The Effects of Credit Rating Announcements on Shares in the Swedish Stock Market

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Abstract

This paper examines the controversial issue regarding informational value of credit rating announcements. For the rating assignments, positive outlooks and affirmations announcements, there is no significant share price reaction following credit rating announcements in both the long-term and short-term. However, there is significantly positive (negative) market reaction to the upgrade (downgrade) announcements. For the downgrade and negative outlook announcements, the short-term returns show no significant reaction but long-term returns show significant negative response. In conclusion, the results suggest that the liquidity may play a significant role in the informational value of credit rating announcement. In the small but liquid stock market like the Swedish share market, credit rating agencies only provide limited informational value to the investors.

Keywords: credit rating announcement, event study, Swedish

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1. Introduction

The informational value of credit rating agency is a controversial and inconclusive issue. Do the credit rating announcements have any impact on the stock market? If they have, how does the security market react to the different types of credit rating announcements? This paper aims to shed light on the above research questions. A number of researchers have explored this issue by different methods but the results are conflicting. Some of the earlier studies have examined the credit rating announcements on the security returns and found no significant returns (Weinstein, 1977; Pinches and Singleton, 1978). Kaplan and Urwitz (1979) and Wakeman (1981) suggested that bond rating agencies only had access to public information and their ratings have no added value to the investors.

However, other researchers argued that the rating agencies had information that was not available in the public domain and that the stock market reacted significantly to the relevant information. Ederington and Yawitz (1991) indicated that the rating agencies are the low cost providers of such information. Danos, Holt, and Imhoff (1984) concluded that bond rating agencies possess expert judgment and are specialists at processing information related to firm's financial condition. Cornell, Landsman and Shapiro (1989) argued that revisions in bond ratings may have information content because they reflected a more informed estimate of the intangible asset values of a firm and the implicit claims on an entity by other stakeholders.

Most of the above research examined relatively larger market such as US, UK, and Australia, so the effect on smaller markets remains unclear. Elayan et al (2003) found that the announcements of a credit rating assignment were associated with a positive and statistically significant market reaction from New Zealand share prices, which is consistent with other researchers' findings. Unlike the previous research, a significant market reaction to rating upgrades was also found in their research. In addition, there were no significant market reactions to positive credit placement and rating upgrade announcements for those dual-listing (American Depository Receipt traded) firms.

This paper employs the event study methodology to examine whether credit rating announcements provide new information that investors have not already anticipated in the small market like the Swedish share market and how stocks in the small market

reacts to the credit rating announcements. The Swedish share market has some unique characteristics, its total value of shares listed is at the same level as that of Australia and the market liquidity is even more than the Australia market but the number of shares is roughly at the same level as that of New Zealand. The high liquidity directly affects the degree of asymmetric information in the market. It is expected that due to the higher level of liquidity the credit rating announcement should exhibit a weaker effect in the Swedish share market compared to the New Zealand stock market. Our results confirm this proposition. We found no abnormal return during the two-day announcement periods, but for a negative outlook announcement there are significantly positive cumulative average abnormal return following 10 and 20 days after announcement date. This finding implies that the market has already anticipated the negative return but overreacted to the negative news, therefore, the stock price slowly recovers after the event day. Moreover, we show that after 2 to 6 months the excess returns of announced stocks are significantly different from zero, indicating that the new credit information may not be instantaneously incorporated into stocks prices.

The rest of the paper is presented as follows. Section 2 reviews the related literature and states the hypotheses. Section 3 describes the data and the methodology. Section 4 presents the empirical results. Conclusion and summary are in section 5.

2. Literature Review

2.1 Theoretical Perspectives

There are two opposite views on the question whether rating agencies provide valuable information to investors. Kapland and Urwitz (1979) developed a simple linear model using subordination dummy, total asset, leverage, and the common stock systematic risk to measure and classify a sample of newly issued bonds. They argue that this model may be predicting the actual risk of a bond better than the rating agency, raising the question whether rating agencies outperform the statistical model. Additionally, Wakeman (1981) suggested that rating agencies only act as the outside auditors and performed no economic functions with their rating services. The opposite view is that rating agencies do add value. Hsueh and Kidwell (1988) argued that the bond issuers would like to buy rating agent services due to the information asymmetry. Accordingly, issuers pay the credit rating agency to convey the quality of

their securities to the market. Investors use credit rating to assess the credit quality of a bond. Hence, a rating agency can reduce the moral hazard of direct information transfer between the issuer and the investor. Their empirical findings suggested that issuers' using two credit ratings could significantly reduce the borrowing costs because the additional information value provided by the second agent exceeded the cost of obtaining it. Danos et al (1984) argued that rating agencies possessed expert judgment and were specialists at processing information related to a firm's financial situation, thus they could provide valuable information which is not easily available to the public to the investors. Furthermore, Cornell, Landsman and Shapiro (1989) argued that revisions in bond ratings may have informational content because they reflected a more informed estimate of the intangible assets of a firm and the implicit claims on an entity by other stakeholders. Ederington et al (1991) pointed out that if that kind of information was costly, the rating agencies were the lowest cost providers, and therefore, the rating changes may affect security prices.

