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INFORMATION VALUE OF CREDIT RATINGS IN ASIA EX-JAPAN MARKETS

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Table of Contents

Acknowledgement I

Table of Contents II-III

Abstract 1

CHAPTER ONE: INTRODUCTION 3
1.1 Introduction 3
1.2 Objectives of the study 5
1.3 Organization of the study 6

CHAPTER TWO: LITERATURE REVIEW 7
2.1 Impact of rating changes on security price 7
2.2 Cross-section variation in the market reaction to rating changes 9
2.3 The informativeness of credit watch procedure 10
2.4 The impact of information events in emerging market 11
2.5 Comparison of the influence of rating agencies 13

CHAPTER THREE: DATA AND METHODOLOGY 14
3.1 Event definition 14
3.2 Data 15
3.21 Data source 15
3.22 Data summary 16
3.23 Sample selection 17
3.3 Event study methodology 18

CHAPTER FOUR: EMPIRICAL RESULTS 21
4.1 Is there any market reaction to actual changes and credit watch related events? 21
4.2 Do the unanticipated events carry more information than the anticipated ones? 24
4.3 Does the Asian crisis have an impact on the market reaction to news announcements? 26
4.4 Is there any difference between the market reaction to rating events announced by international and those by local agencies? 29

CHAPTER FIVE: SUMMARY AND CONCLUSTION 35
5.1 Summary of the results 35
5.2 Limitation of the study 37
5.3 Direction for future research 37
5.4 Implication of the study 38

Table 3.1 39

Table 3.2 40

Table 4.1 41

Table 4.2 42

Table 4.3-4.4 43

Table 4.5 44

Table 4.6 45

Table 4.7 46

Table 4.8 47

Figure 3.1 48

Figure 3.2 49-51

References 52-54

Information Value of Credit Ratings in Asia Ex-Japan Markets

Abstract

This study investigates the information value of credit ratings by exploring the relationship between ratings and security price. Unlike previous studies, we concentrate on the major markets ex-Japan in Asia.

We begin with an investigation of rating reclassification as well as credit watch placement events by three leading international rating agencies. We show that markets with differing level of sophistication behave differently. Specifically, South Korea and Hong Kong are found to respond in a similar manner. Indonesia shows possible sign of information leakage. In the cases of Malaysia and Thailand, significant and positive equity price responses exist for upgrades, suggesting that upgrades are news-worthy in Asian market. However, we find that global raters fail to provide Taiwan market with new tradable information.

Further, we split the rating changes into anticipated and unanticipated events to account for the likely differential effects caused by market anticipation. We find evidence that market anticipation neutralizes the announcement effect.

We also examine whether the Asian financial crisis exerts impact on the magnitude of market reaction associated with rating news. For most markets in our analysis, the market reaction resulting from downgrades is muted during the crisis period.

We also investigate whether global raters and local raters impact market differently. The results are mixed. Local raters in Taiwan and South Korea seem more influential than their global peers, whereas it is not the case in Thailand.

In general, we find that there is information value in the announcements of rating revision and credit watch. The six Asian markets have heterogeneous responses to these announcements. Overall, our findings may help fund managers to better understand the announcement effects, and regulators to justify the incorporation of external credit ratings into the capital adequacy requirements.

Chapter 1: Introduction

1.1 Introduction

Credit rating agencies have played an important role for decades in financial markets. The major responsibility of rating agencies is to convey their opinions regarding the default risks of certain issuers or market instruments by assigning credit ratings. The ratings they provide are widely used by various market participants. More specifically, lenders can rely on ratings in decision-making without having to engage themselves in the costly and time-consuming information gathering process. For borrowers, ratings can widen their access to funding through dissemination of their credit quality information to investors. Portfolio managers also use credit ratings in portfolio management. Ratings from certain reliable agencies are also used by regulator. For example, the SEC proposed that public companies inform investors what are the ratings of their securities as given by the agencies. The Basel Committee on Banking Supervision (BCBS) establishes capital adequacy requirements based on ratings provided by external credit rating agencies.

