank loans to report excess returns on borrowing firm's return. The aim of these studies is to investigate whether bank loans convey information to the capital markets regarding the value of the borrowing firm. James (1987) finds a positive stock price response to the announcement of bank loan agreements, and a negative response for private placements. Examining the information content of bank loans, Lummer and McConnell (1989) find that announcements of new bank loans have no signaling effect, whereas favorably-revised bank credit agreements provide a positive signal to the capital markets. More recent studies emphasize borrower and lender characteristics, as well as the contractual

characteristics of bank loans. Slovin, Johnson, and Glascock (1992) and Wansley, Elayan and Collins (1993) find more significant share price response to smaller firms. Billett, Flannery, and Garfinkel (1995) find that higher quality lenders are associated with higher abnormal returns for the borrower. Finally, Preece and Mullineaux (1996) establish a negative relationship between abnormal returns and syndicate size.

In this thesis, we examine loan announcements effects for a sample of Canadian firms traded on the Toronto Stock Exchange. We begin in Chapter 2 by investigating whether the theoretical predictions discussed above and tested primarily in the U.S., are valid in Canada--- a different country with a different banking system. Our data set also allows us to perform joint tests on various hypotheses, resulting in a broader and more comprehensive analysis.

In order to assess banks' unique monitoring capacity further, we proceed in Chapter 3 to examine the relationship between lender environmental liability and bank loan announcements. "Environmental risk" is considered to be as important as other traditional banking risks, (e.g. , interest rate, liquidity, and credit risk), because any environmental problem that might severely affect the borrowing firms' value could possibly result in an environmental liability for the lending bank. The presence of environmental risk implies that banks are expected to monitor "environmental" firms in a more intense manner. If monitoring of borrowing firms is conducted in an efficient manner, then the announcement of a bank loan to a firm facing environmental risk should be perceived as "extra good" news and result in a positive effect on the borrowing

firm's equity [McGraw and Roberts (2000) ] . We empirically examine whether for firms with exposure to environmental hazards , the announcement of bank debt results in excess returns significantly higher than for “non-environmental” firms .

In Chapter 4 of this thesis, we continue our study of different aspects of “specialness” of the banking industry by empirically examining the motivations for financial institution mergers in a Canadian context . There is a substantial literature examining the motivations for financial institution mergers. Most of these studies are based on U.S. data. Research suggests that the incentives for banks to merge are similar to those for non-financial firms. These incentives arise mainly from efficiency considerations and agency issues. <sup>2</sup> Economies of scale and scope are often cited as likely sources of efficiency gains. Most research has concluded that economies of scale and scope are limited for large financial institutions. Some studies have considered market power to be the main motivation of bank mergers [ Rose (1987) , Akhavein, Berger and Humphrey (1997) , Hannan and Prager (1998) ] . Other studies focus on two contrasting hypotheses on bank mergers. The earnings diversification hypothesis states that banks bid more for merger partners that offer earnings diversification [Benston , Hunter, and Wall (1995)]. The deposit-insurance put-option hypothesis states that acquirers bid more for targets that offer opportunities to increase risk and / or to become too big to fail [Kane (2000)]. Agency issues are also considered to be influencing the motivations for bank mergers.

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<sup>2</sup> Berger, Demsetz, and Strahan (1999) review the causes, consequences, and future implications of financial institutions mergers.

Studies show that bank mergers are considered to be value-maximizing when moral hazard problems between management and shareholders are at a minimum level. This happens when management has a relatively high ownership in the bank, and when the bank's ownership is relatively highly concentrated [Allen and Cebenoyan (1991) , Saunders, Strock and Travlos ( 1990 ) ] . Several studies use the stock price response to examine the effects of the announcements of bank mergers. In contrast to the findings of studies of non-financial mergers, these studies find significant positive announcement returns for the bidding firm's stock [ Comet and De (1990) ] . They suggest that there are factors unique to bank mergers (e.g., capital quality) that serve to increase acquirers' returns in relation to non-financial mergers .

In Chapter 4, we study the market response to the announcements of mergers of Canadian financial institutions to examine the motivations of these mergers. In particular, we seek to determine whether these motivations are value-enhancing. The contribution of this study is two-fold. First , we provide further evidence outside the U.S. on the "specialness" of financial institutions by employing a Canadian data set drawn from a different banking system. Second, our sample allows us to extend existing empirical research on Canadian bank mergers [e.g., Kryzanowski and Ursel (1993) ] by including in-pillar, cross-pillar and foreign mergers.

Chapter 5 concludes the thesis and discusses dimensions for further research .

## **Chapter 2**

### **Market Response to Corporate Loan Announcements: An Event Study on Toronto Stock Exchange Companies**

#### **I. Introduction**

There is now quite a large literature examining the effect of the announcement of a loan agreement or loan renewal on the equity price of the firm. The aim of these studies is to test the theoretical hypothesis that bank lending is different from non-bank lending (either through public debt or non-bank private placements) in that it provides unique monitoring services. The main finding of these investigations is to document that, indeed, the announcement of a bank loan agreement or the renewal of an existing one (at the same or better terms) elicits a positive reaction in the market value of the equity of the borrowing firm. These findings have been further confirmed by studies showing that positive announcement effects are stronger when the borrowing firm is smaller, the lender is more reputable, and the loan is not syndicated.

This chapter re-examines these issues in the context of a Canadian data set. The contributions of the study are two-fold. First, it explicitly examines whether the theoretical predictions, tested for the U.S., also hold in another country with a different banking system. Second, the data set employed allows a joint test of different hypotheses, thus facilitating a broader and more comprehensive analysis.

The main findings of this chapter are that the effects documented for the U.S. are also verified in Canada for companies traded on the Toronto Stock Exchange. Furthermore, this paper finds that the positive announcement effect decreases with the quality of the borrowing firm and with the maturity of its debt.

The remainder of this chapter is organized as follows. Section II reviews prior evidence on loan announcements and formulates the hypotheses to be tested. In Section III we describe the sample selection and the methodology. An analysis of the empirical results is in Section IV. Section V presents cross-sectional analysis and Section VI reports the results of a cross-sectional regression. Section VII presents the conclusions and discusses issues for future research.

## **II. Prior studies and hypotheses**

There is considerable evidence that capital markets react positively to the announcement of bank loan agreements. Fama (1985) suggests that banks are “special”, because they have a comparative cost advantage over other financial intermediaries in

monitoring loans. James (1987) expands on the “uniqueness” of bank loans observing that banks provide special services that are not available from other lenders. Further, bank borrowers are also depositors and Black (1975) argues that inside information provided by a continuing deposit history gives a bank a cost advantage over other lenders. James (1987) finds a positive stock price response to the announcement of bank loan agreements, and a negative response for private placements.

Diamond (1991) discusses the criteria which firms use in order to choose between bank loans and publicly traded debt. He concludes that, if moral hazard is widespread, new borrowers will begin to acquire reputation by being monitored by banks and later switch to issuing directly placed debt. Chemmanur and Fulghieri (1994) add the possibility of renegotiating the debt contract in the event of financial distress. They suggest that banks have an advantage over bondholders because of their ability to acquire a reputation for financial flexibility when confronted with firms in financial distress. They find that firms with a greater probability of being in financial distress choose bank loans, and those with a smaller probability issue publicly traded debt.

Examining the information content of bank loans, Lummer and McConnell (1989) find that announcements of new bank loans have no signaling effect, whereas favorably-revised bank credit agreements provide a positive signal to the capital markets. In contrast, Best and Zhang (1993) refine this result to show that new loan announcements

may convey positive information about the borrower when extensive monitoring is involved .

Slovin, Johnson, and Glascock (1992) investigate whether share price responses to loan announcements differ between large and small firms. Since large firms are well monitored and have acquired reputation, banks have less comparative advantage in the external financing process relative to the capital markets. On the other hand, for small firms, moral hazard and adverse selection problems are more severe, because they have shorter corporate histories, lesser reputations, and less public information is available for investors. Hence, small firms receive greater benefit from a bank's screening and monitoring services. This result is confirmed by Wansley, Elayan and Collins (1993).

In addition to firm size, loan maturity has an impact on the expected magnitude of the announcement abnormal return. James (1987) points out that bank loans are typically of shorter maturities than other types of borrowings and this allows banks to exercise greater monitoring power and control over the borrower. Rajan (1992) makes a similar argument. Taken together, their work suggests that shorter maturity bank loans should be associated with more positive announcement effects than longer maturity bank loans.

In another study, Billett, Flannery, and Garfinkel (1995) investigate whether the lender's identity influences the market reaction to a loan announcement. They find that higher quality lenders are associated with higher abnormal returns for the borrower. In a related study, Thakor (1996) shows that loans from lenders who face more binding capital

constraints are associated with greater announcement effects in the borrower's stock price. Since banks with capital constraints tend to ration credit more severely, equity markets react more positively when such banks grant loans.

Finally, Preece and Mullineaux (1996) highlight two additional aspects of bank loans: contractual flexibility and syndicate size. They argue that the capacity to renegotiate a bank loan relatively inexpensively in a corporate restructuring should complement monitoring as a source of value to borrowers<sup>1</sup>. It follows that, as the number of lenders in a syndicate increases, contracting costs rise and the capacity to renegotiate declines. Further, syndicated loans have less contractual flexibility compared to non-syndicated loans because of potential hold-out problems in the event of renegotiation. They hypothesize a negative relationship between abnormal returns and syndicate size and find support in empirical testing.<sup>2</sup>

Table 2.1 summarizes our discussion of prior research results on loan announcement effects. This chapter advances on prior work by testing all the effects in Table 2.1 on a common data base obtained outside the U.S. Compared to U.S. banks, Canada's Big Six banks, which dominate its banking system, are more homogeneous in size and credit rating. Because these banks are widely regarded as too big to fail, loans from a single Canadian bank have higher lender quality than syndicated loans involving a

---

<sup>1</sup> Gilson and Warner (1998) show that, for certain firms, replacing bank debt with junk bonds can enhance financial flexibility.

<sup>2</sup> Another important study of syndication is Dennis and Mullineaux (1997).

range of banks. Further, the trend toward securitization of credit is less advanced in Canada making it more common for firms of all sizes to borrow from banks. As a result, Canadian data provide an ideal opportunity to test for the impact of firm size on loan announcement effects.

**TABLE 2.1 Summary of Announcement Effects by lender, loan and borrower characteristics**

<u>Characteristic</u>	<u>Predicted Impact on announcement excess return</u>
<b><u>Lender</u></b>	
Bank	+
Quality	+
Capital constrained	+
Syndicate size	-
Non-bank	0
<b><u>Loan</u></b>	
Maturity	-
New	0
Borrower has existing relationship	+
No existing relationship	0
Renewal	+
Favorable	+
Unfavorable	-
Mixed	0
Restructuring	+
Borrower's distress known	+
Borrower's status unknown	0
<b><u>Borrower</u></b>	
Size	-
Quality	-

### **III. Sample selection and methodology**

#### **a. Sample selection**

We obtained our sample of corporate loan announcements primarily by searching two wire services: Canadian Corporate News and Canada Newswire. These wire services are a primary news source for newspapers. For completeness, we also searched the Financial Post Database. Following the method employed by Billett, Flannery and Garfinkel (1995), the following key words were used to search for relevant stories: “Line of credit”, “credit line”, “credit facility”, “credit agreement”, “credit extension”, “new loan”, “loan agreement”, “loan renewal”, “loan revision”, “loan extension”, “finance company loan”, “term loan”, “commercial loan”, and “bank loan”. We obtained a total of 4294 stories. First, we eliminated 2658 stories that were about personal and government loans. Then, we excluded 642 stories that contained “contaminated information” such as announcements of dividends, earnings, corporate control events, other types of financing arrangements, and credit rating changes. Moreover, another 558 firms were eliminated because they were not publicly traded. Since our study only considers firms that are traded on the Toronto Stock Exchange, we had to exclude 41 firms listed only on other exchanges. At this point, we compared the observations from the three sources and we eliminated 234 redundant observations. Our sample of “clean” announcements included

161 observations . Finally, 24 firms were omitted from the sample because they had missing observations.<sup>3</sup>

**TABLE 2.2 - Sample construction**

---

All related stories	4294
Deductions:	
Personal and government loans	2658
"Contaminated" stories	642
Not publicly traded firms	558
Firms traded on other exchanges	41
Redundant observations	234
Thinly traded firms	24
Final sample	137

**TABLE 2.3 - Industry distribution of announcements**

---

INDUSTRY <sup>4</sup>	number of firms
Metals & Minerals	10
Gold & Silver	7
Oil & Gas	18
Paper & Forest Products	6
Consumer Products	8
Industrial Products	8
Real Estate & Construction	5
Transportation & Environmental	6
Pipelines	3
Utilities	5
Communications & Media	11
Merchandising	4
Financial Services	3
Conglomerates	4
Total	98 <sup>5</sup>

---

<sup>3</sup> See Mackinlay (1997) and Maynes and Rumsey (1993) for discussion of thin trading bias in event studies.

<sup>4</sup> These industries are taken from TSE Group Indices.

<sup>5</sup> The number of firms included in the sample is different from the number of observations, since there is more than one announcement associated with some firms .

Our final sample includes 137 observations. Table 2.2 shows the different stages of our screening process, and Table 2.3 shows the distribution of the firms among different industries. Our classification of loan announcements follows Lummer and McConnell (1989) and Best and Zhang (1993) but we expand the scope of our sample in two ways. First, we include debt restructurings as an additional sub-sample in the bank loans category. Second, we add perspective by testing non-bank loans in the form of private placements issued by non-bank financial institutions, mainly insurance companies. We divide the bank loans into three main categories: new loans, renewals, and restructurings. Table 2.4 shows the frequency distribution of the announcements according to the year in which they occurred. A loan negotiation is considered to be new if the agreement is new or there is no indication that it is a renewal or restructuring. Based on the newspaper articles, we classify the new loans into three categories: new loans with new banks, new loans with the same bank, and new loans with unknown banks.

**TABLE 2.4**

**Frequency distribution by year for a sample of 122 bank loans and 15 private placements for TSE listed companies, 1988-1995**

Year	bank loans			non-bank loans	total per year
	New loans	Renewals	Restructurings	private placements	
1988	9	2	2	2	15
1989	6	3	4	1	14
1990	7	2	1	1	11
1991	9	6	3	2	20
1992	2	5	1	3	11
1995	8	4	2	1	15
1994	11	9	2	3	25
1995	17	4	3	2	26
<b>total</b>	<b>69</b>	<b>35</b>	<b>18</b>	<b>15</b>	<b>137</b>

Renewals were also subdivided into three categories: Favorable, unfavorable, and mixed. As in Lummer and McConnell (1989) each renewal was assessed based on changes in loan maturity, interest rate, dollar value, and protective covenants. In a favorable renewal, the maturity of the loan is lengthened, the interest rate reduced, the dollar value of the loan increased, or the protective covenants are made less restrictive. A renewal is rated as unfavorable if one or more of the loan terms moves in the opposite direction. Finally, a renewal is considered as mixed if some terms are revised favorably and others are revised unfavorably.

The third category, restructurings, consists of loan revisions for borrowers known to be in financial distress. The sample of restructured loans includes two categories: (i) loans with prior negative news about the borrowing firm, and (ii) with no prior negative news.

While this detailed breakdown of our sample provides a rich menu of borrower and lender characteristics for testing, it does exact a toll in terms of reduced sample sizes in some of the categories. The overall sample is small relative to U.S. studies reflecting the lesser size of Canada's equity market and this reinforces the need to avoid drawing unwarranted inferences from small samples. To this purpose, we ensure that the critical values in the standard t-tests employed are adjusted upward appropriately for small samples under 30 cases. Further, recognizing that small samples are unlikely to be distributed normally, we verify our results using the nonparametric Wilcoxon ranked

sign test. Finally, we recognize that many readers, accustomed to large samples in U.S. studies, may wish to exercise greater caution in drawing inferences and we highlight sample sizes in going through our results.