According to Megginson and Weiss (1991, p881), the reliable credit information provided by rating agencies must be costly for the issuing firms. The firms purchased credit service to reduce the information asymmetry, hence, credit information should contain valuable information to outside investors. Ellis (1998) conducted a survey to examine the different opinions about the function of the rating agencies between issuers and investors and how they would use the rating services. The findings showed that the investors would restrict themselves to the ratings issued by those agencies with the strongest reputation and the investors tend to use the rating agencies that they felt to be the most accurate and consistent. However, many bond issuers wanted to obtain three or four ratings services even they knew that only one or two rating services were enough because they scared of receiving an inaccurate rating. This survey reinforced the opinion that bond issuers regarded rating agencies as a useful intermediary to convey more accurate state of their firms. Partnoy (1999) explained the functions of the credit agencies from a regulatory point of view. On one hand, the credit agencies were supposed to provide valuable information to the investors, but the information value they provided had been declining in recent years due to the economy globalization and rapid technology development. Consequently, their information seemed to be more reactive rather than proactive. He named this phenomenon as the "regulatory license", which meant that the security regulations

substantially depended on the credit ratings. He suggested the regulators to reduce the dependences on the credit ratings.

2.2 Empirical Evidence

The empirical results of testing the significance of credit rating announcements on bond or equity prices are conflicting. A number of papers examined the behavior of corporate bond prices during the period surrounding the announcement of a rating change. Some papers suggested that stock market had no significant reaction to rating announcements. Other papers found evidence indicating that credit rating announcements provide informational value to the market.

2.2.1 Market Efficiency Studies

Weinstein (1977) found some evidence of price change during the period from 18 to 7 months before the rating change was announced, but no evidence of any reaction during 6 months prior to the rating change, and there was little reaction during the month of the change or for 6 months after the change. Pinches and Singleton (1978) examined the effects of bond rating changes on stock price using the monthly return data from January 1950 to September 1972. They found that there was no evidence of any upward or downward drift in the cumulative abnormal returns before or after the month of the bond rating change. Their results indicated that the investors had realized the overall improvement or deterioration in a firm's financial condition and the information content of the rating changes had been fully discounted by the month of the change. The bond rating agencies just reacted to the changing financial conditions after the investors had already understood the changes, so the rating announcements did not provide any informational value.

2.2.2 The US Bond Market Studies

Some researchers found evidence supporting that credit agencies provided informational value to investors. Katz (1974) tested the efficiency of bond market in terms of an event study on the price adjustment process of bonds to rating reclassifications. He developed regression models to forecast the expected yield to maturity of a reclassified bond for both its old and new rating class in each of eighteen months with twelve months prior to and five months after a rating change. Then the

actual yield to maturity was compared to the two expected yields to investigate to what extent the adjustment process prevailed. The results indicated that no anticipation prevailed before public credit rating announcements of reclassification. A slight lag existed in the price adjustment process after a public announcement and 100% adjustment took place in 6-10 weeks. Grier and Katz (1976) also found that the new information was not instantaneously absorbed by the industrial bond price and there was a step-by-step price adjustment after the rating change for a significant period. Ingram et al (1983) studied the municipal bond market reaction to the rating change announcement, they selected a sample of non-callable, general obligation bonds issued by 127 municipalities during the period from August 1976 to February 1979 and compared the average yield premium for municipalities which experienced a rating change with the average premium for equivalently rated municipalities which experienced no rating change. The empirical results showed that the mean differential was significant during the month of the change for both the upgrading and downgrading bonds, whereas there was no significant mean differential prior to the rating change.

2.2.3 The US Stock Market Studies

Griffin and Sanvicente (1982) explored the common stock price reaction to the rating changes. They examined the price changes in the eleven months preceding the announcement and during the month of announcement itself. They used a controlled portfolio method to test the cumulative residuals significance between the event and controlled samples. The control portfolios used in their study were constructed by matching on beta, industry, and key financial variables. They found that the cumulative abnormal returns were significant in either the preceding eleven months or the month of announcement for the downgrading stocks, whereas, were insignificant in the month of announcement for the upgrading. Holthausen et al (1985) investigated the effect of bond rating changes on common stock prices using the daily stock returns. They argued that using monthly data may increase the probability that the price response is due to other information released during the month. They calculated the cumulative abnormal returns for the two-day event window (from t-1 to t, where t is the announcement release date). Particularly, they considered that the contamination news may decrease the power of the statistical test, hence, they

classified the sample into two groups: one is non-contaminated group; the other is contaminated group (they defined this group as there are other firm-specific information during the trading days from t-1 to t+2). They performed the statistical test on the two groups separately and also investigated the potential determinants of the cross-sectional variation in the price response to rating changes. The evidence suggested that the downgrades were associated with negative abnormal stock returns in the two-day window either in the contaminated or non-contaminated group. There was little evidence of abnormal returns associated with upgrades rating changes.