The performance of rating agencies has been the subject of intense debate in the past few years. Rating agencies have been accused of failing to provide reliable and timely ratings. It could be a conflict of interest due to a business relationship with the company management. Accusations of lagged reaction to information have intensified especially after several emerging market financial crises. Rating agencies are criticized for passively reacting to the crisis instead of being able to predict the crisis. The controversy over rating agencies leads to a copious amount of research being carried out on the information value of ratings. Under the efficient markets hypothesis, there would be a

market reaction associated with rating revision announcement if the event incorporates valuable and price-relevant information.

A large number of studies have examined the effect of rating changes on stock prices. The majority deal with studying the US market, whereas few research studies have been done on investigating the Asian markets. The paucity of research arises from the embedded characteristics of Asian economies. In contrast to the US market, the Asian markets are relatively small and less well-regulated. In particular, the weaker is the market regulation and the greater the market segmentation, the more likely it is to observe information leakage and insider trading prior to any news event.

However, due to the ongoing development and increasing importance of the Asian markets, more research should be conducted to see if the results obtained from mature markets such as US are similar. Emerging markets are characterized by information asymmetry and low transparency. There are limited channels for companies to disseminate information to the investing public. Credit rating thus serves as one of the few available signals to convey relevant information in smaller Asian markets. Consequently, the information released by rating agencies might be more news-worthy in these markets. Also, in light of the important regulatory role of rating in some mature markets, this study might be more meaningful for smaller Asian markets where the regulation may be weaker compared with US market.

This study also seeks to examine the influence of global credit rating agencies relative to local agencies. Against the background of a rapidly growing emerging economy, the demand for domestic ratings has been gaining greater importance over time. The global rating agencies such as Moody's, Standard and Poor's generally charge much higher fees

for rating services than local ones given their greater specialized skills and experience in rendering rating service. Therefore, from the financial perspective, the local rater is in a stronger position to service the emerging market by allocating its resources to rate small issuers that may be of less interest to the global raters. In addition, the domestic rater is perceived to have a wide and easy access to local information, thus facilitating a better understanding and insights of local issuers' credit worthiness. By contrast, the US headquartered international rating agencies may react more slowly due to the inherent geographic disadvantages. If that is the case, the rating announcement by domestic raters might be more informative relative to their international counterparts.

However, given the short history of rating record, lack of transparency, the local agencies may receive little recognition from investors. This argument is consistent with an Asian development bank paper which surveys a pool of investors on their opinions of local raters. It is reported that 45% of investors surveyed said the local raters were absolutely not timely at all. If this market perception dominates, the market might be insensitive to the local rating announcement. Another criticism of local agencies is that the local rating agencies are more likely to apply weaker standards to domestic firms, which is referred to a home bias. To get a more comprehensive understanding of how information is reflected in emerging market, exploring the difference between local and global news announcement is of critical importance.

1.2 Objectives of the study

The object of this study is to examine the impact of credit rating changes on common stock returns. In particular, we seek to answer the following questions:

1. Do rating agencies have superior information and analytical skills and hence can their rating revisions influence excess equity returns?

2. Do the response patterns to rating events vary across different markets?

3. Does the placement to credit watch list have information value?

4. Do the unanticipated events carry more information than the anticipated ones?

5. Does the Asian crisis have an influence on the market reaction to news announcement?

6. Is there any difference between the market reactions to rating events announced by international agencies relative to those announced by local agencies?

7. What kind of role does rating play in the regulatory framework of emerging market?

1.3 Organization of the study

This paper proceeds as follows:

Chapter Two reviews the existing literature and provides the theoretical background of this study.

Chapter Three describes the data used and explain how we select the sample in detail. In addition, the methodology employed in empirical analysis is discussed.

Chapter Four presents the empirical results with corresponding explanations and related discussions.

Chapter Five outlines the main findings of this empirical work and points out the limitations and suggests additional avenues for future research.