## **b. Data and Methodology**

The Canadian Financial Markets Research Center (CFMRC) database includes daily opening and closing data for: prices, bids, asks, trades, and volumes for companies listed on the Toronto Stock Exchange. The daily returns in the CFMRC database are calculated as if the security were purchased at the close of day  $t-1$  and sold at the close of

day  $t$ :

$$R_{(t)} = \frac{[(P_{(t)} + D_{(t)}) \times S_{(t)} - P_{(t-1)}]}{P_{(t-1)}}$$

where,

$R_{(t)}$  is the fully adjusted return

$P_{(t)}$  is the closing price for day  $t$

$P_{(t-1)}$  is the closing price for day  $t-1$

$D_{(t)}$  is the cash or cash equivalent dividend . If there was no cash dividend then  $D_{(t)} = 0$

$S_{(t)}$  is the stock split factor for a stock dividend or split today. If there was no stock dividend or split, then  $S_{(t)} = 1$

The CFMRC value-weighted index is the market-value weighted, average daily return for all domestic equities in the database. It is the sum of all products of defined

common equity returns with their market weights. A security's market weight is defined as :

$$\frac{\text{(market value at the beginning of the current month)}}{\text{(the market value of all securities included in the index)}} \\ = \frac{\text{(shares outstanding) x (closing price on the last trading day in the previous month)}}{\text{(the market value of all securities included in the index)}}$$

The market model is used in order to calculate excess returns. The two-day event window [ 0,1] is defined as the day of the announcement (t = 0) and the following day (t=1). This procedure incorporates the possibility that some of the announcements are made after trading hours.<sup>6</sup> The market model is estimated on daily returns for the period beginning 180 trading days before the event date and ending 31 trading days before the event date. The excess stock return, or prediction error, for firm *j* over day *t* is defined as :

$$PE_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt})$$

where ,

$R_{jt}$  is the rate of return of security *j* over period *t*

$R_{mt}$  is the rate of return on a value-weighted market index over period *t*

$\hat{\alpha}_j$  and  $\hat{\beta}_j$  are the ordinary least squares estimates of firm *j*'s market model parameters .

---

<sup>6</sup> MacKinlay (1997) states that expanding the event window in this way is a common practice unlikely to introduce any significant bias.

Announcement period excess returns are calculated by summing the prediction errors for days 0 and 1 and then averaged over all firms within a particular group. Since tests of statistical significance are based on standardized prediction errors, we standardize the prediction errors for the two days dividing by the standard error of the forecast <sup>7</sup>:

$$SPE_j = \frac{\sum_{t=0}^1 PE_{jt}}{S_j}$$

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

Where,

$S_j$  is the standard error of the forecast for security  $j$  in the event period

$v_j^2$  is the residual variance of the market model regression for firm  $j$

$M$  is the number of days in the estimation period ( $M=150$ ),

$R_{mt}$  is the market return in the event period

$\overline{R_m}$  is the mean market return over the estimation period

The average standardized prediction error is:

$$\overline{SPE_t} = \frac{1}{N} \sum_{j=1}^N SPE_{jt}$$

---

<sup>7</sup> The error terms are standardized using the method first introduced into finance by Jaffe (1974) and Mandelker (1974). MacKinlay (1997) provides a review of event study methodology. We assume that  $R_{m0} = R_{m1}$  in calculating the standard error of the forecast.

Finally, assuming that the individual prediction errors are cross-sectionally independent, the following  $t$ -statistic is calculated:

$$t = \sqrt{N} (\overline{SPE}_t)$$

Under the null hypothesis of no announcement effect, the standardized prediction errors ( $SPEs$ ) are distributed asymptotically  $N(0,1)$  and the mean standardized prediction error is distributed  $N(0, 1/\sqrt{N})$

$$H_0: \overline{SPE}_t = 0$$

#### **IV. Empirical results**

Table 2.5 reports full sample results of the average stock price response to loan announcements. The average excess returns shown are *unstandardized* and the significance tests are based on *standardized* excess returns. The average excess return for all bank loans is 1.22%, a result statistically significant at the 0.01 level based on a sample of 122 cases. In addition, 68% of the excess returns are positive. On the other hand, the average excess return for the private placements is not statistically significant with only 15 cases. This result is consistent with the hypothesis that banks have a comparative advantage over other lenders. When different categories of bank loans are considered,

**TABLE 2.5**

**Average announcement-period excess returns, significance tests, and proportion of positive excess returns for a sample of 122 bank loans and 15 private placements .**

Type of Announcement	sample	Av. Excess Return	t-statistic	Z-nonparametric [p-value]	proportion +ve
<b>I. All loans</b>					
Bank loans	122	1.2256 %	5.62***	-2.79*** [0.0052]	0.68
Private placements	15	-0.0042 %	-0.64	-0.1704 [08647]	0.46
<b>II. Bank loans</b>					
New Loans	69	0.6225 %	2.78***	-2.02** [0.0054]	0.59
Renewals	35	1.2678 %	3.52***	-2.14** [0.0319]	0.71
Restructurings	18	3.4556 %	4.28***	-3.46*** [0.0005]	0.94
<b>III. New loans</b>					
New loans with new bank	20	-0.2483 %	-0.47	-0.53 [0.5931]	0.58
New loans with same bank	31	1.0879 %	3.36***	-2.05** [0.0439]	0.61
New loans / unknown bank	18	0.7886 %	1.53	-1.24 [0.2541]	0.55
<b>IV. Renewals</b>					
Favorable	20	1.7307 %	3.98***	-2.27** [0.0228]	0.85
Mixed	11	1.7891 %	2.04*	-1.55 [0.2477]	0.63
Unfavorable	4	-2.4805 %	-2.20	-1.46 [0.1441]	0.25
<b>V. Restructurings</b>					
With no prior -ve news	8	2.9089 %	2.75**	-2.00** [0.0043]	0.88
With prior -ve news	10	3.8930 %	3.28***	-2.24** [0.0087]	1.00

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.10 level

we find that the average excess returns for new loans and renewals, are 0.62% and 1.26%, respectively, both significant at the 0.01 level. The mean excess returns for restructurings of 3.45 % is also highly significant but the sample is small at 18 cases. These results are again consistent with our hypotheses, except for the new loans, for which we predicted insignificant abnormal returns. In many cases, the new loan is arranged with a bank that has prior financing experience with the borrowing firm, signaling some degree of monitoring capacity. With a closer look at new loans, we find that new loans with the same bank carry an average excess return of 1.08% which is statistically significant at the 0.01 level for a sample size of 31 cases. New loans with new or unknown banks comprise smaller samples and do not show significance.

In the renewals category, we are able to distinguish three types but the sample sizes are quite small. Favorable renewals show an average excess return of 1.73% statistically significant at the 0.01 level. The unfavorable renewals display an average excess return of -2.48% which is not statistically significant. Both of these results are consistent with our prior hypothesis. In contrast, mixed renewals show an average excess return of 1.78% achieving marginal statistical significance at the 10% level. This contradicts our hypothesis predicting a less positive signal from mixed loan renewals than from favorable ones. Lummer and McConnell (1989) report a similar result. This anomalous result could rise from the way we assessed mixed revisions giving equal

weights to favorable and unfavorable terms. It is possible that some loan terms outweigh others giving rise to misclassifications.

Finally, in the case of restructurings, as for renewals, we are forced to work with small numbers. The average abnormal return for restructurings with no prior negative news is 2.90%, statistically significant at the 0.05 level. The average excess returns for cases with prior negative news is 3.89%, and significant at the 0.01 level. These results are also supportive of our hypothesis that the announcement effect should be stronger when the market is already aware of the borrower's financial distress.

In order to confirm the robustness of our parametric tests, we perform Wilcoxon ranked sign tests. The null hypothesis with this test remains unchanged :

$$H_0: \overline{SPE}_t = 0$$

The corresponding test statistic is :

$$z = \frac{T_+ - \mu_{T_+}}{\sigma_{T_+}}$$

where,  $T_+$  is the sum of the ranks for positive abnormal returns. If the abnormal returns are centered at 0 , i.e.  $H_0$  is true, then  $T_+$  is approximately a normal random variable with mean and standard deviation (Kvanli, Guynes and Pavur (1992)):

$$\mu_{T_+} = \frac{n(n+1)}{4} \quad \sigma_{T_+} = \sqrt{\frac{n(n+1)(2n+1)}{24}}$$

Table 2.5 shows that the results of the non-parametric test confirm our results from the parametric tests, only at a weaker significance level. This finding suggests that no serious bias was introduced by the assumption of normality underlying the t-tests.

## **V. Cross-sectional analysis**

In this section, we conduct a cross-sectional analysis on loan syndication, firm size, corporate bond rating, and loan maturity to examine the extent to which these loan and firm characteristics can explain the different market reactions documented above. Table 2.6 reports the results for different categories of loan announcements when loan syndication is considered. For all loans taken together, we find the abnormal return for non-syndicated and syndicated loans respectively to be 1.82% and 0.72%, results that are statistically significant at 0.01 level. We also find that, in the case of bank loans, the average excess returns of non-syndicated and syndicated loans are 1.96% and 0.85% respectively, both significant at 0.01 level. This confirms the argument by Preece and Mullineaux (1996) that the contractual flexibility that exists with a single lender is reflected in the equity market's reaction to the announcement of the loan. Moreover, since most of the non-syndicated loans in our sample are issued by Canada's Big Six banks, our

results suggest that loans issued by a single Canadian bank have higher lender quality than syndicated ones.

**TABLE 2.6**

**Average announcement-period excess returns and significance tests for a sample of 137 loan announcements classified according to syndication status for TSE-listed companies, 1988-1995.**

Type of Announcement	sample	Av. Excess Return	t-statistic	Z nonparametric
<b>I. ALL LOANS</b>				
non-syndicated	50	1.82%	4.38***	-2.22*
syndicated	71	0.72%	1.99**	-1.67*
unknown	16	0.39%	1.05	-1.01
<b>Bank loans</b>				
non-syndicated	46	1.96%	5.98***	-3.56***
syndicated	62	0.86%	2.69***	-1.65*
unknown	14	0.46%	0.02	-0.45
<b>Private placements</b>				
non-syndicated	4	0.26%	0.81	-0.61
syndicated	9	-0.11%	-0.37	-0.42
unknown	2	-0.05%	-0.16	-0.08
<b>II. BANK LOANS</b>				
<b>New Loans</b>				
non-syndicated	26	1.83%	4.55***	-2.30**
syndicated	34	-0.16%	0.24	-0.79
unknown	9	0.19%	-0.50	-0.53
<b>Renewals</b>				
non-syndicated	13	1.35%	2.61**	-1.15
syndicated	20	1.38%	2.55**	-1.68*
unknown	2	-0.34%	-0.01	-0.44
<b>Restructurings</b>				
non-syndicated	7	3.64%	3.16**	-1.85*
syndicated	8	3.89%	2.96**	-2.52**
unknown	3	1.87%	0.82	-1.60

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.10 level

In panel II of Table 2.6, our results generally agree with Preece and Mullineaux' "contractual flexibility" hypothesis when we look at all bank loans or at the largest subcategory, new loans. In both of these cases, non-syndicated loans have higher excess returns.

When we examine renewals and restructurings, however, the excess returns on syndicated and non-syndicated loans are virtually the same. Reexamining the argument advanced by Preece and Mullineaux leads to a possible explanation. They hold that the presence of a lending syndicate has two opposite effects on a loan : syndication improves the quality of monitoring but it reduces contractual flexibility. It follows from their argument that we should expect a positive relationship between the size of the abnormal return and the presence of syndication based on monitoring considerations and a negative relationship when focusing on contractual flexibility. For any category of loans, the overall link between number of banks in the syndicate and excess returns will be the net of these opposite effects. Our results (albeit with small sample sizes) show that, for new loans, it is the non-syndicated cases that are associated with significantly positive excess returns. In other words, for this subsample, the contractual flexibility effect outweighs the monitoring effect. A likely explanation is that monitoring gains effectiveness over time as the banker gets to know the borrower so that contractual

flexibility is dominant with new loans. In contrast, for renewals and restructurings, the two effects are roughly equal in strength.

Table 2.7 reports loan announcement effects by firm size<sup>8</sup>.

**TABLE 2.7**

**Average announcement-period excess returns and significance tests for a sample of 137 loans classified according to firm size (1) for TSE-listed companies, 1988-1995.**

Type of Announcement	sample	Av.Excess Return	t-statistic	Z non-parametric
<b>I. ALL LOANS</b>				
small firms ( MV less than \$100 million )	45	1.38%	3.28***	-2.12**
medium-size firms (\$100million < MV < \$1000 million )	54	1.19%	3.13**	-2.05**
large firms ( MV more than \$1000 million)	38	0.59%	2.52**	-1.78*
<b>II. BANK LOANS</b>				
small firms ( MV less than \$100 million )	41	1.48%	4.21***	-2.49**
medium-size firms (\$100 million < MV < \$1000 million )	49	1.28%	3.72***	-2.06**
large firms ( MV more than \$1000 million)	32	0.80%	2.76***	-1.76*

(1) Firm size is the market value of equity defined as share price multiplied by the number of shares outstanding.

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.10 level

<sup>8</sup> We calculate the market value of equity as the product of the number of shares outstanding and the market price per share at the end of the month prior to the announcement. We classify firms as small (MV less than \$100 million), medium ( \$100 million < MV < \$1000 million ), and large (MV more than \$1000 million).

Table 2.7 shows that , pooling all loans, the average abnormal return of small and medium size firms are 1.38 % and 1.19 % respectively, results that are statistically significant at the 0.01 level. The large firms have an average excess return 0.59 % (significant at the 0.05 level) . The table shows a similar result for the subset of bank loans. Similar tests, not shown in Table 2.7 due to small sample sizes, revealed that this result is robust when bank loans are decomposed into new loans, renewals and restructurings. Size effects have no statistically significant impact for private placements. Our results confirm Slovin, Johnson and Glascock's (1992) findings that primarily small and less prestigious firms receive the greatest benefit from the screening and monitoring services provided by banks. The effects found could also be due to size effects (small firm anomaly). Since the market model underestimates returns for small firms , it may be difficult to test for a firm-size effect in loan announcements. In order to resolve such difficulties, many recent studies use test methodologies based on conditional multifactor models (For example, a study by Eckbo and Smith (1998) on the conditional performance of insider trades). Such a model could be used in future research to control for size effects.

Next, we investigate whether borrower quality matters using bond ratings as a proxy. Table 2.8 provides corporate bond rating information according to the Dominion Bond Rating Service (DBRS) , one of two major Canadian rating agencies. Using prior year-end bond ratings, we classify the firms that have a rating higher than BBB as high-

rated firms, BBB medium-rated , and those below BBB as low-rated. The remaining firms are classified “not-rated”, consistent with DBRS.