Glascock et al (1987) examined the stock movement surrounding announcement date of a bond rating change by Moody's bond services. They pointed out that Moody's has two announcement days, the date it announces the rating change to the public via the Dow Jones New Service, and the date it publishes the change and the reason in the Moody's Bond Survey. Particularly, they differentiated the two announcement days in their test in order to more precisely check the price response. They found that for the down-ratings, there was a negative reaction on Moody's Bond Survey publication date. In addition, there was a return reversal after the publication date. The evidence for up-ratings was not clear. They also concluded that the reaction that took place on the publication date instead of on the wire service data implied that the market was somewhat slow in assimilating the re-rating information.

Elayan et al (1990) examined the stock price response to false signals – positive and negative placements on CreditWatch that were not followed by a rating change of the indicated direction. Their sample stocks were those that had securities placed on the CreditWatch list for positive or negative reasons between November 1981 and December 1985. The data was divided into four categories Negative placement and rating subsequently lowered, Negative placement and rating affirmed, Positive placement and rating subsequently raised, and Positive placement and rating affirmed. The statistical test results indicated that there was a negative stock price response to negative placements that were followed by rating affirmation, but no response at the time of placement for firms placed for negative reasons with a subsequent lowering of the rating. There was no response to positive placement whether or not the rating subsequently was increased and no response at the time of removal from the CreditWatch list.

Dichev et al (2001) investigated the long-term stock returns following bond rating changes. They used a sample that included Moody's entire available bond rating changing announcements during 1970 to 1997 and 4,700 observations. The abnormal returns and buy-and-hold returns were calculated in terms of three-month, six-month, first-year, second, year, and third year. They found that no significant abnormal returns for stocks whose ratings were upgraded and significant abnormal returns for stocks whose ratings are downgraded. They also performed the test on the long-run returns conditional on firm size, credit quality and preceding quarter's earning surprise. The empirical evidences were consistent with the downgrade underperformance. Particularly, the underperformance was likely to be more pronounced for small and low-credit-quality firms and would continue even after positive earning announcements.

2.2.4 The US Bond and Stock Market Studies

Wansley et al (1985) conducted a research about the equity returns and bond prices of firms around the dates of their placement on CreditWatch by Standard and Poor's. The data included two samples: one involved the firms placed on CreditWatch between November 1981 and December 1983 and the other involved the firms not placed on CreditWatch but whose debt was rerated during the same period. The stock returns and bond prices were compared with each other. The results showed that there was significant market reaction to the downgrading firms and no significant reaction to the upgrading or affirmed rating firms. Bond prices for downgrading firms continued to decrease as long as seven months after the rating change indicating the bond market did not appear as efficient as the stock market. Hand et al (1992) categorized two types of bond rating agency announcements: warnings of possible rating changes on the CreditWatch list between 1981 and 1983, and actual rating changes announcements by Moody's and Standard and Poor's between 1977 and 1982. They measured excess bond returns as raw bond returns minus the return on a risk free bond. The raw return for each bond was calculated from the last transaction price in the period t-11 to t-1 to the first transaction price on or after t+1 (due to the bond trade infrequency). The excess stock returns were calculated from the market model and summed over t to t+1. They showed that significant excess bond and stock

returns to the downgrading announcements and insignificant response to the upgrading announcements.

Kliger et al (2000) argued that the rating agencies could repackage the firm-related private disclosed information into the ratings without fully revealed it to the investors. Hence, theoretically the rating information should have informational value. They considered that the previous research regarding the informational value of rating changes might not distinguish the rating change information from other fundamental economical change information. They used a new approach to investigate the price reaction to rating changes that exclusively reflected rating information – rating changes that occurred when Moody's refined its rating reports. The refined information did not include any fundamental change in the issuer's risk. After analyzing the bond price, stock price, and stock option price reaction before and after the announcement date, they found that the stocks returns decreased (increased) and the bond value increased (decreased) when Moody's announced better (worse) that expected ratings, while the implied volatilities of the stock options declined (rise).

2.2.5 Non-US Studies

Unlike previous US-based studies, Matolcsy et al (1995) examined the incremental informational content of bond rating changes in the Australian stock market. Their study realized the informational content of unexpected accounting income number as the confounding announcements. Hence, they proposed two hypotheses. First, the joint information content of unexpected accounting income numbers and bond rating revision was non-zero. Second, the information content of bond rating revisions beyond the information content of unexpected accounting income numbers was non-zero. Based on the weekly stock returns during 1982-1991, there were significant abnormal returns that could be explained by the joint information content of unexpected accounting income numbers and the rating changes. They found that the abnormal returns were significant for the downgrading bonds and non-significant for the upgrading bonds. Barron et al (1997) also conducted a study based on the UK share market. They used daily data around a rating change or CreditWatch announcement for the period from 1984 to 1992. Significant excess stock returns were found being associated with bond rating downgrades and positive CreditWatch

announcements. They concluded that credit rating announcements provided information to the capital market in UK but an assignment of rating could not reduce the cost of equity capital of a firm. Unlike the previous studies that concentrated on large market, Elayan et al (2003) examined effects of credit rating announcements on the share prices in a relatively small market – New Zealand stock market. They employed the daily stock return data form July 1990 to June 2000. They found significant price reaction to both positive and negative announcements, and the cumulative average abnormal returns (CAAR) are statistically different between firms with American Receipt Depository (ADR) traded and firms with non-ADR traded for the upgrade and downgrade rating actions.