**TABLE 2.8**

**Bond Rating information of the firms according to Dominion Bond Rating Service**

scale	description	Number of firms
AAA	near perfection	3
AA	well above average	14
A	Up to high average	29
BBB	Up to low average	31
BB	Mildly speculative	7
B	Middle speculative	5
CCC	Highly speculative	5
CC	In default	2
C	2nd tier of debt of a company in default	0
NR	not rated	41

*source: The Financial Post Data Group - Corporate Bond Record ,1987-1995*

Table 2.9 shows average excess returns for all loans for high-rated , medium-rated ,and low-rated firms are 0.68%, 1.18% and 2.11% respectively, all statistically significant at 0.01 level. These results demonstrate an inverse relationship between borrowers’ bond ratings and excess returns. The results are robust when we exclude private placements as also shown in Table 2.9. This finding is consistent with Diamond (1991) who suggests that low-rated firms benefit more from a bank’s monitoring service than do high-rated firms. One reason is that low-rated firms are more likely to benefit from risk reduction inherent in collateral and covenants (Rajan and Winton (1995) and Mazumdar and Yan

(1997)). Further, low-rated firms likely benefit more from the financial flexibility of bank loans according to Chemmanur and Fulghieri (1994) and Preece and Mullineaux (1996).

**TABLE 2.9**

**Average announcement-period excess returns and significance tests for a sample of 137 loans classified according to DBRS corporate bond rating for TSE-listed companies, 1988-1995.**

Type of Announcement	Sample	Av. Excess Return	t-statistic	z-nonparametric
<b>I. ALL LOANS</b>				
high (AAA, AA, A )	46	0.68%	2.71***	-2.01**
medium (BBB)	31	1.18%	3.98***	-2.43**
low (BB,B,CCC,CC,C)	19	2.11%	4.82***	-2.23
not rated	41	1.01%	2.22**	-1.12
<b>II. BANK LOANS</b>				
high (AAA, AA, A )	42	0.71%	2.32**	-1.94*
medium (BBB)	25	1.23%	2.47**	-1.76*
low (BB,B,CCC,CC,C)	17	2.77%	2.71**	-1.65*
not rated	38	1.10%	1.98*	-1.05

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.10 level

When the sample is divided according to the maturity of the loan, we find that average excess return tends to decrease as maturity rises. This result supports the theoretical argument of James (1987) who emphasizes that shorter maturities lead to

**TABLE 2.10**

**Average announcement-period excess returns and significance tests for a sample of 137 loans classified according to loan maturity for TSE-listed companies, 1988-1995.**

Type of Announcement	sample	Av. Excess Return	t-statistic	Z non-parametric
<b>I. ALL LOANS</b>				
Short-term (less than 2 years)	34	1.63%	3.55***	-2.40**
Medium-term ( between 2 and 5 years)	38	1.08%	2.16**	-1.72*
Long-term (more than 5 years)	26	0.72%	1.97*	-1.68*
Unknown maturity	39	0.87%	1.53	-1.11
<b>Bank loans</b>				
Short-term (less than 2 years)	34	1.63%	3.55***	-2.40**
Medium-term ( between 2 and 5 years)	33	1.24%	2.43**	-1.68*
Long-term (more than 5 years)	18	1.04%	2.10*	-1.17
Unknown maturity	37	0.92%	1.02	-1.18
<b>Private placements</b>				
Short-term (less than 2 years)	0	-	-	-
Medium-term ( between 2 and 5 years)	5	0.02%	0.32	-0.12
Long-term (more than 5 years)	8	-0.01%	-0.27	-0.06
Unknown maturity	2	-0.04%	-0.19	-0.01
<b>II. BANK LOANS</b>				
<b>New Loans</b>				
Short-term (less than 2 years)	19	0.87%	3.18***	-2.23**
Medium-term ( between 2 and 5 years)	18	0.61%	2.77**	-1.68*
Long-term (more than 5 years)	10	0.52%	2.43**	-1.71*
Unknown maturity	22	0.46%	1.32	-1.18
<b>Renewals</b>				
Short-term (less than 2 years)	9	1.59%	3.81***	-2.14**
Medium-term ( between 2 and 5 years)	9	1.21%	3.22**	-1.69*
Long-term (more than 5 years)	5	1.15%	2.91**	-1.83*
Unknown maturity	12	1.11%	1.72	-1.17
<b>Restructurings</b>				
Short-term (less than 2 years)	6	4.09%	4.71***	-1.98**
Medium-term ( between 2 and 5 years)	6	3.17%	4.53***	-1.79*
Long-term (more than 5 years)	3	2.59%	3.83*	-1.04
Unknown maturity	3	3.62%	3.76*	-1.61

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.10 level

more frequent renewals increasing banks' monitoring powers. It follows that only higher quality borrowers qualify for long-term loans. With shorter maturities assigned to more risky borrowers, we would expect greater announcement period excess returns for short-term loans. Table 2.10 reports average excess returns for all loans as follows: 1.63 % for short-term loans, 1.08 % for medium-term loans and 0.72 % for long-term loans, significant at 0.01, 0.05 and 0.10 level respectively. The same pattern holds for bank loans. The maturity breakdown also affords an opportunity to compare long-term bank loans against private placements which also tend to be long-term. Long term bank loans exhibit an average excess return of 1.04%, with marginal statistical significance. For private placements, the average excess return was -0.0042% and not statistically significant. This confirms the "uniqueness" of bank loans suggested by Fama (1985).

## **VI. Regression analysis**

Pooling all our observations, we estimate a regression for the 122 bank loans. The regression analysis has the potential to validate the other tests already discussed in several important ways. First, by employing dummy variables to classify the observations, we are able to use the entire sample and avoid difficulties associated with small samples. Second, as a joint test on all the major variables studied, the regression allows us to measure the robustness of individual tests conducted variable by variable. In particular, robustness

tests allow us to address possible overlaps between our variables. In this regression , the two-day , announcement period, standardized excess return is the dependent variable.

The independent variables are:

$X_1, X_2, X_3, X_4$  : Four dummy variables indicating whether (i) the loan is with the same bank , (ii) the loan is a new loan *and* with the same bank , (iii) the loan is a favorable renewal (iv) the loan is a restructuring

$X_5, X_6, \text{ and } X_7$  : Three dummy variables indicating whether (i) the loan is syndicated (ii) the corporate rating of the borrowing firm is BBB and above (iii) the loan has medium to long term maturity .

$X_8$  : a continuous variable that shows the relative size of the loan and defined as the value of the loan divided by the market value of the firm.

The regression equation is :

$$SPE_i = \frac{D_0}{S_i} + \sum_{l=1}^{l=8} \frac{D_l X_l}{S_i} + \frac{\varepsilon_i}{S_i}$$

Where,

$SPE_i$  : is the two day standardized excess return for stock  $i$

$D_0$  : is the intercept

$D_1 \dots D_8$  are the coefficients of the dummy variables

$X_1 \dots X_8$  are the independent variables

$S_i$  : is the standard error of the excess returns for stock  $i$

To correct for heteroskedasticity of cross-sectional stock returns (Lumner and McConnell 1989, Slovin, Johnson, and Glascock 1992) , both sides of the equation are divided by the standard error of the forecast  $S_i$  derived from the market model estimation.

The regression results are in Table 2.11. The first five dummies test whether the loan type has a significant impact on excess returns. The table shows that excess returns are significantly higher when the loan is negotiated with the same bank, whether it is a new loan or a renewal. This supports the importance of delegated monitoring. Additionally, the significance of dummy 2 suggests that, in this sample, firms are not switching banks to avoid rents. The positive and significant sign for the restructuring dummy ( $X_4$ ) confirms the strength of this signal of bank confidence.

The next three variables are dummies testing the signs of the impact of lender (syndicate), borrower (rating) , and loan (maturity) characteristics. As seen in Table 2.11, syndication ( $X_5$ ) is associated with lower excess returns. This confirms the argument by Preece and Mullineaux (1996) that the contractual flexibility that exists with a single lender is reflected in the equity market's reaction to the announcement of the loan. Moreover, since most of the non-syndicated loans in our sample are issued by Canada's Big Six banks, our results suggest that loans issued by a single Canadian bank have higher lender quality than syndicated ones.

**TABLE 2.11**

**Results of regression of standardized excess returns on various standardized dummy variables for a sample of 122 bank loans for TSE-listed companies, 1988-1995.**

Variable	coefficient	t-statistic
$X_1$ (1 if same bank, 0 otherwise)	0.36	3.02***
$X_2$ (1 if new loan <i>and</i> same bank, 0 otherwise)	0.08	2.21**
$X_3$ (1 if a renewal loan, 0 otherwise)	0.39	3.46***
$X_4$ (1 if a restructuring loan, 0 otherwise)	0.59	3.65***
$X_5$ (1 if syndicated , 0 if non-syndicated or unknown syndication )	-0.31	- 1.98**
$X_6$ (1 if firm has BBB rating and above, 0 if below BBB rating and non-rated )	-0.26	- 1.87*
$X_7$ (1 if medium-term and long-term maturity , 0 if short term or unknown maturity )	-0.29	- 2.04**
$X_8$ Relative size (loan size / MV of firm)	-0.38	-1.76*
intercept	-0.51	
R-square	0.36	

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.10 level

The significant negative coefficient for credit rating ( $X_6$ ) is consistent with Diamond (1991) who suggests that low-rated firms benefit more from a bank's monitoring service than do high-rated firms. One reason is that low-rated firms are more likely to benefit from risk reduction inherent in collateral and covenants (Rajan and Winton (1995) and Mazumdar and Yan (1997)). Further, low-rated firms likely benefit more from the financial flexibility of bank loans according to Chemmanur and Fulghieri (1994) and Preece and Mullineaux (1996).

The long-term maturity dummy ( $X_7$ ) also carries a negative coefficient. This supports the theoretical argument of James (1987) who emphasizes that shorter maturities lead to more frequent renewals increasing banks' monitoring powers. With shorter maturities assigned to more risky borrowers, we would expect greater announcement period excess returns for short-term loans.

The final dummy ( $X_8$ ) is a continuous, ratio measure of size. As predicted, larger loans are associated with smaller excess returns. Our results confirm Slovin, Johnson and Glascock's (1992) findings that primarily small and less prestigious firms receive the greatest benefit from the screening and monitoring services provided by banks.

## **VII. Conclusions**

This chapter validates the key results of prior studies of bank loan announcement effects using a common data set drawn from the Canadian capital market. The announcement event's economic impact is realized by observing borrowing firm's security prices during the announcement period. We find that announcements of bank loans are associated with positive abnormal returns and that these are significantly higher than found for announcements of private placements. Also consistent with prior research is our finding that syndication weakens the announcement effect because it diminishes a key advantage of bank borrowing: the flexibility to renegotiate loan terms.

For bank loans, the announcement effect is heightened when monitoring is most intense. Renewals of loans and new loans to existing customers are both cases in which the bank is likely to have in-depth private information about the borrower. As a result, these trigger more positive announcement effects than do new loans in general. It is assumed that the lending bank becomes almost like an insider to the firm regarding informational familiarity with its financial condition. By acting as a partial corporate insider, the bank sends signals to holders of equity, who can benefit by acting on this information.

Beyond the intensity of monitoring, the market reacts strongly when an announcement signals that the bank's private information is favorable. This occurs when the terms of the loan revision are made more favorable through relaxation of covenants or extending maturity.

Alternatively, a bank can send a positive signal by announcing a loan to a weaker credit. Credit weakness is evidenced when a borrower falls into the restructuring or the small firm categories. It is also associated with a lower credit rating or shorter loan maturity.

Taken together, these results suggest that the conclusions of prior studies on bank loan announcements, conducted exclusively on U.S. data, are robust for a different banking system.

## **Chapter 3**

### **An Empirical Examination of the Relationship Between Lender Environmental Liability and Bank Loan Announcements**

#### **I. Introduction**

Traditional research on the role of banks in corporate lending suggests that banks have a comparative advantage over other market participants in screening and monitoring corporate clients. Theoretical models conclude that bank lending signals creditworthiness to outside investors. Consistent with this view, empirical studies report positive effects on borrowing firm's stock in response to announcements of bank loans.

Since the beginning of the 1990's, banks have been recognizing "environmental risk" along with traditional banking risks, such as interest rate, liquidity, and credit risk. Banks are now concerned about any environmental problem that might severely affect borrowing firms' value, thus forcing them into default. When a borrower goes into bankruptcy, a bank may face environmental liability by gaining control of the borrowing

firm's assets which were held as collateral. Some banks now perform initial assessments of borrowers' risk of exposure to environmental hazards. The tactics used by banks involve requiring borrowers to have regular third party audits and to establish trust funds to cover compliance costs. If monitoring of borrowing firms is conducted efficiently, then the announcement of bank debt to firms facing environmental risk should be perceived as "particularly" good news. It should result in a positive effect on the borrowing firm's equity beyond what would be observed for firms not subject to environmental risk.

This paper re-examines the loan announcement effect for a sample of Toronto Stock Exchange companies by first comparing the market response for a set of "environmental" firms with that for "non-environmental" ones and then by comparing the impact on different industries within the "environmental" firms . McGraw and Roberts (2000) predict that positive market reaction to bank debt announcements should be accentuated when banks extend financing to firms in " polluting " industries. Extending McGraw and Roberts (2000) theoretical research , the current study empirically tests whether , for firms with exposure to environmental hazards , the announcement of bank debt is "extra good news".

The remainder of this paper is organized as follows. Section II presents a literature review beginning with prior research on public vs. private debt and bank debt, followed by studies on secured debt, and concluding with research on environmental liability. In section III we formulate the hypotheses to be tested. In sections IV and V we describe the sample selection and the methodology. An analysis of the empirical results is

in section VI. Section VII provides further regression analysis and Section VIII confirms the robustness of the results. We conclude with a summary of the main findings in section IX.

## II. Literature Review

Table 3.1 presents a summary of the prior studies classified into three main categories:

**TABLE 3.1**

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**Summary of prior studies on (a) Public vs. private debt, and bank debt , (b) Secured debt and (c) Environmental liability**

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### **(a) Public vs. private debt, and bank debt**

Houston and James (1996)  
Johnson (1997)  
Krishnaswami, Spindt, and Subramaniam (1999)  
Dennis, Nandy, and Sharpe (2000)

### **(b) Secured debt**

Scott (1977)  
Stulz and Johnson (1985)  
Barclay and Smith (1995)  
Alderson and Betker (1995)

### **(c) Environmental liability**

Barth and McNichols (1994)  
Campbell, Sefcik, and Soderstrom (1998)  
Cormier, Magnan, and Morard (1993)  
Blacconiere and Patten (1994)  
Harper and Adams (1996)  
Blacconiere and Northcut (1997)  
McGraw and Roberts (2000)

**a. Public vs. private debt, and bank debt**

Houston and James (1996) examine the determinants of the mix of private and public debt using detailed information on the debt structure of 250 publicly traded corporations from 1980 to 1990. They find that the relationship between bank borrowing and the importance of growth opportunities depends on the number of banks the firm uses and whether the firm has public debt outstanding. For firms with a single bank relationship, the reliance on bank debt is negatively related to the importance of growth opportunities. In contrast, among firms borrowing from multiple banks, the relationship is positive. Johnson (1997) examines the relation between corporate debt ownership structure and several firm characteristics. The results demonstrate the importance of monitoring and information costs, the likelihood and costs of inefficient liquidation, and borrowers' incentives in affecting the firm's debt source preferences. The results suggest important differences between bank and private non-bank debt, which contrasts with most theoretical models. There is also evidence of systematic use of bank debt by firms with access to public debt, suggesting that the benefits attributed to bank debt in theoretical models remain important after firms gain access to public debt markets. Although different lenders appear to have different maturity preferences, the results also suggest debt maturity and debt ownership decisions may be separable.

Krishnaswami, Spindt, and Subramaniam (1999) empirically examine the impact of flotation costs, agency conflicts, regulation, and information asymmetries on a firm's

mix between public and private debt. Results indicate that firms with larger issue sizes exploit the scale economies in flotation costs of public debt. Firms with higher contracting costs due to moral hazard have higher proportions of private debt. The study finds limited support for the adverse selection hypothesis. According to this hypothesis, if private lenders are better informed than public lenders, then firms with greater potential information asymmetries will issue private debt. They also find little evidence that firms with favorable private information about future profitability choose more private debt. However, those firms with favorable information about future profitability that also operate under greater information asymmetry rely more on private debt.

Dennis, Nandy, and Sharpe (2000) examine the determinants of contract terms on bank revolving credit agreements of medium/large publicly traded companies. They model the duration, security status, and pricing decisions within a simultaneous decision framework, thereby overcoming the biased and inconsistent estimates in prior single equation studies of debt contract terms. They find strong interrelationships between contract terms with significant bi-directional relationships between duration and secured status and between the all-in-spread and commitment fees and a unidirectional relationship from both duration and secured status to all-in-spread. They also illustrate how several single equation studies of contract terms draw incorrect conclusions because of their assumption that other contract terms and leverage are exogenous. Finally, their results support the hypothesis that the setting of contract terms plays an important role in alleviating contracting problems.

**b. Secured debt**

Scott (1977) argues that the issuance of secured debt can increase the total value of a firm, even in the absence of corporate taxes. The paper presents a multi-period firm valuation model derived under the assumption that bankruptcy is possible. Valuation formulas are derived for equity, subordinated debt, and secured debt, and it is demonstrated that a firm following an optimal policy should issue as much secured debt as possible. It is also shown that the maximum amount of secured interest payments is an increasing function of the size of the firm. On the other hand, the study provides several plausible conjectures about the effect of bankruptcy law on the private advantages of secured debt relative to financial leases. It concludes that in some respects the financial lease provides better security than a secured bond.

Stulz and Johnson (1985) show that firms can increase their value by obtaining secured debt. The availability of secured debt alleviates the underinvestment problem. They show that by financing projects through secured debt, firms can take on additional projects that they otherwise would have rejected. The paper also provides comparative statistics and numerical solutions for the pricing of secured debt. In their model, the firm can have options on projects which can be undertaken at a future date and the exercise policy for these options could be solved for when the debt is valued. The paper concludes that not all the positive NPV projects will be undertaken when the firm has debt outstanding.

Barclay and Smith (1995) examine the priority structure across a sample of 4995 industrial firms from 1981 to 1991. They analyze the variation in the use of capital leases, secured debt, subordinated debt, and preferred stock both as a fraction of the firm's market value and as a fraction of total fixed claims. The primary focus of the paper is to provide a better understanding of the relative importance of incentive-contracting, information-asymmetry, and tax hypotheses in explaining the use of various debt instruments of different priorities. Their evidence offers consistent support for the incentive contracting hypotheses, mixed support for the tax hypotheses, and little support for the signaling hypothesis.

Alderson and Betker (1995) examine the relation between liquidation cost and capital structure for 88 firms that reorganized under Chapter 11 of the 1978 Bankruptcy Code. They find that firms with high liquidation costs use less debt than firms with low liquidation costs. Furthermore, the debt of these firms is more likely to be public and unsecured. Firms with high liquidation costs are less likely to be constrained by debt covenants that prohibit dividends, restrict capital expenditures, and prohibit changes in corporate structure. These firms are also less likely to have to prepay their debt out of excess cash flow. Firms with high liquidation costs are also much more likely to attract new equity capital as part of their reorganization process. These results provide support for the common predictions of models that relate liquidation costs to capital structure.

**c. Environmental liability**

Barth and McNichols (1994) develop estimates of firm's liabilities under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), better known as Superfund, and examine their sensitivity to various assumptions made about the regulatory and judicial process. The Superfund was enacted in 1980 to deal with the cleanup of past improper disposal of hazardous waste. According to the paper, a firm's liability estimates primarily depend on estimates for cleanup costs for sites for which the firm is responsible. The paper also examines whether there is a relation between the firm's share price and its estimated liabilities. It investigates whether the market has assessed the liability beyond what is accrued by the firm. Their analysis indicates that the type of the site, the U.S. Environmental Protection Agency (EPA) hazard score, the identified remediation technology, and the amount of contaminated soil provide explanatory power for site remediation costs. Their evidence also indicates that market participants assess an environmental liability in excess of that recognized by a sample of firms.

In a related paper, Campbell, Sefcik and Soderstorm (1998) decompose Superfund contingent liabilities into two sources: (1) uncertainty regarding site clean-up cost (*site uncertainty*); and (2) uncertainty regarding allocation of total site clean-up cost across multiple parties associated with the site (*allocation uncertainty*). The paper predicts that the contingent liabilities are relatively risky when a firm's contingent

Superfund liabilities are subject to greater site and allocation uncertainty. In order to test the hypothesis, a cross sectional model of the relation between market value of firms and book value of assets and liabilities is constructed to test the extent to which cross-sectional differences in market value are explained by a proxy for Superfund liabilities. The results show that, in the chemical industry, both site and allocation uncertainty were associated with negative valuation of contingent Superfund liabilities. The greater the uncertainty, the more negatively the contingent Superfund liability is valued. The results provide evidence, at least in those industries which are heavily involved, that site-level information of a non-financial nature can be relevant to the users of financial statements.

Cormier, Magnan, and Morard (1993) investigate the relationship between the market valuation of publicly-listed corporations and how they perform socially which is measured by their pollution record according to the environmental regulations. They hypothesize that the stock market should value companies with a good environmental record at a premium and those with a bad record at a discount. This relationship exists due to the emergence of "ethical" investing bringing with it increased awareness on the part of investors of the possible negative consequences from corporate environmental damages. The study uses governmental data consisting of a pollution index for each sample firm. The relevance of social information for investors' purposes is directly assessed by looking at the relation between the pollution index and a firm's market valuation. The results show that a firm's pollution performance is viewed by market participants as providing information about its environmental liabilities. The results

weakly support the existence of a premium (discount) in the stock market valuation of companies that meet (do not meet) environmental regulations. Their results imply the existence of a demand by some stock market participants for “ethical” investments. The paper concludes that the market participants would benefit from the disclosure of audited social information of non-financial nature in a firm’s annual report.

Blacconiere and Patten ( 1994) examine the market reaction of chemical firms to Union Carbide’s chemical leak in 1984. From the sample of the 47 firms (other than Union Carbide) with chemical operations, results show that the news of Union Carbide’s Bhopal chemical leak caused an overall negative market reaction. The study provides further evidence on the intra-industry market reactions to announcements that are expected to affect future regulatory costs. The reaction was more negative for companies which had larger ratios of chemical segment revenues to total revenues. The study also found that firms that had disclosed more environmental information in their financial reports were not affected as much or had a less negative market reaction to the Bhopal chemical leak. The paper states two possible explanations as to why this occurred. First, the measure of the extensiveness of environmental disclosures could be proxying for some other independent variable yet to be identified. Second, if the firms tend to disclose “good news” and not disclose the “bad news”, then the investors could have interpreted these prior disclosures as a positive signal with regard to the firm’s exposure to the aftermath from the Bhopal accident.

In a further study of environmental accidents, Harper and Adams (1996) use event study methods to estimate wealth effects upon firm's shareholders who are the potentially responsible parties (PRPs) at a Superfund site. These shareholders are named by the U.S Environmental Protection Agency (EPA). The impacts are divided into three periods: one is the initial program period where the stock market effects largely depend on prior visibility of the site. A second period is when the likely financial impact is more important, and the third period is when notification has little association with either visibility or financial measures. The paper finds that the expected remediation cost burden is not borne evenly. The firms with "deep pockets" seem to be disproportionately penalized by the market during the second period. The findings of this study show that firms have been penalized by the market through the "deep pocket" approach in order to assess the remediation liability. For sites where only a few publicly owned (i.e., deep pocket) companies were named along with relatively more private firms, returns to the publicly owned companies were lower, for a given expected remediation cost.

Blaconiere and Northcut (1997) examine market reactions of 72 chemical firms upon the announcements of legislative events that lead to the Superfund Amendments and Reauthorization Act (SARA). They find that the chemical firms had an overall negative reaction to the announcements of specific legislative actions which lead to the SARA. The paper also examines firm-specific environmental information that is likely to be related to market reactions. Consistent with the findings of Blaconiere and Patten

(1994), the results obtained in this study support the hypothesis that firms with more extensive disclosures had less negative reaction to the SARA legislative announcements. The evidence does suggest that investors regard extensive disclosures as a positive sign of the firm managing its exposure to regulatory costs resulting from SARA. Furthermore, chemical firms with greater exposure to future Superfund costs had more negative market reaction. However, it cannot be concluded completely that the liabilities estimated using EPA data have value relevance incremental to the environmental liabilities recorded by firms. The evidence in this study supports the general findings of Barth and McNichols (1994) that EPA data are value relevant. The study concludes that both environmental disclosures included in financial reports and environmental information from the EPA have incremental relevance in explaining the changes in share value.

McGraw and Roberts (2000) develop a model using options theory to provide a framework for understanding the nature of a lender's liability. By employing a debt valuation model, they demonstrate that secured debt can either be worth less than or be equal in value to unsecured debt. The paper also discusses testable empirical implications of environmental liability. One implication is that the announcement of secured bank debt to firms facing significant environmental risk is considered to be "extra good" news. As a result, the value of the firm's equity is predicted to show significant abnormal returns surrounding the announcement date. Another implication is that firms facing significant environmental risk are predicted to use financing

alternatives to secured bank debt. Since lenders will likely decline to lend to those firms on a secured basis, they hypothesize that the amount of secured bank debt as well as total bank debt for those firms should decline over time.

### **III. Hypotheses**

Various papers have studied share price response to environmental events. Cormier, Magnan, and Morard (1993) consider environmental legislation and potential liabilities resulting from them. They hypothesize that the worse (better) a firm's pollution record, the greater (smaller) the amount of potential liability reducing its stock market valuation. By taking into account "ethical" investing, they also hypothesize that shares of firms with positive pollution performance sell at a premium compared with those with a negative pollution record. Blacconiere and Patten (1994) predict that chemical firms would experience a negative market reaction in the period following Union Carbide's chemical leak. They also predict that firms with larger ratios of chemical segment revenues to total revenues would experience more negative reaction. Finally, they hypothesize that firms with more extensive environmental disclosures in their financial reports would experience a less negative market reaction to the chemical leak. Blacconiere and Northcut (1997) hypothesize that firms with more extensive environmental disclosures would experience a less negative market reaction and those with higher levels of future Superfund costs would experience a more negative reaction

to the events leading to the SARA. Campbell, Sefcik and Soderstorm ( 1998) hypothesize that when there is relatively greater uncertainty regarding a firm's liability for Superfund clean-up costs, the firm's contingent Superfund liabilities will be regarded as more risky. This incremental relative risk will increase the firm's cost of capital and be negatively reflected in firm value. They conclude that when substantial site and /or allocation uncertainty exists, contingent Superfund liabilities will be more negatively associated with the market value of equity.

This paper re-examines the loan announcement effect for a sample of Toronto Stock Exchange companies by first comparing the market response for a set of "environmental" firms against the response for "non-environmental" ones and then by comparing the impacts for different industries within the "environmental" firms . McGraw and Roberts (2000) predict that positive market reaction to bank debt announcements should be accentuated when banks extend financing to firms in "polluting" industries. Extending McGraw and Roberts' (2000) theoretical research , the current study empirically tests whether , for firms with exposure to environmental hazards , the announcement of bank debt is "extra good news".

The main hypotheses to be tested are:

*H<sub>1</sub> : ceteris paribus , the market reaction to the announcement of bank loans to "environmental" firms should be more positive than for "non-environmental" firms.*

*H<sub>2</sub> : ceteris paribus , within the class of “environmental” firms, the market reaction to the announcement of bank loans to firms in industries with a higher likelihood of experiencing spill events should be more positive than for those with less likelihood.*

#### **IV. Sample selection**

Our sample of 152 bank loan announcements expands the sample used in Aintablian and Roberts (2000) for the period 1988-95 (122 bank loan announcements) by adding 30 new loan announcements for the years 1996 and 1997. Only firms that are traded on the Toronto Stock Exchange are included. There are a total of 86 loan announcements to “environmental” firms and 66 for “non-environmental firms”. A firm is classified as “environmental” if it belongs to any of the seven industries (excluding the government) that are mentioned in the *Summary of Spill Events in Canada : 1984-95* published by Environment Canada. These industries represent 63 % of the total spills reported and 93% of the total quantity reported spilled. The seven industries are : Petroleum, Government, Chemical, Metallurgy, Service , Pulp and Paper, and Mining. Our classification of industries adjusts that of Environment Canada , to conform with TSE categorization of industries.

The five industries that are considered “environmental” in our sample are:

oil and gas , metals and minerals, paper and forest products , gold and precious minerals, and industrial products. The last category is a broader category which includes chemicals and the service industry together with other sub-categories. Further classification of the firms according to their SIC codes could improve the matching between Environment Canada and TSE classifications.

Daily stock returns and market index returns are obtained from the Canadian Financial Markets Research Center (CFMRC) database that includes daily opening and closing data for: prices, bids, asks, trades, and volumes for companies listed on the Toronto Stock Exchange. The daily returns in the CFMRC database are calculated as if the security were purchased at the close of day  $t-1$  and sold at the close of day  $t$ . The CFMRC value-weighted index is the market-value weighted, average daily return for all domestic equities in the database.

## **V. Methodology**

The market model is used in order to calculate excess returns. The two-day event window  $[0,1]$  is defined as the day of the announcement ( $t = 0$ ) and the following day ( $t = 1$ ). This procedure incorporates the possibility that some of the announcements are made after trading hours. The market model is estimated on daily returns for the period beginning 180 trading days before the event date and ending 31 trading days before the

event date. The excess stock return, or prediction error, for firm  $j$  over day  $t$  is defined as :

$$PE_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt})$$

where ,

$R_{jt}$  is the rate of return of security  $j$  over period  $t$

$R_{mt}$  is the rate of return on a value-weighted market index over period  $t$

$\hat{\alpha}_j$  and  $\hat{\beta}_j$  are the ordinary least squares estimates of firm  $j$ 's market model parameters .

Announcement period excess returns are calculated by summing the prediction errors for days 0 and 1 and then averaging over all firms within a particular group. Since tests of statistical significance are based on standardized prediction errors, we standardize the prediction errors for the two days dividing by the standard error of the forecast<sup>1</sup> :

$$SPE_j = \frac{\sum_{t=0}^1 PE_{jt}}{s_j}$$

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<sup>1</sup> The error terms are standardized using the method first introduced into finance by Jaffe (1974) and Mandelker (1974). MacKinlay (1997) provides a review of event study methodology. We assume that  $R_{m0} = R_{m1}$  in calculating the standard error of the forecast.

$$S_j = \left[ 2v_j^2 \left[ 1 + \frac{1}{M} + \frac{(R_{m,t} - \overline{R_m})^2}{\sum_{i=1}^M (R_{m,i} - \overline{R_m})^2} \right] \right]^{\frac{1}{2}}$$

Where,

$S_j$  is the standard error of the forecast for security  $j$  in the event period

$v_j^2$  is the residual variance of the market model regression for firm  $j$

$M$  is the number of days in the estimation period ( $M=150$ ),

$R_{m,t}$  is the market return in the event period

$\overline{R_m}$  is the mean market return over the estimation period

The average standardized prediction error is:

$$\overline{SPE}_t = \frac{1}{N} \sum_{j=1}^N SPE_{jt}$$

Finally, assuming that the individual prediction errors are cross-sectionally independent, the following  $t$ -statistic is calculated:

$$t = \sqrt{N} (\overline{SPE}_t)$$

Under the null hypothesis of no announcement effect, the standardized prediction errors ( $SPEs$ ) are distributed asymptotically  $N(0,1)$  and the mean standardized prediction error is distributed  $N(0, 1/\sqrt{N})$

$$H_0: \overline{SPE}_t = 0$$

## VI Empirical results

Table 3.2 reports full sample results of the average stock price response to loan announcements. The average excess return for all bank loans is 1.31%, a result statistically significant at the 0.01 confidence level for the sample of 152 cases. The

**TABLE 3.2**

**Average announcement period excess returns and significance tests for a sample of 152 bank loans for TSE-listed companies 1988-1997.**

Type of Announcement	sample	Average Excess Return	t-statistic
I. All loan announcements	152	1.31 %	5.68***
Environmental groups	86	1.49%	4.21*** (a)
non-environmental	66	1.02%	2.04**
II. Environmental groups			
All industries	86	1.49%	4.21***
oil & gas	18	1.76%	2.23**
metals & minerals	21	1.54%	2.29**
industrial products	18	1.48%	2.16**
paper & forest products	14	1.36%	1.86*
gold & precious minerals	15	1.24%	1.98**

(a) the difference of the mean excess returns between "environmental" and "non-environmental" firms is significant at the 0.05 level

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.10 level

average excess returns for “environmental” firms and non-environmental firms are 1.49 % and 1.02 %, respectively, and both are significant. The difference between these two results is also significant at the 0.05 level employing a t-test for differences of sample means assuming equal variances. These results are consistent with our first hypothesis ( $H_1$ ) that the market reaction to the announcement of bank debt to “environmental” firms is predicted to be more positive than for “non-environmental” firms. We had reported in Chapter 2 of this dissertation that the announcement effect is larger when monitoring is more intense. The presence of environmental risk implies that banks are expected to monitor “environmental” firms in a more intense manner. Our results in Table 3.2 are consistent with the hypothesis that the positive announcement effect increases with increased monitoring.