2.3 Hypotheses

Many researches have investigated the impact of credit rating announcements in several share markets such as USA, UK, Australia, and New Zealand. According to the International Federation of Stock Exchanges, as of May 2003, the Swedish share market has 286 listed firms with total market capitalization of 20.89 billion dollars, which is roughly the same as large as that of Australian Stock Exchange (25.31 billion dollars with 1,425 listed firms), while the market capitalization of NYSE and LSE are 811.65 and 311.69 billion respectively. This shows that the Swedish market is relatively small compared to the US market, but its average firm size is larger than those of the Australian Stock Exchange. Moreover, Swedish market is about twenty-five times as mush as the New Zealand share market (0.81 billion dollars with 196 listed firms). The turnover velocity in Swedish market is about as three times as that of New Zealand, indicating that the Swedish share market is much more liquid than New Zealand share market.

Elayan et al. (2003) pointed out that the announcements of credit ratings could reduce the information asymmetry and attract the attention of international market in the New Zealand market due to the relatively smaller number of analyst coverage and less attention from the international capital markets. They proposed that the announcement of a NZ firm being assigned a debt rating was expected to be associated with a positive and statistically significant stock reaction. However, this findings may not hold in the Swedish market because the average market capitalization and the overall market liquidity in the Swedish market are much higher

than those in the NZ market. Moreover, previous studies in large markets such as US, UK have demonstrated that significant negative reaction to negative credit rating announcements. Elyan et al. (2003) argued that in a smaller market, a positive implication may have a greater effect and the smaller market should more sensitive to the rating announcements. We however argue that the higher liquidity in the Swedish share market would result in a lower degree of information asymmetry and therefore limit the informational value of credit rating announcement. As a result, the following hypotheses are proposed:

Hypothesis 1: *Credit assignments and credit rating affirmations for Swedish firms are not expected to generate a significant positive or negative market reaction.*

Hypothesis 2: *A positive (negative) outlook is expected to be associated with a significantly positive (negative) share market reaction. Similarly, upgrade (downgrade) rating announcements will be associated with significant excess positive (negative) stock returns.*

3. Methodology

3.1 Data Description

We collect the announcements of rating assignments, CreditWatch placements, and rating actions (upgrade or downgrade) from the end of February, 1992 to February, 2003 from the FACTIVA database, which compiles announcements from several rating agencies including Moody's and Standard and Poor's. There are 83 credit rating announcements during the study period. The following six groups categorized these announcements. Assignment is an event when a firm is assigned a credit grade and there is no other action. Downgrade is an event when a firm's credit rating is downgraded. Upgrade is an event when a firms' credit rating is upgraded. Positive outlook is an event when a firm's credit rating has a positive outlook. Negative outlook is an event when a firm's credit rating has a negative outlook. Lastly, Affirmation is an event when a firm's existing credit rating is affirmed. The corresponding stocks' total daily return index listed on the Swedish stock market was collected from Datastream. These returns assumed that all of the dividends were reinvested. The stock daily return data must be available from a period of day t-150 to t+50, where t is the announcement date. The Swedish OMX index was used as the

market index for the calculation of the excess returns of the stocks over the market. If there were other confounding announcements around the event day (t-1 to t+1), then the observation was deleted. The total market value of equity (daily), total debt value of firm (at the end of year), and total book asset value of firm (at the end of year) were also obtained from Datastream to conduct the cross-sectional regression analysis. The missing observations are excluded from the regression. The information about whether a firm was listed as ADR in the American share market is obtained from the website www.adr.com.

[Insert Table 1 around here]

Table 1 exhibits the number of announcements in different categories by year. The downgrade announcements forms the largest group containing 19 out of 83 (22.89%) of all announcements. There are 15 (18.07%) assignment announcements, 17 negative outlook announcements (20.48%), and 17 affirmation announcements (20.48%) respectively. There are only 9 (10.84%) upgrade announcements and 6 (7.23%) positive outlook announcements indicating bad performance of the Swedish stock market during this period. Most rating announcements concentrate in the year 2002 representing 33 out of 83 (39.76%) sample announcements. The sample size of this research is admittedly smaller than that of the previous studies in large markets such as USA and UK.