Table 3.2 also shows that the results for the five industries within the “environmental” group are all positive and significant. The average excess returns for the oil and gas , metals and minerals, industrial products, paper and forest products, and gold and precious minerals are 1.76 %, 1.54 %, 1.48 %, 1.36%, and 1.24 % respectively. The *Summary of Spill Events in Canada : 1984-95* published by Environment Canada reports that the total number of spills were highest for the petroleum industry (26976 spills) followed by metallurgy (4381), service industry (3863), pulp and paper (2715), and mining (1971) industries . Our results for the loan announcement effects are consistent with our second hypothesis that the market reaction to the announcement of bank debt to

firms in industries with a higher likelihood of experiencing spill events should be more positive .

## **VII. Regression analysis**

A regression analysis has the potential to validate the other tests already discussed. The introduction of qualitative variables (dummy variables) makes the regression model a flexible tool that is capable of handling many problems encountered in empirical studies.<sup>2</sup> Since such qualitative variables usually indicate the presence or absence of a “quality” , one method of “quantifying” such “qualities” is by constructing artificial variables that take on values of 1 or 0, indicating the presence (1) or absence (0) of a “quality”. By assigning the dummy variables this way, we are also able to avoid multicollinearity between the variables.

Pooling all our observations, we estimate a regression for the 152 bank loans with the two-day, announcement period, standardized excess return as the dependent variable.

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<sup>2</sup> A detailed discussion on the use of dummy variables in regression analysis is provided by Gujarati (1995), p 499-539.

We estimate the following regression equation in order to examine whether (i) being an “environmental” firm or (ii) belonging to an industry with a higher likelihood of spills influences the equity market’s reaction to loan announcements :

$$PE_i = B_0 + B_1 ENVIRONDUM + B_2 SPILLDUM + \varepsilon_i$$

Where,

$PE_i$  is the two-day abnormal return for firm  $i$

$ENVIRONDUM$  is a dummy variable equal to 1 for “environmental” firms and 0 for non-environmental ones

$SPILLDUM$  is a dummy variable equal to 1 for “environmental” firms that belong to industries with higher number of spill events (oil and gas , metals and minerals, and industrial products ) and 0 for the remaining industries (pulp and paper, gold and precious metals) and for non-environmental firms.

$\varepsilon_i$  is the error term

To correct for heteroskedasticity of cross-sectional stock returns (Lumner and McConnell 1989, Slovin, Johnson, and Glascock 1992) , both sides of the equation are divided by the standard error of the forecast  $s_i$  derived from the market model estimation. The revised regression equation becomes:

$$SPE_i = B_0 / S_i + B_1 ENVIRON DUM / S_i + B_2 SPILL DUM / S_i + \varepsilon_i / S_i$$

where,  $SPE_i$  is the standardized two-day announcement return for firm  $i$ .

The regression results are:

$$SPE_i = 0.66 / S_i + 0.39 ENVIRON DUM / S_i + 0.23 SPILL DUM / S_i + \varepsilon_i / S_i$$

$(t = 2.56)$ 
 $(t = 1.98)$

$$R^2 = 0.22$$

$$N = 152$$

Consistent with the results reported in Table 3.2, the coefficients for the “environmental” dummy and spill events dummy are positive and significant at the 0.01 and 0.05 confidence levels respectively. These results are also consistent with the two main hypotheses that the announcement of bank debt to “environmental” firms in general, and to industries with higher number of spill events in particular, is considered “extra good” news by the market.

### VIII. Robustness of the results

In this section, we examine whether our results may have alternative interpretations. One possibility is that our variables in the previous regression (ENVIRON DUM , SPILL DUM ) may be serving as proxies for other factors

determining the market's reaction. For this reason, we specify additional variables reflecting characteristics of the bank loan.

For the new regression, the independent variables are:

$X_1$ : a dummy variable indicating whether the firm is “environmental”

$X_2$ : a dummy variable indicating whether the firm belongs to industries with higher number of spill events (oil and gas, metals and minerals, and industrial products)

$X_3$ ,  $X_4$  and  $X_5$ : three dummy variables indicating whether: (i) the loan is with the same bank, (ii) the loan is a favorable renewal and (iii) the loan is a restructuring.

$X_6$ ,  $X_7$ : two dummy variables indicating whether: (i) the loan is syndicated, and (ii) whether the loan has medium to long term maturity.

The dummy variables  $X_3$ ,  $X_4$ ,  $X_5$ ,  $X_6$ , and  $X_7$  were initially used in Chapter 2 as explanatory variables for abnormal returns associated with the announcement of corporate loans. We have only used the variables that had statistically significant coefficients in the regression analysis conducted in Chapter 2. These variables are drawn from a number of earlier studies of loan announcement effects.<sup>3</sup>

The regression equation is:

$$SPE_i = \frac{D_0}{s_i} + \sum_{l=1}^{l=7} \frac{D_l X_l}{s_i} + \frac{\varepsilon_i}{s_i}$$

---

<sup>3</sup> Chapter 2 reviews prior studies.

Where,

$SPE_i$  : is the two day standardized excess return for stock  $i$

$D_0$  : is the intercept

$D_1 \dots D_7$  are the coefficients of the dummy variables

$X_1 \dots X_7$  are the independent variables

$S_i$  : is the standard error of the excess returns for stock  $i$

The regression results are in Table 3.3 . Note that, for this regression, we have used only a sample of 122 observations, excluding 30 observations that lack information regarding the variables tested. The results show that the first two variables (the “environmental” dummy, and the “spill events” dummy) are both positive and significant at the 0.05 and 0.10 confidence levels respectively. The remaining variables  $X_3 \dots X_7$  which were initially tested in Chapter 2 have maintained their predicted sign and statistical significance. It is clear that the first two variables continue to have a significant impact, when alternative factors “causing” the market reaction are examined. This shows that the “environmental” variable and the “spill events” variable do not convey “redundant” information. Hence, we conclude these variables do not serve as a proxy for other borrower or loan characteristics.

**TABLE 3.3**

**Results of regression of standardized excess returns on various standardized dummy variables for a sample of 122 bank loans for TSE-listed companies.**

Variable	coefficient	t-statistic
$X_1$ (1 if "environmental" firm, 0 otherwise)	0.27	2.03**
$X_2$ (1 if "high spill" industry, 0 otherwise)	0.13	1.77*
$X_3$ (1 if same bank, 0 otherwise)	0.29	2.11**
$X_4$ (1 if renewal loan, 0 otherwise)	0.31	2.76***
$X_5$ (1 if restructuring loan, 0 otherwise)	0.47	3.01***
$X_6$ (1 if syndicated loan, 0 otherwise)	-0.24	-1.98**
$X_7$ (1 if medium-term and long-term maturity, 0 otherwise)	-0.29	-1.74*
intercept	0.05	
R-square	0.29	

\*\*\* significant at the 0.01 level

\*\* significant at the 0.05 level

\* significant at the 0.10 level

## **IX. Conclusions**

This chapter re-examines the loan announcement effect for a sample of Toronto Stock Exchange companies by first comparing the market response for a set of “environmental” firms against market response for “non-environmental” ones and then by comparing the impacts for different industries within the “environmental” firms . McGraw and Roberts’ (2000) predict that positive market reaction to bank debt announcements should be accentuated when banks extend financing to firms in “polluting” industries. Extending McGraw and Roberts (2000) theoretical research , the current study empirically tests whether, for firms with exposure to environmental hazards, the announcement of bank debt is “extra good news”.

By examining the excess returns for a sample of 152 loan announcements, we find evidence in favor of the hypothesis that the market reaction to the announcement of bank debt to “environmental” firms is more positive and significant than for “non-environmental” firms. We also find that, within the class of “environmental” firms, the market reaction for firms in industries with a higher likelihood of experiencing spill events is more positive and significant than for those with a lower likelihood. The relationship between excess returns and the two variables that differentiate “environmental” firms from others is positive and significant, as predicted. We check the robustness of our findings by taking into account certain borrower and loan

characteristics. We conclude that our main variables do not serve as proxies for other explanatory variables.

Overall, the current study contributes in two ways to traditional research on the role of banks in corporate lending. First, it reinforces earlier results obtained in Chapter 2 which establish a relationship between specific loan / borrower characteristics and announcement period excess returns. Second, it provides further evidence on the “uniqueness” of bank loans, by demonstrating the superior capacity that banks possess to monitor corporate borrowers that are exposed to environmental liability.

## **Chapter 4**

### **Market Response to Announcements of Mergers of Canadian Financial Institutions**

#### **I. Introduction**

Globalization, technology, deregulation and demographic changes are major driving forces behind consolidation in the financial services sector worldwide. In certain regions, local factors are also important in shaping financial institution mergers. In Europe, the introduction of the " euro " is leading to increases in consolidation in order to exploit the capacity to deliver cross-border financial services in a single currency. In the United States, the elimination of regulatory restrictions on interstate branching is resulting in the construction of a national banking system. Despite the recognition that these local factors exist, the overwhelming majority of evidence on motives for mergers of financial institutions is from U.S. (Berger, Demsetz and Strahan (1999)). This raises the question of how readily generalizable these results are to other countries with different banking systems.

The goal of the present paper is to reexamine those motives in the context of a current, Canadian data set. The organization of the remainder of this paper is as follows: Section II reviews prior studies of mergers of financial services firms. In Section III, we provide a brief overview of the salient features of the Canadian system. Section IV synthesizes the preceding discussions of prior research and system architecture to arrive at a series of hypotheses for empirical testing. We present our data and methodology in Section V and the results in Sections VI and VII. Section VIII concludes the paper.

## **II. Prior Research on Mergers in the Financial Services Sector**

The incentives for banks to merge are similar to those for non-financial firms. These incentives arise mainly from efficiency considerations (Freedman and Goodlet (1997)) and agency issues.

### **a. Efficiency Considerations in Bank Mergers**

Berger, Demsetz and Strahan (1999) evaluate the causes, consequences, and future implications of financial services industry consolidation. An extensive literature review shows that evidence is consistent with increases in market power, improvements in profit efficiency and diversification of risks. On the other hand, there is little or no cost efficiency improvement on average.

Most research has concluded that economies of scale and scope are limited for large financial institutions. One exception is the study by Cummins, Tennyson, and Weiss (1999) examining the relationship between mergers and acquisitions, efficiency, and scale economies in the U.S. life insurance industry. The study finds that acquired firms achieve greater efficiency gains than firms that have not been involved in mergers or acquisitions.

In an early Canadian study, Murray and White (1983) analyze the cost functions of credit unions in Canada to identify and measure the presence of economies of scale and scope in their production technology. Their results show that large, multiproduct credit unions are more cost efficient than small, single-product ones. Nathan and Neave (1992) estimate Canadian banks' cost functions and evaluate measures of scale economies and cost complementarities. They find that Canada's concentrated banking system exploits and exhausts available sources of scale economies and cost complementarities. They conclude that the mergers and acquisitions of financial institutions that lead to concentrated financial systems may not imply any substantial increases in costs; in fact, banks may try to reduce costs to maintain competitive advantages.

Several studies use the stock price response of commercial banks and securities firms to examine the risk and return effects of the announcement of bank entry into the discount brokerage industry. Saunders and Smirlock (1987) find that, while bank profitability and risk were largely unaffected by such entry, securities firms experienced a significant decline in market value. The study concludes that the objection of the securities

industry to bank discount brokerage expansion was largely self-serving and that bank safety and soundness were not affected. Davidson, Hatfield and Glascock (1994) also examine the common stock returns of three groups of bidders purchasing brokerage houses. Only in cases in which one brokerage house purchases another are there significant abnormal returns. Neither of the other two groups of bidders, bank holding companies and non-financial firms, gained significantly when purchasing a brokerage house. Kryzanowski and Ursel (1993) examine the market reaction to announcements of legislative changes and Canadian bank takeovers of investment dealers. They find statistically significant and positive excess returns for the target investment dealers and negative excess returns for the acquiring banks. Their results suggest that any potential benefits from economies of scope in joint bank/brokerage activities were reflected in the offering prices banks paid to target investment dealers.

Banks may merge to increase market power. Rose (1987) studied the performance of national bank mergers from 1970 to 1980. He found that acquiring banks had lower operating efficiency and productivity than nonmerging banks, and their profitability did not increase after the mergers. His findings are consistent with the hypothesis that some bank mergers have occurred solely to increase market power. Hannan and Prager (1998) estimate a concentration-profits relationship to examine the price effects of mergers in banking. They find that, over the period 1992-1994, participants in large horizontal mergers and their competitors reduced the rates they paid on deposits more than did banks

located in the markets where there were no large horizontal mergers. Akhavein, Berger and Humphrey (1997) assess the effect of "megamergers" on loan and deposit interest rates in the United States. They find that interest charged by merging banks fell relative to their peer group after the merger. Interest paid on deposits also fell relative to the peer group. Both changes were small and statistically not significant.

Another group of studies contrasts two additional motives for bank mergers: diversification of earnings and assets vs. drawing on government safety nets by becoming "too big to fail". Saunders and Wilson (1999) investigate bank consolidation and safety-net provisions in Canada, the UK and the US over a 100-year period. The study finds that consolidation reduces bank failures and that, despite increased safety-net support, bank asset-risk levels have remained flat historically. Kryzanowski and Roberts (1993) challenge the view that diversification benefits from national branching kept Canadian banks solvent during the 1930s. They argue that the superior performance of Canadian banks was due to the government policy of encouraging merger of troubled banks, "too big to fail", with healthier ones.

Benston, Hunter, and Wall (1995) examine the price bid to acquire target banks in the early to mid-1980's. The study focuses on two contrasting hypotheses on pricing in these mergers. The earnings diversification hypothesis states that banks bid more for merger partners that offer potential cashflow enhancements as a result of earnings diversification. According to this hypothesis, the acquiring banks seek earnings

diversification in an effort to generate higher levels of cashflow for the same level of risk. The deposit-insurance put-option hypothesis states that acquirers bid more for targets that offer opportunities to increase risk and/or to become too big to fail. The empirical results are consistent with the earnings diversification hypothesis and inconsistent with the deposit insurance put-option hypothesis. In contrast, Kane (2000) provides support for the latter hypothesis.