3.2 Methodology

3.2.1 Event Study

An event-study is conducted through the EVENTUS package. The cumulative average abnormal returns (CAAR) is computed based on a GARCH (1,1) model. Returns of day t-150 to day t-30 were used to estimate the parameters of the market model, where the Sweden OMX index is a proxy of market index. The generalized Z test was used to test whether the fraction of positive returns was equal to that of negative returns. The CAARs are expected to be statistically significant for the upgrade, downgrade, negative outlook, and positive outlook group.

3.2.2 Cross-Sectional Regression Analysis

The association of firm characteristics and the cumulative average abnormal returns variation was examined using a cross-sectional multivariate regression. Due to small

sample, the six events were combined into three events: positive announcements that included credit rating upgrades and positive outlooks; neutral announcements that included credit rating assignments and affirmations; negative announcements that included credit rating downgrades and negative outlooks. Three regressions were run for these three events with the CAAR during period t-1 to t+1, and t-1 to t+0 as dependent variables. The independent variables are Size, Leverage, BM and ADR. Size is the natural log of the average market equity value one year before the announcement day. Leverage is the ratio of firm's total debt to the book value of total assets. This ratio was calculated using the year-end data before the announcement data. Kligr and Sarig (2000) found that firms with high leverage tended to react more to rating announcement. Excluding four missing values, there were 79 observations available for the regressions. The sample size of neutral event group is 29, negative event group is 36, and positive event group is 14.

The third factor is the book value of equity divided by the market value of equity (BM). The equity book value is the difference between the total assets and total debts, while the equity market value is the daily average value one year before the announcement day. ADR is a dummy variable indicating whether the firm is ADR-listed (ADR = 1) or non-ADR-listed (ADR = 0). Elayan et al. (2003) contended that non-ADR and small firms should react to credit rating announcements stronger than the large ADR firms. Therefore, for the positive group, the signs of the coefficients for both ADR and Size variable are expected to be negative, and coefficients of Leverage and BM are expected to be positive and negative respectively. For the negative group, the signs of the coefficients for both ADR and Size are expected to be positive, and the coefficients for Leverage and BM are expected to be negative and positive respectively.

Moreover, the category variable (D) is used to measure the extent of different credit rating announcements impact to the CAARs. The variable was ordered from the most negative news to the most positive news, i.e., one was assigned to the downgrade announcement, two for negative outlook, three for assignment, four for affirmation, five for positive outlook, and size for upgrade. The regression formula is as follows:

$$CAAR = \alpha_0 + \alpha_1(ADR) + \alpha_2(Size) + \alpha_3(Leverage) + \alpha_4(BM) + \alpha_5 D + \varepsilon \qquad (1)$$

Because the most positive (negative) news are expected to generate a most positive (negative) reaction and is assigned a greatest (smallest) number, therefore, the sign of this ordered category variable is expected to be positively significant, indicating that the stock market reaction is in the same direction as the direction of the news events.

3.2.3 Long-term Excess Returns Analysis

This paper employs the information ratio to examine the long-run effects of the credit rating announcements on the Swedish stock market. Two-month, four-month, and six-month returns after the corresponding announcements were calculated. If the related stock daily returns data during these time frames were not available, the associated announcement was deleted from the sample. Thus, the sample sizes for the six event types (from one to six) are 15, 15, 9, 6, 15, and 16 respectively. Information ratio was calculated by the following equations:

$$IR = \frac{\overline{ER}}{\sigma_{ER}} \tag{2}$$

Where $\overline{ER}$ is the cross-sectional average difference of individual return and market return; σ_{ER} is the cross-sectional standard deviation of $\overline{ER}$. The returns were examined in terms of the t-statistic test. According to Grinold and Kahn (1995), an IR of 0.5 was good, of 0.75 was "very good", and of 1.0 was "exceptional." Therefore, the calculated information ratios can indicate the performance of the stock during the related time period. For the rating assignments and affirmations the long-term average excess returns are not expected to be significant. For the upgrade (downgrade) and positive (negative) outlook announcements the long-term average excess returns are expected to be significant positive (negative) and the information ratios are expected to be more (less) than 0.5.

4. Empirical Results

4.1 Event Study Results

In sum, the findings from the event study are mixed. Some of them are in accordance with the proposed hypotheses and others are not. According to Table 2, out of the number of stocks with positive CAARs are not statistically different from the number of stocks with negative CAARs during period t-1 to t+1 and t-1 to t in all six announcement types. For the assignment group, the number of positive returns in the

event windows (t-20, t+20) is significantly lower than the number of negative returns (3:12). The CAAR for the period t-20 to t+20 is significantly negative at -10.38%. This result is in contrast to the result of Elayan et al. (2003). This suggests that the negative returns could be driven by other fundamental economic variables rather than the rating announcements in this research. The result for the group of affirmation is consistent with the expectation of the researcher and the finding of Elayan et al (2003). There were no significant CAARs and Z tests.

[Insert Table 2 around here]

For the upgrade credit rating announcements, the mean values of CAAR for the period (t+1, t+10) and (t+1, t+20) are 5.36% and 5.39% respectively, both are significantly greater than zero. The positive to negative ratio is 7:2, which is also significant as Rank Z test indicates. This result is in consistent with the expectation and the result of Elayan et al. (2003). It may suggest that the market take longer times to absorb the credit rating information. An investor could earn significant positive returns after twenty days of the announcement. For the group with positive outlook information, it is quite surprising that during the period (t-20, t-2) and (t-5, t-2) the CAARs are significantly negative, they are –8.83% and –5.97% respectively, the positive to negative ration are both 0:6 and the Rank Z tests are both significant. It would appear that inventors overlooked the positive credit information and were still pessimistic about the future returns of the stocks. From this point of view, the results are consistent with the group of rating assignments, suggesting that there may be some important factors that drive the negative returns.

The CAARs of downgraded group are insignificant, indicating that the market had already anticipated the information provided by the rating agencies, therefore there are no abnormal returns. This output also contradicts the researcher's anticipation and is in contrast to the findings of previous studies (Holthausen et al, 1985, Glascock et al, 1997, Elayan et al, 1990, 2003, Matolcsy et al, 1995, Barron et al, 1997, and Hand et al, 1992). The results for the group of negative outlook are interesting. After the event day, the CAARs of (t+1, t+10) and (t+1, t+20) are both significantly positive. CAAR (t+1,t+20) has significantly positive value of 6.24%. Rank Z tests for these two periods are both insignificant. These results suggest that the investors had realized the negative outlooks for the stocks before the announcement day, but they

overreacted the news and those positive returns after the event day were just the correction of their overreaction. This finding also contradicts to the previous empirical evidence that significant negative returns are associated with negative news.

4.2 Cross-Sectional Regression Results

Table 3 shows the results from multiple regressions for the three different groups that represent neutral, positive, and negative credit rating assignments. The dependent variables are CAARs at period t-1 to t+1 and period t-1 to t. In the neutral regression model, the only significant variable is Size. Large firms have higher CAARs than the small firms during the credit assignments and affirmations announcements. The regression can explain 21% and 27% of the variation in the CAARs. For the positive regression model, the adjusted R-squares are negative and the F-statistics are only 0.49 and 0.85 respectively. This indicates that the explanatory power of this model is poor. While all of the four variables are not significant, their coefficient sign are consistent with the expectations, i.e. stronger stock price reaction for large, high leverage, low book-to-market ratio and non-ADR traded firms.

[Insert Table 3 around here]

Similarly, the two negative regressions have no explanatory power with the F-statistics of 0.15 and 0.86 respectively and the four variables are all insignificant. The coefficient signs of leverage and the ADR dummy in the period t-1 to t+1 are different from the coefficients in the period t-1 to t. When the category variable is included and all of the credit announcements are regressed together, the coefficient of category variable (D) or the informational value of credit rating announcements, are not statistically significant and their signs are not consistent to what we expected. Generally, the poor explanatory power of the firm characteristics variable such as size, leverage, book-to-market value, and the ADR listed dummy, are no surprised because the CAARs surrounding credit rating announcement date are not statistically different from zero.

4.3 Long-term Excess Returns Results

Table 4 presents the information ratios and t-Statistics for the six event groups during the 2-month, 4-month, and 6-month periods after the credit rating announcements. The excess returns of the assignment and affirmation groups are not statistically

different from zero with the information ratios (IR) from –0.29 to 0.29. These results are consistent with the expectations. For the upgrades group, the highest IR, 0.48, is in the 2-month period, indicating that the stocks takes about 2 –month time to adjust its prices to reflect the credit information. Unlike the short-term event study test, for the downgrades group, all the excess returns are significant negative. The associated information ratios are from –0.59 to –0.90 indicating the "bad" performance. These results are in line with the expectations.

[Insert Table 4 around here]

There are no significant excess returns and information ratios for the positive outlooks. It is noted that there are also no significant short-term CAARs for this group. The results imply that the positive outlook credit announcements have a little effect to the stocks' prices adjustment. For the negative outlooks group, it is surprising that the 2-month excess return is positive and significant with the IR of 0.54 indicating the "good" performance. These results are consistent with the short-term event-study. This interesting outcome may provide evidence of the overreaction in the Swedish share market. The investors slowly realize their overreaction before the bad news, so the returns are positive after the announcement day. In conclusion, the long-term stock reaction to the credit announcements is consistent with the short-term reaction. However, unlike the short-term reaction, the downgrades group shows the significant long-term negative return after the announcements days. Credit rating announcements seem to provide some informational content to the stock market. The extent of the stock market reaction varies depending on the type of credit rating information. The long-term test results indicate that the new credit information is not instantaneously absorbed by the stocks prices and the adjustment process continues after the rating announcement for a significant period. It should be noted that the long-term results only provide the indication of the effects of credit rating announcements since there are many factors that may affect the stock returns in the long term.