**b. Agency Issues in Banking**

In addition to the motivations already discussed, managers may seek mergers in order to further their own personal interests at the expense of the shareholders. Allen and Cebenoyan (1991) distinguish between mergers based on different managerial motivations. They divide acquiring banks into two categories: (1) When the management has a relatively high ownership in the bank, and (2) When the bank's ownership is relatively highly concentrated. Their hypothesis states that managers are more likely to act in their shareholders' best interests if they own a high proportion of the firm's stock. Hence, moral hazard problems between management and shareholders should be at a minimum in a firm when (1) and (2) hold. This kind of acquiring firm is viewed by the stock market as undertaking an acquisition in the best interests of its shareholders. In a sample of 138 acquisitions between 1979 and 1986, acquiring banks with (1) and (2) displayed positive

abnormal returns of 1.22% when an acquisition announcement was made. All other groups of acquirers experienced negative abnormal returns.

Reinforcing evidence comes from Saunders, Strock and Travlos (1990 ) who compare “managerially controlled” banks, whose managers held a large portion of the bank’s stock with “stockholder-controlled” banks. The study finds that “stockholder-controlled” banks exhibited significantly higher risk-taking behavior than “managerially-controlled” banks.

A related problem in mergers is the *winner’s curse*. In any auction, even if the average bidder accurately estimates the value of the object sold, some bidders will overestimate and others will underestimate the target’s value. Unless there are strong synergies associated with the acquisition, the winning bidder is likely to be the one who most overestimates the value. Roll suggests that managers commit errors of over-optimism in evaluating potential merger candidates, thus bidding more than they should and transferring all gains from the transaction to the target shareholders. Studies have examined whether the winner’s curse phenomenon holds in specific types of bank acquisitions. Gilberto and Varaiya (1989) examine FDIC sealed-bid purchase assumption transactions. They find that winning bids increase with the number of bidders, and the bid levels of all bidders rise with the number of bidders. James and Wier (1987a) examine a sample of 60 randomly chosen bank acquisitions that occurred between 1972 and 1983. They find that the acquiring firms’ abnormal returns are positive. They also find a positive

relation between returns to acquirers and the number of potential bidders. Another study, James and Wier (1987b), tests whether failed bank auctions result in wealth transfers from the FDIC to the acquiring banks, by examining the returns to the winning bidders. Here also, the relation between the returns to winning bidders and the number of participating bidders is negative.

Studies of mergers of non-financial firms find that targets experience positive abnormal returns and bidders experience zero abnormal returns (Dennis and McConnell (1986)). In contrast, Cornet and De (1990) examine interstate bank mergers and find significant positive announcement returns for the bidding firm's stock. Baradwaj, Fraser, and Furtando (1990) examine proposed bank mergers and discover that the net total wealth effects of hostile and friendly acquisitions are significantly different. Hostile acquisitions' announcements produced approximately a 25% average increase in the total market value of the merging banks' equity, whereas friendly merger announcements produced approximately 14% average increase. Also, the targets of hostile bank acquisitions experienced a larger average increase in equity value than the targets of friendly acquisitions. The study also found that good performance by the target bank prior to the merger was associated with a friendly acquisition attempt, whereas poor performance was associated with hostile takeover attempts.

Related to performance, it is possible that the acquiring bank believes that its stock is overvalued. In this case, the bidder would prefer to acquire the target bank by paying at

least partly with its own “overvalued” stock. The target bank then would demand a higher price. Informational asymmetries of this kind can create incentives for bidders to come up with techniques of disclosing information. One technique is the conditional stock offer, which conditions the number of shares issued on the bidding firm’s stock price around the time of the merger’s closing as opposed to the announcement. The willingness of the acquiring firm to make a conditional stock offer signals that the acquiring firm does not believe its stock is overvalued. Houston and Ryngaert (1994) studied a sample of bank mergers from 1985-1991. They found that the return to bank mergers is related to the method of financing used by acquiring banks. They also found that the increased use of stock results in more negative returns, although the use of conditional or preferred stock results in more positive returns than using common stock with a fixed exchange ratio.

There are three main arguments against takeovers in banking. First, critics of takeovers are concerned that social costs are not counted in the post-takeover search for efficiency gains. Robinson (1991) argues that corporate takeovers involve winners and losers. Target shareholders win and other stakeholders lose. He concludes that, in the end, even target shareholders may lose if they cannot reinvest their funds profitably. A second argument against takeovers is that they induce myopic decision-making. Stein (1988) provides a model in which takeover threats induce myopic investment behavior by managers. There is asymmetric information between the manager and the capital markets. The manager knows the firm’s true value, whereas the market attempts to discount this

value from current earnings. By diverting cashflows from long-term investments, the manager can inflate current earnings to convey "good news". Third, the adverse publicity associated with a takeover may harm banking relationships with customers by creating uncertainties that cause some customers to switch banks.

### **III. Brief Overview of Financial Institutions in Canada**

Traditionally, the financial sector in Canada was represented by the "four pillars": banks, insurance companies, trust companies and investment dealers. Cross-ownership between "pillars" was prohibited. The reforms of 1987-1992 introduced a new era of universal banking in Canada, in which cross-holding of financial institutions was permitted and networking among institutions that provide different services and products was allowed. However, the Bank Act of 1992 did not allow the merging of different intermediary services in a single financial institution. Instead, it allowed cross-ownership between the four pillars.

The financial services industry is dominated by the highly concentrated banking sector (Kryzanowski and Roberts (1992)). This sector, which comprises 53 Schedule I and II banks, held 46% of the total financial service industry assets in 1997 (Task Force (1998)). The shares of Schedule I banks must be either owned by another Canadian financial institution or widely held according to the 10-25 rule, which states that no single

shareholder can own more than 10 % of outstanding shares and that, in aggregate, foreign shareholders can own no more than 25% of outstanding shares.<sup>1</sup> Garvey and Giammarino (1998) examine the effect of ownership restrictions on the market value and cost of capital for Schedule I Canadian banks. The study presents evidence that restrictions on takeovers could significantly depress bank prices, especially when banks are seen as take-over targets rather than potential bidders. This conclusion is buttressed by a study of recent proposed changes to merger regulations in Australia.

Like the banking sector, Canada's life insurance sector is also concentrated, but to a lesser degree. Over 70 % of the sector's domestic assets are controlled by the top six life insurers. Approximately 25 % of the industry's assets are controlled by stock companies, whose shares are listed on Canadian stock exchanges.<sup>2</sup> As more life insurers are demutualizing, it is expected that this sector will experience further mergers and acquisitions. Amoako-Adu and Smith (1995) investigate the wealth effects of the regulatory reforms on financial institutions. Their results show that the regulatory changes had a significant impact only for the insurance industry, exhibited by shareholder gains.

Credit unions and trust companies control only 8 % of the domestic financial industry assets. Owned by their members, credit unions are less motivated by profit maximization than shareholder owned banks. With the removal of the traditional pillar

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<sup>1</sup> These rules were in effect during the sample period and have changed more recently.

<sup>2</sup> These figures are from the period prior to the demutualization of major life insurers in Canada.

system, trust companies have positioned themselves in the industry as providers of personal finance under bank and insurance ownership.

A financial services sector that has evolved significantly is the investment dealers sector. Since 1987, banks have been allowed to enter this sector. The bank-owned firms have about a 60% share in underwriting, about 55% of commission revenue and about 65% of fixed-income trading.<sup>3</sup>

#### **IV. Testable Hypotheses**

In this section, we develop testable hypotheses for Canadian FI mergers by synthesizing prior U.S. tests in the context of Canadian institutional arrangements.

Since target firms are given an inducement to accept an acquisition, they are expected to earn abnormal returns during the announcement, regardless of the motivation of the acquisition.

If the motivation of the merger is non-value maximizing, such as growth in assets or to control a large empire, then any positive gains obtained by the target shareholders would be offset by a loss to the acquiring firm's shareholders. In this case, target firms are expected to earn positive abnormal returns, whereas acquiring firms are expected to have negative abnormal returns during the announcement period.

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<sup>3</sup> Investment Dealers Association of Canada (1997).

Houston and Ryngaert (1994) suggest that bank managers may be willing to undertake value reducing acquisitions if they believe that no mechanism is in place to discipline them for their actions. Benston, Hunter and Wall (1995) add that bank managers may be interested in pursuing growth to enhance their salaries, perquisites, and personal prestige. Allen and Cebenoyan (1991) find that these agency conflicts in banks are minimized through management ownership of shares and shareholder concentration. In this case, acquirers may experience positive abnormal returns similar to target banks.

In our sample, most of the acquirers are banks, and they are widely held due to the rule limiting ownership by one party to 10%. This implies that in the presence of agency conflicts, the acquiring banks will not have positive abnormal returns.

On the other hand, if the motivation for the acquisition is value-maximizing, due to diversification, synergies, asymmetry of information or to control the target, there should be a positive expected economic gain. In this case, the target firm is expected to earn positive and significant abnormal return, and the acquiring firm is expected to earn a non-negative abnormal return during the announcement period. The positive abnormal returns are expected to be most significant if the motivation of the merger is to increase efficiency through economies of scale, economies of scope and by other revenue enhancement and cost reduction mechanisms. Akhavein, Berger and Humphrey (1997) find significant increase in profit efficiency and non-significant cost efficiencies associated with U.S. bank megamergers. Houston and Ryngaert (1994) find that mergers are more profitable when

the acquirer and the target operate in the same market. This type of merger allows for the closing of redundant branch and head office facilities. This is evident in Canada because of nationwide branching of financial institutions. In addition to banks and investment dealers, our research also studies in-pillar and cross-pillar mergers of other financial institutions: insurance, trust and finance companies. When the merger is horizontal (in-pillar) we expect to see economies of scale, and when the merger is cross-pillar, we search for economies of scope.

Cornett and De (1991) document significant positive abnormal returns for both acquirers and target banks. They suggest that there are factors unique to bank mergers that serve to increase acquirers' returns in relation to non-financial mergers. One of these factors is capital quality. The argument here is that the shareholders of an acquiring bank might gain from the announcement of a proposed acquisition if the announcement gives a favorable signal of the capital position of the acquiring bank.

Another factor unique to the financial sector is regulation. Amoako-Adu and Smith (1995) study the effects of deregulation of Canadian financial institutions. They find that only the insurance industry experienced significant gains from deregulation. Our study will investigate whether this is reflected in merger activity with a particular focus on insurance companies.

Finally, our sample includes Canadian banks that have acquired international financial firms. Waheed and Mathur (1995) discuss various motivations of banks to

expand internationally through acquisitions. One of the motivations is the desire to manage risk through international diversification. Another motivation is that banks seek to increase profits by exploiting imperfections in factor and product markets and by gaining financial economies in the cost of debt. The results of their study show that shareholders of U.S. banks engaged in foreign acquisitions experience significant negative abnormal returns. This suggests that the costs and risks associated with foreign acquisitions outweigh the diversification benefits expected. When the international acquisitions are divided into developed vs. developing countries, the results are different. Acquisitions of developed countries' institutions are associated with significantly negative abnormal returns, while acquisitions in more risky developing countries are associated with significantly positive abnormal returns. The difference occurs because the economies of the developing countries are least integrated with the U.S. and therefore, the diversification benefits are expected to be higher when U.S. banks acquire financial firms in developing countries.

Peek, Rosengren and Kasirye (1999) examine foreign acquisitions of U.S. banks to determine whether the observed poor performance of foreign subsidiaries is the result of changes in business strategy attributable to the merger or of the pre-existing characteristics of the target bank. The study finds that many of the problems were already present at the time of the acquisition and the changes in business strategy by foreign owners were generally not successful in raising the bank's performance level to that of its domestic

peers. Our sample shows that Canadian banks were actively involved in foreign acquisitions. We investigate whether our results support prior research conducted in U.S.

Table 4.1 provides a summary of the hypotheses to be tested in this study.

**TABLE 4.1**

Summary of announcement effects on the excess returns for the acquirer and target financial institution according to motivation of merger

Motivation of merger	predicted impact on acquirer's excess return	predicted impact on target's excess return
<b>I. non-value maximizing</b>		
(growth in assets , control a large empire) Houston and Ryngaert ( 1994 ) Benston , Hunter , and Wall ( 1995 )	negative	positive
(management ownership and shareholder concentration) Allen and Cebenoyan (19 91 )	non-negative	positive
<b>II. value maximizing</b>		
(capital quality) Cornet and De (1991)	positive	positive
(deregulation) Amoako-Adu and Smith (1995)	positive	positive
(economies of scale, economies of scope) Akhavein, Berger, and Humphrey (1997)	positive	positive

## **V. Data and methodology**

The announcements of mergers and acquisitions in the financial services sector for the period 1990-1999 are obtained from the *Directory of Mergers and Acquisitions in Canada*. The data provided include the type of the acquirer and the target, the announcement date, book value of equity for the acquirer and the target, and the method of acquisition. The financial institutions are classified according to Toronto Stock Exchange categories: Banks, trusts/savings and loan companies, investment companies and funds, insurance companies, and financial management companies.

Only financial services firms, whether acquirers or targets, that are publicly traded on the Toronto Stock Exchange are included in the study. As a result, our sample has more publicly traded acquirers than targets. This occurs for two reasons: first, most of the acquirers are relatively large financial institutions that are more likely to be publicly traded than the targets; second, foreign targets are excluded.

Daily stock returns are obtained from the Canadian Financial Markets Research Center (CFMRC) database. The daily returns in the CFMRC database are adjusted for dividends and stock splits. The CFMRC value-weighted index is used as the market proxy.

The market model is used in order to calculate excess returns for the acquiring firm and the target around the merger event. A two-day event window  $[0,1]$  is defined as the

day of the announcement (t=0) and the following day (t=1). This procedure incorporates the possibility that some of the announcements are made after trading hours.<sup>4</sup> The market model is estimated on daily returns for the period beginning 180 trading days before the event date and ending 31 trading days before the event date. The abnormal return (AR), or prediction error, for firm  $j$  over day  $t$  is defined as :

$$PE_{jt} = R_{jt} - (\hat{\alpha}_j + \hat{\beta}_j R_{mt})$$

where ,

$R_{jt}$  is the rate of return of security  $j$  over period  $t$

$R_{mt}$  is the rate of return on a value-weighted market index over period  $t$

$\hat{\alpha}_j$  and  $\hat{\beta}_j$  are the ordinary least squares estimates of firm  $j$ 's market model parameters .

Announcement period excess returns are calculated by summing the abnormal returns for days 0 and 1 and then averaged over all firms within a particular group.

The cumulative abnormal returns (CARs) are calculated in a similar manner by summing the abnormal returns from day -20 to day -1. Since this period is prior to the announcement, any positive CARs could suggest that information leaked prior to the announcement date. An alternative explanation is the acquisition probability hypothesis of Song and Walking (2000) which suggests that an announcement of a merger bid for firm

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<sup>4</sup> MacKinlay (1997) states that expanding the event window in this way is a common practice unlikely to introduce any significant bias.

A will produce abnormal returns for rivals B and C in anticipation of bids for their shares.

Since tests of statistical significance are based on standardized prediction errors, we standardize the prediction errors by dividing with the standard error of the forecast :<sup>5</sup>

$$SPE_j = \frac{\sum_{t=0}^1 PE_{jt}}{s_j}$$

$$s_j = \left[ 2v_j^2 \left[ 1 + \frac{1}{M} + \frac{(R_{mt} - \overline{R_m})^2}{\sum_{t=1}^M (R_{mt} - \overline{R_m})^2} \right] \right]^{\frac{1}{2}}$$

Where,

$S_j$  is the standard error of the forecast for security  $j$  in the event period

$v_j^2$  is the residual variance of the market model regression for firm  $j$

$M$  is the number of days in the estimation period (i.e  $M = 150$ ),

$R_{mt}$  is the market return in the event period

$\overline{R_m}$  is the mean market return over the estimation period

The average standardized prediction error is:

$$\overline{SPE}_t = \frac{1}{N} \sum_{j=1}^N SPE_{jt}$$

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<sup>5</sup> The error terms are standardized using the method first introduced into finance by Jaffe (1974) and Mandelker (1974). MacKinlay (1997) provides a review of event study methodology. We assume that  $R_{m0} = R_{m1}$  in calculating the standard error of the forecast.

Assuming that the individual prediction errors are cross-sectionally independent, the following  $t$ -statistic is calculated:

$$t = \sqrt{N}(\overline{SPE}_t)$$

Under the null hypothesis of no announcement effect, the standardized prediction errors ( $SPEs$ ) are distributed asymptotically  $N(0,1)$  and the mean standardized prediction error is distributed  $N(0, 1/\sqrt{N})$

$$H_0: \overline{SPE}_t = 0$$

For those samples that convey statistically significant results, we employ further tests to determine whether the differences in average abnormal returns are significantly different across groups.

## **VI. Empirical Results**

### **a. Full Sample Tests**

Table 4.2 provides full sample results for the announcements of acquisitions by

**TABLE 4.2**

**Pre-announcement period [-20,-1] cumulative abnormal returns [CARs] and announcement period [0,1] abnormal returns [ARs] for a sample of acquisitions of Canadian financial institutions**

I. Full sample	n	CAR [-20,-1]	AR [0,1]
Acquiring institutions	146	0.23%	2.15% (***)
Acquired institutions	47	18.28% (**)	10.77% (***)
in-pillar	n	CAR [-20,-1]	AR [0,1]
Acquiring institutions	92	-1.12%	2.58% (***)
Acquired institutions	30	27.97% (**)	12.75% (**)
cross-pillar	n	CAR [-20,-1]	AR [0,1]
Acquiring institutions	54	2.69 %	1.05 % (***)
Acquired institutions	17	1.18 % (*)	7.30 % (*)

**II. Acquiring institutions**

	domestic target			foreign target		
	n	CAR [-20,-1]	AR [0,1]	n	CAR [-20,-1]	AR [0,1]
in-pillar	44	-2.87 %	2.11 % (**)	48	0.28%	3.45% (***)
cross-pillar	38	3.54 %	1.36 % (**)	16	0.69%	0.32% (*)
total	82	0.10 %	1.76 % (***)	64	0.38%	2.66% (***)

**III. Acquired institutions**

	domestic			foreign		
	n	CAR [-20,-1]	AR [0,1]	n	CAR [-20,-1]	AR [0,1]
in-pillar	30	27.97 % (**)	12.75 % (**)	-	-	-
cross-pillar	17	1.18 % (*)	7.30 % (*)	-	-	-
total	47	18.28 %	10.77 % (***)	-	-	-

(\*\*\*) significant at the 0.01 level

(\*\*) significant at the 0.05 level

(\*) significant at the 0.10 level

Canadian financial institutions.<sup>6</sup> The average abnormal return (Panel I) for both acquiring and target firms is positive and statistically significant. Unlike studies for non-financial firms, and consistent with many U.S. studies, the acquiring financial firms experience a positive average abnormal return during the announcement period. This result suggests that acquisitions in the financial industry are, in general, driven by value-maximizing motivations. Acquired institutions experienced higher returns than acquiring ones for both in-pillar and cross-pillar offers. Focusing on the acquiring firms' returns in Panel II, we find that the ARs for acquiring banks are less positive for foreign acquisitions (0.68 %,) than for domestic ones (1.76% ). This difference is statistically significant using a t-test for differences between means and supportive of the finding of Waheed and Mathur (1995) who report that the risks and costs associated with foreign expansions outweigh any diversification benefits from those expansions. Panel III of Table 4.2 presents abnormal returns for acquired institutions. Because we have data only for Canadian targets, Panel III is simply a recap of the full sample (Panel I). It shows that for targets, in-pillar mergers create greater value.

Table 4.3 provides the announcement effects of in-pillar and cross-pillar *domestic* acquisitions, classified by acquiring and acquired financial institution. Each cell in Table 4.3 shows returns for acquiring and target firms, respectively. For in-pillar merging

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<sup>6</sup> We focus our comments on the average residuals for the event window, AR[0,1]. Table 4.2 also provides cumulative abnormal returns for the 20 days immediately preceding the event window.

institutions, significant results are observed when both firms are investment companies or financial management companies.

**Table 4.3**

**Pre-announcement period [-20,-1] cumulative abnormal returns [CARs] and announcement period [0,1] abnormal returns [ARs] for a sample of domestic acquisitions of Canadian financial institutions.**

		Domestic Targets									
		Banks		Insurance		Trust		Invest.Co.		Financial Mngt.Co.	
Acquirers		n=6	n=3	n=3	n=0	n=11	n=2	n=4	n=1	n=2	n=1
<b>Banks</b>											
	[-20,-1]	-2.03%	3.56% (*)	-1.45%	-	3.69%	8.55%	-1.23%	9.51%	-1.56%	-7.85%
	[0,1]	0.44% (*)	4.88% (*)	0.34%	-	1.16% (**)	24.37% (*)	0.88% (*)	6.98%	0.54%	3.75%
<b>Insurance</b>		n=0	n=0	n=3	n=4	n=0	n=3	n=0	n=0	n=1	n=1
	[-20,-1]	-	-	-2.81%	3.76% (*)	-	0.81%	-	-	-1.78%	0.33%
	[0,1]	-	-	3.33% (*)	4.60% (*)	-	0.64%	-	-	0.76%	3.01%
<b>Trust Co.</b>		n=0	n=0	n=0	n=0	n=5	n=4	n=2	n=2	n=2	n=1
	[-20,-1]	-	-	-	-	0.23%	23.29% (*)	0.08%	-4.16%	11.38%	-3.95%
	[0,1]	-	-	-	-	0.08% (*)	2.09% (*)	-1.90%	10.32%	-0.01%	1.07%
<b>Invest Co.</b>		n=0	n=0	n=0	n=0	n=1	n=1	n=15	n=6	n=5	n=1
	[-20,-1]	-	-	-	-	0.71%	1.33%	-1.88%	65.48% (*)	-2.82%	11.51%
	[0,1]	-	-	-	-	-0.01%	1.49%	1.96% (***)	25.63% (***)	3.58% (*)	5.26%
<b>Fin.mng. Co.</b>		n=0	n=0	n=1	n=1	n=2	n=1	n=4	n=2	n=15	n=13
	[-20,-1]	-	-	1.65%	1.84%	15.54%	16.44%	16.44%	-10.13%	-5.22%	25.17% (**)
	[0,1]	-	-	-1.98%	2.45%	-0.75%	5.58%	5.58% (*)	11.62%	3.38% (***)	14.42% (***)

(\*\*\*) significant at the 0.01 level

(\*\*) significant at the 0.05 level

(\*) significant at the 0.10 level

**Table 4.4**

**Pre-announcement period [-20,-1] cumulative abnormal returns [CARs] and announcement period [0,1] abnormal returns [ARs] for a sample of foreign acquisitions of Canadian financial institutions.**

	<i>Foreign Targets</i>				
	<u>Banks</u>	<u>Insurance</u>	<u>Trust</u>	<u>Invest. Co.</u>	<u>Fin.Mngmt Co.</u>
<i>Acquirers</i>					
<u>Banks</u>	n = 8	n = 0	n = 0	n = 11	n = 2
[-20,-1]	1.77%	-	-	1.70%	-6.84%
[0,1]	-0.47% (**)	-	-	0.46% (**)	-1.19%
<u>Insurance</u>	n = 0	n = 27	n = 0	n = 0	n = 0
[-20,-1]	-	-1.03%	-	-	-
[0,1]	-	5.57% (***)	-	-	-
<u>Trust</u>	n = 0	n = 0	n = 0	n = 0	n = 0
[-20,-1]	-	-	-	-	-
[0,1]	-	-	-	-	-
<u>Investment Co.</u>	n = 0	n = 0	n = 0	n = 9	n = 0
[-20,-1]	-	-	-	3.64%	-
[0,1]	-	-	-	2.12% (**)	-
<u>Fin.mngmnt Co.</u>	n = 0	n = 0	n = 1	n = 2	n = 4
[-20,-1]	-	-	1.33%	2.34%	-1.41%
[0,1]	-	-	0.64%	0.97%	0.03%

(\*\*\*) significant at the 0.01 level  
 (\*\*) significant at the 0.05 level  
 (\*) significant at the 0.10 level

In Table 4.4 we focus on the *foreign* acquisitions of Canadian financial institutions classified by type of institution. Our sample indicates that, Canadian financial institutions tend to acquire foreign targets that are of the the highest average abnormal return when they make foreign in-pillar acquisitions. The difference between investment firms' abnormal return and that of the insurance firms is significant at a 90% confidence level despite the small sample size. For the acquiring banks, in-pillar foreign acquisitions result in a negative average abnormal return which is significant at the 95 % level. This result does not support the existence of economies of scale when domestic large banks acquire their foreign counterparts. Instead, it may indicate an increase in the overall risk level of the acquiring bank. For cross-pillar foreign acquisitions, the only notable trend is the acquisition of foreign investment companies by domestic banks. In this case, the average abnormal return for the acquiring banks is positive and significant which indicates potential existence of economies of scope in the acquisition of foreign investment companies by domestic large banks.

Wiggins, Gleason and Mathur (2000) examine the cross-product expansion strategies of U.S. banks from 1980 through 1998 .They find that the market responds favorably to the formation of joint ventures with non-bank firms, but there are no identifiable abnormal returns from the announcement of a cross-product bank merger. Their results suggest that joint ventures provide U.S. banks with value-enhancing opportunities for product market diversification. Turning to our results on foreign

acquisitions (Table 4.4), we observe that the announcement of the acquisition of a foreign bank by a Canadian bank produces a  $-0.47\%$  excess return which is significant at the  $5\%$  level. On the other hand, the announcement effect of acquiring a foreign investment company by a Canadian bank is  $+0.46\%$  and also statistically significant. Our results are consistent with Wiggins, Gleason and Mathur (2000) indicating that there are potential diversification benefits when a domestic bank acquires a foreign investment company.

The cumulative abnormal returns preceding the announcement of the merger [from day  $-20$  to day  $-1$ ] are reported in Tables 4.2, 4.3 and 4.4 for both the acquiring and target institutions. Our results show that the CARs for the target institutions are positive and significant in some cases. On the other hand, the CARs for the acquiring institutions are not significant. These results are consistent with Kryzanowski and Ursel (1993), who find that the pre-event CARs for the target investment dealers are positive and significant. Baradwaj, Fraser, and Furtando (90) also find that the 120 day period CARs  $[-60$  to  $+60]$  for target banks are positive and significant and not significant for acquirers. Finally, Jensen and Ruback (1983) survey several studies on corporate mergers and conclude that the targets firms, unlike the acquiring ones, experience positive and significant CARs before and up to the announcement date.

**b. How Foreign Acquisitions Differ**

The analysis in Table 4.4 strongly implies that foreign acquisitions differ from domestic ones. Theory suggests three main hypotheses to inform our investigation of international acquisitions:

*H<sub>1</sub>*: Management reasons such as prestige and empire building are partial determinants of foreign acquisitions (Rugman (1980)). This suggests that foreign acquisitions will not add shareholder value. Consequently, we should expect zero or insignificant abnormal returns for foreign acquisitions.

*H<sub>2</sub>*: There are diversification benefits associated with acquisitions in countries whose economies are not perfectly correlated with the domestic economy (Gray and Gray (1981)). Accordingly, we should expect higher and positive abnormal returns for acquisitions that occur in developing countries.

*H<sub>3</sub>*: There is increased country risk associated with foreign acquisitions resulting from operational, financial, and socio-political factors (Haner and Ewing (1985)). As a result, we should expect lower and negative abnormal returns for acquisitions that occur in risky developing countries.

In order to investigate these hypotheses, Table 4.5 presents further tests on international acquisitions. In panel A, we focus on the returns of the Canadian acquirers classifying the foreign target FIs into two groups: U.S. targets and others. Non-U.S.

**Table 4. 5****A. Foreign acquisitions classified by country of foreign target.**

	<i>foreign target</i>							
	All		Sample		U.S Targets		Other countries	
	n	AR [0,1]	n	AR [0,1]	n	AR [0,1]	n	AR [0,1]
in-pillar	50	0.85% (***)	31	1.04% (**)	19	0.54% (*)		
cross-pillar	22	0.32% (*)	13	0.55% (*)	9	-0.44% (*)		
total	72	0.68% (***)	44	0.89% (**)	28	0.22% (*)		

**B. Acquisitions vs. stake purchase**

	<i>domestic target</i>		<i>foreign target</i>	
	n	AR [0,1]	n	AR [0,1]
Acquisitions	101	1.76% (***)	72	0.68% (***)
stake purchase	9	0.92% (*)	11	0.45% (*)

**C. Sale of subsidiary , division, unit, branch, and assets**

	All		Subsidiary		unit, branches, assets	
	n	AR [0,1]	n	AR [0,1]	n	AR [0,1]
domestic	14	0.50%	8	0.85% (*)	6	0.04%
foreign	23	0.67%	14	1.09% (*)	9	0.02%
total	37	0.54%	22	1.0027% (*)	15	0.028%

(\*\*\*) significant at the 0.01 level

(\*\*) significant at the 0.05 level

(\*) significant at the 0.10 level

targets are overwhelmingly financial institutions in developing countries.<sup>7</sup> Turning to  $H_1$ , we find that the ARs for acquiring banks are less positive for foreign acquisitions (0.68 %) than for domestic ones (1.76%). This difference is statistically significant and supportive of the hypothesis. By adding a direct comparison with domestic acquisitions, we are able to reinforce the finding of Waheed and Mathur (1995) who report negative ARs for U.S. banks making foreign acquisitions. Their paper does not make any comparison with domestic acquisitions.

The next hypothesis ( $H_2$ ) addresses possible diversification benefits from acquisitions. Waheed and Mathur report that ARs for U.S. banks making acquisitions in developed countries are negative and significant while for purchases in developing countries, the average residuals are positive and significant. In contrast, Table 4.5 of the present paper we find that U.S. acquisitions by Canadian banks result in significantly larger, positive ARs (0.89%) than do those that occurred in other, predominantly developing, countries (0.22 %).<sup>8</sup> One possible explanation may be that, due to the important resource component, the Canadian economy is more highly correlated with those of developing countries than is the U.S. economy leading to lower diversification benefits.

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<sup>7</sup> Of the 28 non-U.S. targets, 12 were from Europe and Australia, and 16 were from developing countries 16 were from developing countries.

<sup>8</sup> For “other countries”, the average excess returns for Canadian acquirers in Europe and Australia is 0.67 % (significant at 0.10 level) and in developing countries is – 0.11% (significant at 0.10 level). The mean difference between the two sub-samples is significant at 0.05 level.

Our final hypothesis ( $H_3$ ) associates greater risks and costs with acquisitions in developing countries following Waheed and Mathur. The present paper confirms their result for Canadian bank acquirers by comparing domestic acquisitions (ARs 1.76%) with foreign ones (ARs 0.68%) and U.S. acquisitions (ARs 0.89%) with purchases in other countries (ARs 0.22%).