5. Conclusion

This research investigated the issue whether credit announcements provide any informational value to investors. Under the semi-strong market efficiency, the rating agencies, who only exploit the public information, are considered to have no

informational value to investors. Previous studies with respect to this topic have shown the mixed results. Studies on the US, the UK, and the Australia stock market demonstrated that positive news were associated with positive cumulative average abnormal returns (CAAR), but the negative credit announcements have a little effect to the CAARs. The study in the small open economy- the New Zealand stock market- indicated that positive (negative) news generated positive (negative) CAARs. In the Swedish share market the total number of stocks is about at the same level as that of the New Zealand market, but its the total value of shares is about as twenty-six times much as the New Zealand market, indicating that its liquidity is much more than the New Zealand market. Because the high liquid stock market generally has low asymmetric information, the impacts of credit rating announcements are expected to become weaker in Swedish share market. This statement is well supported from the event-study results, where the CAARs of all six events are all insignificant, so it is no surprise to see a low the explanatory power of the firm characteristics in the cross-sectional regression. Nevertheless, firm size can explain the variation of CAARs for the cases of credit assignments and confirmations. However, there is significantly negative CAAR during the period (t-20, t+20) for the rating assignment group, and significantly positive CAARs during the event period (t+1, t+10) and (t+1, t+20) for the upgrade group. This result may suggest that the Swedish share market may slowly absorb the credit information announcements. For the negative outlook group, the CAARs are significantly positive in 10 and 20 days after announcement date, suggesting that the market has already anticipated the negative return but overreacted to the negative news.

Moreover, for the credit upgrade, there is significant positive average excess return two months after the announcement day and the IR is as much as the "good" level (0.5). Similarly, for the credit downgrades, the associated information ratios indicate the "bad" performance (from –0.591 to –0.899). In summary, although the event study shows no significant CAARs in all credit rating announcement types during the two and three days surrounding announcement periods, the credit rating announcements may provide some informational content to the stock market, especially the case of credit upgrade and credit downgrade.

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Table 1: Distribution of Credit Rating Assignments by Year

This table presents the distribution of total sample announcements. The 83 announcements are from February 1992 to February 2003. All are shown with the number of events by year and its percentage of the total number of events.

Year	Assign	Down grade	Up grade	Positive Outlook	Negative Outlook	Affirm	Total	Weight
1992	0	0	0	0	0	0	0	0.00%
1993	0	3	0	1	2	0	6	7.23%
1994	0	0	0	0	0	1	1	1.20%
1995	1	0	1	1	1	0	4	4.82%
1996	1	1	1	1	0	0	4	4.82%
1997	6	0	3	0	1	0	10	12.05%
1998	1	0	1	0	1	2	5	6.02%
1999	1	0	0	0	1	2	4	4.82%
2000	4	0	1	0	1	1	7	8.43%
2001	1	2	0	0	5	1	9	10.84%
2002	0	13	2	3	5	10	33	39.76%
2003	0	0	0	0	0	0	0	0.00%
Weight	18.07%	22.89%	10.84%	7.23%	20.48%	20.48%		
Total	15	19	9	6	17	17	83	100%

Table 2: Share Market Reaction to Different Credit Rating Announcements

This table presents the cumulative average abnormal return (CAAR) of stock price reaction for the several window periods surrounding announcement date. The estimated return for security j on day t, $\hat{R}_{j,t}$, based on the actual market return on day t is given by the following equation: $\hat{R}_{j,t} = \hat{\alpha}_j + \hat{\beta}_j R_{m,t}$, where $\hat{\alpha}_j$ and $\hat{\beta}_j$ are estimates of α_j and β_j from the market model. The abnormal return for each share j on day t is given by the following equation: $A_{j,t} = R_{j,t} - (\hat{\alpha}_j + \hat{\beta}_j R_{m,t})$. The cumulative average abnormal return over the period between T_1 and T_2 is given by the following equation: $CAAR_{T1,T2} = \sum_{j=1}^{N} \sum_{t=T1}^{T2} A_{j,t} \Big/ N$

Panel A: Share Market Reaction During Window Period (t-1, t+1)

Types	No.	CAAR	Z	Pos:Neg	Rank Z
Assignments	15	-1.19%	-1.14	6:9	-0.94
Upgrades	9	-2.08%	-0.79	5:4	-0.28
Positive outlooks	6	5.15%	1.15	4:2	0.59
Downgrades	19	0.50%	-0.14	13:6	0.84
Negative outlooks	17	-1.93%	-1.16	5:12	-1.39
Affirmations	17	0.06%	0.60	8:9	-0.13

Panel B: Share Market Reaction During Window Period (t-1, t)

Types	No.	CAAR	Z	Pos:Neg	Rank Z
Assignments	15	-1.27%	-1.43	7:8	-1.29
Upgrades	9	-2.35%	-0.87	5:4	-0.59
Positive outlooks	6	3.25%	0.95	4:2	0.35
Downgrades	19	-0.44%	-0.44	12:7	0.37
Negative outlooks	17	-1.46%	-0.89	6:11	-0.88
Affirmations	17	1.12%	1.23	10:7	1.23

Panel C: Significance Share Market Reaction to Credit Rating Announcements

Types	No.	Period	CAAR	Z	Pos:Neg	Rank Z
Assignments	15	(-20,+20)	-10.38%	-1.83*	3:12	-2.75**
Upgrades	9	(+1,+10)	5.36%	2.20*	7:2	1.35
		(+1,+20)	5.39%	1.92*	7:2	1.31
Positive outlooks	6	(-20,-2)	-8.83%	-2.53*	0:6	-1.87*
		(-5,-2)	-5.97%	-3.31***	0:6	-2.90**
Downgrades	19	N/A	N/A	N/A	N/A	N/A
Negative outlooks	17	(+1,+10)	3.05%	2.08*	12:5	0.52
		(+1,+20)	6.24%	3.46***	15:2	1.07
Affirmations	17	N/A	N/A	N/A	N/A	N/A

Table 3: Cross-sectional Multivariate Regression Results

This table shows the cross-sectional variation of the cumulative abnormal return (CAAR) during the two-day event period of the following regression.

$$CAAR = \alpha_0 + \alpha_1(ADR) + \alpha_2(Size) + \alpha_3(Leverage) + \alpha_4(BM) + \alpha_5(D) + \varepsilon$$

where ADR is the dummy variable with the value one when the announcing firm has the American Depository Receipts traded and zero otherwise. Size is the natural logarithm of the market equity value. Leverage is the ratio of total debt to total assets. ***, **, and * indicate significance at 99%, 95%, and 90% level respectively.

Panel A: Window period (t-1, t+1)

	Neutral Event		Positive Event		Negative Event		All Event	
	E[Sign]	Coef	E[Sign]	Coef	E[Sign]	Coef	E[Sign]	Coef
Intercept	n/a	-33.64 (-2.96)***	n/a	8.58 (0.32)	n/a	-0.12 (-0.87)	n/a	-0.10 (-1.24)
ADR	n/a	0.25 (1.11)	-	-0.06 (-0.14)	+	0.11 (0.38)	n/a	0.11 (0.64)
Size	n/a	0.48 (2.68)**	-	-0.19 (-0.47)	+	0.06 (0.26)	n/a	0.08 (0.64)
Leverage	n/a	0.20 (0.77)	+	0.25 (0.48)	-	0.24 (0.88)	n/a	0.29 (1.67)
BM	n/a	-0.10 (-0.51)	-	-0.04 (-0.11)	+	0.38 (1.91)	n/a	0.22 (1.73)
D							+	-0.07 (-0.59)
No.Obs		29		14		36		79
F-stats		2.83		0.49		0.15		0.94
Adj-R^2		0.21		-0.19		0.00		0.00

Panel B: Window period (t-1, t)

	Neutral Event		Positive Event		Negative Event		All Event	
	E[Sign]	Coef	E[Sign]	E[Sign]	E[Sign]	Coef	E[Sign]	Coef
Intercept	n/a	-31.82 (-3.09)**	n/a	0.12 (0.00)	n/a	-0.12 (-0.87)	n/a	-9.45 (-1.29)
ADR	n/a	0.24 (1.01)	-	-0.18 (-0.44)	+	0.11 (0.38)	n/a	-0.03 (-0.15)
Size	n/a	0.46 (2.68)*	-	-0.04 (-0.10)	+	0.06 (0.26)	n/a	0.13 (0.99)
Leverage	n/a	0.39 (1.54)	+	0.20 (0.40)	-	0.24 (0.88)	n/a	0.14 (0.78)
BM	n/a	-0.04 (-0.21)	-	0.40 (1.07)	+	0.38 (1.91)	n/a	0.26 (2.00)*
D							+	0.00 (0.02)
No.Obs		29		14		36		79
F-stats		3.61		0.85		0.15		0.953
Adj-R^2		0.27		-0.05		0.00		0.00

Table 4: Long Term Excess Returns Following Credit Rating Announcements

This table presents the long-term stock market reaction to six event types. IR-2months, IR-4months, and IR-6months refer to the information ratios of 2-month, 4-month, and 6-month excess returns respectively. ***, **, and * indicate significance at 99%, 95% and 90% level respectively.

Type	No.	IR-2months	IR-4months	IR-6months
Assignments	15	-0.08	-0.15	-0.29
		(-0.31)	(-0.59)	(-1.12)
Upgrades	9	0.48	0.22	0.44
		(1.45)	(0.66)	(1.32)
Positive Outlooks	6	0.33	0.11	0.28
		(0.81)	(0.27)	(0.68)
Downgrades	15	-0.85	-0.59	-0.90
		(-3.28)***	-2.29**	(-3.48)***
Negative Outlooks	15	0.54	0.25	-0.15
		(2.10)**	(0.95)	(-0.57)
Affirmations	16	0.29	0.07	-0.22
		(1.16)	(0.29)	(-0.90)