In addition to retesting the findings of Waheed and Mathur using a Canadian sample, our investigation extends their test design to examine the sale of subsidiaries, units, divisions, branches and assets of a domestic FI to domestic and foreign acquirers. As seen in Panel B of Table 4.5, the sale of foreign subsidiaries results in significantly higher ARs as compared to the sale of domestic ones. This result is consistent with  $H_1$  and  $H_3$  above, in the sense that, if the acquisitions of those subsidiaries show more imprudent managerial practice ( $H_1$ ) and increased risk taking ( $H_3$ ), then their sale will be perceived by the market as enhancing efficiency and decreasing overall risk. Waheed and Mathur report that the *acquisitions* of foreign subsidiaries result in a  $-0.47\%$  AR for the acquirers. They interpret this as a “penalty” administered by investors to the acquiring banks. Our results suggest that it makes sense to interpret investors’ reaction to the *sale* of foreign subsidiaries as a “reward”.

Further, our tests show that the sale of subsidiaries results in strongly positive and significant ARs, whereas the sale of units, divisions, branches, or assets is associated with insignificant results. This is also consistent with the Waheed and Mathur argument that the

opening of a foreign subsidiary involves greater investment and higher risks than the opening of units, divisions, or branches.

## **VII. Regression analysis**

We estimate a multivariate regression for the entire sample of mergers and acquisitions with the two-day, announcement period, standardized excess return as the dependent variable. We perform this test for both the acquirers and the target financial institutions. The regression analysis has the potential to validate the other tests already discussed in several important ways. First, by employing dummy variables to classify the observations, we are able to use the entire sample and avoid difficulties associated with small samples. Second, as a joint test on all the major variables studied, the regression allows us to measure the robustness of individual tests conducted variable by variable. In particular, robustness tests allow us to address possible overlaps between our variables.

The independent variables are:

$X_1$ ,  $X_2$ ,  $X_3$  and  $X_4$  : four dummy variables indicating the type of the financial institution as classified by *Mergers and Acquisitions in Canada* and according to the SIC of each FI. The four categories are: banks, insurance companies, investment companies, and financial management companies.

$X_5$ ,  $X_6$ , and  $X_7$  : Three dummy variables indicating:

- (i) whether the acquisition is in-pillar or cross-pillar
- (ii) whether the acquisition is domestic or foreign
- (iii) whether the method of acquisition is cash or stock.

$X_8 : X_9, X_{10},$  and  $X_{11} :$  four cross-dummy variables indicating:

- (iv) whether the acquisition is in-pillar *and* the FI is an insurance co.
- (v) whether the acquisition is in-pillar *and* the FI is an investment co.
- (vi) whether the acquisition is in-pillar *and* the FI is a financial management co.
- (vii) whether the acquisition is in-pillar *and* domestic.

The regression equation is :

$$SPE_i = \frac{D_0}{s_i} + \sum_{i=1}^{i=11} \frac{D_i X_i}{s_i} + \frac{\varepsilon_i}{s_i}$$

Where,

$SPE_i :$  is the two day standardized excess return for stock  $i$

$D_0 :$  is the intercept

$D_1 \dots D_{11}$  are the coefficients of the dummy variables

$X_1 \dots X_{11}$  are the independent variables

$S_i :$  is the standard error of the excess returns for stock  $I$

To correct for heteroskedasticity of cross-sectional stock returns (Lumner and McConnell 1989, Slovin, Johnson, and Glascock 1992) , both sides of the equation are

**TABLE 4.6**

**Results of regression of standardized excess returns on various standardized dummy variables for a sample of FI mergers from 1990-1999.**

Variable	Aquirers		Targets	
	coefficient	t-statistic	coefficient	t-statistic
$X_1$ (1 if bank, 0 otherwise)	-0.03	0.63	0.04	0.23
$X_2$ (1 if Insurance co, 0 otherwise)	0.023	1.46	0.07	0.05
$X_3$ (1 if Investment co , 0 otherwise)	0.008	0.87	0.04	0.74
$X_4$ (1 if Fin.Mngt Co, 0 otherwise)	0.019	1.52	0.27	1.32
$X_5$ (1 if in-pillar , 0 otherwise)	0.43	2.11**	0.34	1.98**
$X_6$ (1 if domestic, 0 otherwise )	0.52	2.21**	0.28	1.82*
$X_7$ (1 if "cash" acquisition , 0 otherwise )	0.51	1.79*	0.36	1.16
$X_8$ ( $X_2 \times X_5$ ) (1 if Insurance co and in-pillar, 0 otherwise)	0.32	1.71*	0.36	0.45
$X_9$ ( $X_3 \times X_5$ ) (1 if Investment co and in-pillar , 0 otherwise)	0.38	2.27**	0.13	1.68*
$X_{10}$ ( $X_4 \times X_5$ ) (1 if Fin.Mngt Co and in-pillar, 0 otherwise)	0.59	2.01**	0.37	2.05**
$X_{11}$ ( $X_5 \times X_6$ ) (1 if in-pillar and domestic , 0 otherwise )	0.61	3.85***	0.49	3.06***
intercept	0.02			
R-square	0.29			
*** significant at the 0.01 level				
** significant at the 0.05 level				
* significant at the 0.10 level				

divided by the standard error of the forecast  $S_i$  derived from the market model estimation.

Table 4.6 presents the regression results. The coefficients for all the variables describing the type of FI ( $X_1 \dots X_4$ ) are not significant. We can deduce that the abnormal returns cannot be explained by the *type* of FI. The coefficient for in-pillar acquisitions ( $X_5$ ) is positive and significant for both the acquirers and targets, which supports the earlier results in Table 4.2. This indicates that the market perceives in-pillar acquisitions as value-maximizing, and that there are potential economies of scale as a result of those acquisitions. To further examine in-pillar acquisitions, we use cross-dummies ( $X_8$ ,  $X_9$ , and  $X_{10}$ ). The coefficients for the three cross-dummies are all positive and in the case of acquirers more significant, thus confirming the earlier results in Table 4.3 and 4.4 that the most significant abnormal returns are realized when acquisitions are in-pillar for insurance companies, investment companies, and financial management companies. Amoako-Adu and Smith (1995) study the effects of deregulation of Canadian financial institutions. They find that only the insurance industry experienced significant gains from deregulation. Davidson, Hatfield and Glascock (1994) examine the common stock returns of three groups of bidders purchasing brokerage houses. They find positive and significant results only in cases in which one brokerage house purchases another. The coefficient for domestic acquisitions ( $X_6$ ) is also positive and significant. Houston and Ryngaert (1994) find that mergers are more profitable when the acquirer and the target operate in the same market. They conclude that mergers with a higher degree of market overlap are viewed

positively by the market. This is evident in Canada because of nationwide branching of the financial institutions. In our sample, the domestic acquisitions are considered to have occurred “within the same market. The positive and significant coefficient for domestic acquisitions ( $X_6$ ) confirms the Houston and Ryngaert (1994) result that the degree of market overlap is associated positively with the abnormal returns . The coefficient for the last cross-dummy ( $X_{11}$ ) is positive and significant confirming that the acquisitions are perceived to be value-enhancing when they are jointly in-pillar ( $X_5$ ) and domestic ( $X_6$ ) . Kane (2000) finds that banking organizations gain additional value when they absorb an in-state competitor. Our results for the cross-dummy ( $X_{11}$ ) support Kane’s finding, by considering “domestic and in-pillar” in our sample to be analogous to “ in-state competitor” in Kane’s sample.

The coefficient for “cash” acquisitions ( $X_7$ ) is positive and significant, for the acquirers which confirms the results of prior studies for corporate mergers. These studies (e.g., Travlos (1987), Brown and Ryngaert (1991) ) find that the bidding firms perform worse when they offer stock rather than cash. For studies on financial firms, Cornett and de (1991) find no significant relationship between acquirer abnormal return and the mode of acquisition. However, Hawawini and Swary (1991) find that acquirers receive higher abnormal returns when the acquisition is for cash. Houston and Ryngaert (1994) find that the increased use of stock results in more negative returns. Our results confirm that the

abnormal return of the acquirer is related to the mode of acquisition. The variable for “cash” acquisitions ( $X_7$ ) is positive and significant for the acquiring FI.

### **VIII. Conclusions**

This paper examines market reaction to the announcement of mergers of Canadian financial institutions during the period 1990-99. The overall results support the generality of findings of prior U.S. studies. In particular, we find that the average abnormal returns for both acquiring and target firms are positive and statistically significant. Unlike studies for non-financial firms, and consistent with findings for U.S. financial firms, acquirers experience a positive average abnormal return during the announcement period. This suggests that acquisitions in the financial industry are, in Canada as elsewhere, driven by value-maximizing motivations. We also find that abnormal returns cannot be explained by the *type* of FI. Further, our study also shows that acquiring institutions' shareholders benefit more when the acquisition is of a similar type (in-pillar) and when it is domestic. The most significant abnormal returns are realized when acquisitions are in-pillar for insurance companies, investment companies, and financial management companies. Our results show that the degree of market overlap and the mode of acquisition are associated positively with the abnormal returns.

Our findings diverge from those of prior studies for the subset of foreign acquisitions. Waheed and Mathur (1995) report that U.S. shareholders are losers when their financial institutions make foreign acquisitions. Consistently, we also find that, for Canadian institutions, foreign acquisitions are associated with less positive abnormal returns. The value of foreign acquisitions by Canadian financial institutions can be explained by their distribution in developed and emerging markets. The relationship, however, is exactly opposite to what Waheed and Mathur report. While their study finds that U.S. banks create value when they acquire financial institutions in developing countries, our tests uncover the greatest value for Canadian acquirers in the U.S. market. We conclude that, while empire building, diversification benefits and country risk explain value creation in foreign acquisitions for both Canadian and U.S. banks, their impact is different across borders as a result of differences between the U.S. and Canadian economies.

## **Chapter 5**

### **Conclusions and Further Research**

In this thesis, we conduct three empirical studies examining market response to corporate loan announcements in Canada, the relationship between lender environmental liability and bank loan announcements, and the market response to announcements of mergers of Canadian financial institutions.

The first study, Chapter 2, confirms the key results of prior studies on bank loan announcement effects using a common data set of Toronto Stock Exchange companies. We find that announcements of bank loans are associated with positive and significant excess returns and that these are significantly higher than found for announcements of non-bank loans. Also, consistent with prior research, we find that syndication weakens the announcement effect because it diminishes a key advantage of bank borrowing: the flexibility to renegotiate loan terms. The announcement effect is stronger when bank monitoring is more intense. New loans to existing customers and renewals of loans are both cases in which the bank is likely to possess in-depth private information about the borrower. As a result, these induce more positive announcement effects than do new loans in general. Moreover, the market responds strongly when an announcement conveys that the bank's private information is favorable. This is evident with loan renewals when the

terms are made more favorable through relaxation of covenants or extending maturity. Finally, we find an inverse relationship between excess returns and borrower rating, maturity and relative size of the loan. These results suggest that our findings are consistent with those of prior studies on bank loan announcements, conducted exclusively on U.S. data.

The second study, Chapter 3, re-examines loan announcement effects to establish a relationship with environmental liability. For a sample of 152 bank loan announcements, consisting of 122 loan announcements for the period 1988-95 (studied in Chapter 2 of this thesis) in addition to 30 loan announcements for the period of 1996-97, we find that the market reaction to the announcement of bank debt to “environmental” firms is more positive and significant than for “non-environmental” firms. In the presence of environmental risk, banks are expected to monitor “environmental” firms in a more intense manner. Our findings are consistent with the hypothesis that the positive announcement effect increases with more intense monitoring. This implies that, for firms with exposure to environmental hazards, the announcement of bank debt is “extra good news”. Within the class of “environmental” firms, the market reaction to firms in industries with a higher likelihood of experiencing spill events is more positive and significant than for those with lower likelihood. Our results are robust when we include certain borrower and loan characteristics. Overall, this study reinforces the results obtained in Chapter 2 which establish a relationship between specific loan / borrower characteristics and announcement period excess returns. It also

provides further evidence on the “uniqueness” of bank loans, by demonstrating the superior monitoring capacity that banks possess with respect to corporate borrowers that are exposed to environmental liability.

In this chapter, we argue that the effect of the corporate loan announcement is to change the market’s perception of the firm’s risk. If that is the case, then we might expect a change in the firm’s beta and/or residual variance on the announcement date. Thus, in future research, it would be informative to first test if either of these types of risk change on the event date, and if they do, to reflect the changes in the empirical testing procedure. This is easily tested using a one-step CAR methodology with a beta dummy ( Chung and Kryzanowski (1998) ).

This study could be further extended to investigate whether the significantly positive announcement effects obtained are specific only to *secured* bank loans as suggested by McGraw and Roberts (2000) . Another strand of future research could examine whether the amount of secured bank debt as well as total bank debt for “environmental” firms is significantly less than “non-environmental” ones. McGraw and Roberts (2000) argue that firms facing significant environmental risk are predicted to use financing alternatives to secured bank debt. Since lenders will likely decline to lend to those firms on a secured basis, they hypothesize that the amount of secured bank debt as well as total bank debt for those firms should decline over time. These hypotheses could be tested empirically by comparing the mean ratios of bank debt to total debt and

secured to total debt for a subset of Toronto Stock Exchange “environmental” firms with “non-environmental” ones.

In our third study, Chapter 4 , we examine market reaction to 154 merger announcements of Canadian financial institutions during the period 1990-99. Our main results are consistent with findings of prior U.S. studies. We find that the average excess return for both the acquiring and target firms is positive and statistically significant. Unlike studies for non-financial firms, acquirers experience a positive average excess return during the announcement period. This suggests that mergers and acquisitions in the Canadian financial services sector are driven by value-maximizing motivations. In particular, our study shows that acquiring institutions’ shareholders gain more value when the acquisition is of a similar type (in-pillar) and when it is domestic. The most significant abnormal returns are observed when acquisitions are in-pillar for insurance companies, investment companies , and financial management companies. Further, our results show that the degree of market overlap and the mode of acquisition are associated positively with the abnormal returns .

Our results are mixed for the subset of foreign acquisitions. Consistent with U.S. studies [e.g. , Waheed and Mathur (1995) ] we find that the market imposes a “penalty” for Canadian institutions that acquire foreign targets , evidenced by lower abnormal returns associated with these acquisitions. We then evaluate the foreign acquisitions by Canadian financial institutions by comparing returns of the Canadian acquirers with respect to two types of foreign targets: U.S. targets and others. Our results are not

consistent with Waheed and Mathur (1995) . While their study finds that the shareholders of U.S. banks benefit more when they acquire financial institutions in developing countries, our results show that the abnormal returns for Canadian acquirers are higher when they acquire a U.S. target. Our results remain inconclusive partly because of the smaller size of the sub-samples for foreign mergers, and partly due to the possibility that our classification may not clearly distinguish between developed and emerging countries. We can only conclude that, while market power, diversification and country risk may be determinants of value creation in foreign acquisitions for both Canadian and U.S. banks, their impact could be different across borders as a result of differences between the U.S. and Canadian economies.

The work in Chapter 4 could be extended to test for diversification effects from a risk reduction perspective. This hypothesis can be tested by examining risk changes, and allowing for such changes when measuring excess returns. Proxies for systematic and unsystematic risk could be utilized in the regressions to test whether they explain excess returns associated with foreign merger announcements . This chapter could also study intra-industry effects by comparing the abnormal returns of “in-play” (eligible to be acquired) and “out-of-play” (already acquired) target firms. Kryzanowski and Ursel (1993) find significant abnormal returns for “in-play” targets and insignificant abnormal returns for “out-of-play” targets. Their results are consistent with the view that merger offers do not impact returns of all firms in the industry, but rather only those of unacquired firms.

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