Chapter 2: Literature Review

A large body of literature has investigated the informativeness of credit ratings by working with the rating-related events. Those events cover various perspectives regarding credit rating. For instance, Barron, Clare and Thomas (1997) analyze the impact of assignment of new rating on UK capital market and find no significant abnormal return associated with it. An empirical work by Kliger and Sarig (2000) suggests that rating information is price-relevant and valuable, citing evidence that bond price adjusts to information following Moody's refinement of its rating system. More recently, Aintablian and Mora (2005) find no market response around Moody's announcement of eliminating the sovereign ceiling on company rating. These studies are relatively rare since the events covered happen less frequently. Consequently, more and more works focus on the upgrade and downgrade events.

2.1 Impact of rating changes on security price

The argument that there is a linkage between rating revision and security price has its rationale embedded in the belief that rating agencies are capable of gathering, processing and then conveying important private information to the market. Within the theoretical framework of market efficiency, the information content of rating can be tested by means of examining the abnormal returns surrounding the announcement of rating revision.

The initial focus of the literature in this area is the effect of rating changes on bond prices. Those works report conflicting findings: Weinstein(1977) find little bond price reaction to the bond rating changes announcement, whereas other studies, such as Katz

(1974), Grierand Katz (1976), Ingram, Brooks and Copeland (1983), Wansley and Clauretie (1985) and Hand, Holthausen and Leftwich (1992) do find significant bond price reaction. These differences in results can be attributed largely to the issues of methodology, sample periods and the data frequency (monthly, weekly or daily). Researches began to concentrate on the stock price reaction to bond ratings as well.

Numerous studies have investigated the information value of credit rating changes by measuring the abnormal stock returns around the announcement.(Griffin and Sanvicente 1982, Goh and Ederington 1993, 1998, Dichev and Piotroski, 2001) Although there is some variation in results across studies, there is evidence that an asymmetry exists in stock price reactions to credit rating downgrades and upgrades. Specifically, a downgrade announcement is followed by a significant negative accumulative abnormal stock return, whereas an upgrade announcement is followed by an insignificant positive accumulative abnormal stock return.

This puzzling empirical regularity is explained from the aspect of the incentives of the companies and the rating agencies (Goh and Ederington (1998)). It is argued that companies are more likely to release the favorable information instead of the unfavorable information. On the other hand, the rating agencies have the strong incentive to spend more resources in detecting deterioration in credit quality rather than improvements due to the higher reputational cost of failing to detect credit problems. Those biases make the downgrade information more newsworthy in the market and thus the market reaction to the downgrade is stronger.

There are also studies looking at the price activity prior to and following the rating changes. While many studies find statistically significant announcement period abnormal

returns, the magnitude of announcement effects is often quite small compared with the movements in stock prices that occur prior to the rating announcements. For example, Holthausen and Leftwich (1986) find that downgrades (upgrades) tend to occur following periods of negative (positive) abnormal returns. This finding suggests that the market participants have already partially anticipated the rating changes, or in other words, the market impounds information much more quickly and efficiently than rating agencies do. Using a comprehensive sample covering period of 1970 to 1997, Dichev and Pioktroski (2001) find substantial and persistent negative abnormal returns over a long period following downgrades. In the case of upgrades, little or no supportive evidence is found.

2.2 Cross-section variation in the market reaction to rating changes

A number of studies have addressed the cross-sectional differences in the market reaction to downgrades. Hsueh and Liu (1992) propose that market anticipation plays a role in the magnitude of market reaction. More generally, market reaction to rating changes depends on whether new and valuable information is conveyed to the market. The rating revision has informational content only if the announcement communicates new and value-relevant information to market. If the information is already anticipated by investors, the market may not respond to the news. They use equity ownership dispersion and interest rate volatility as measure of the quantity of information available to control for the market anticipation of a rating change announcement. They find no market response to rating changes for larger firms and significant price movements for smaller firms with less information available in the market. Creighton, Gower and Richards (2004) also provide evidence for differential market response related to firm size.

Jorion and Zhang (2005) suggest that initial value of the rating is an important but ignored factor in the explanation of cross-sectional difference. They find a much stronger stock price movement for rating changes starting from a lower initial rating. Supporting evidence for this argument can be found in the study by Goh and Ederington (1999).

The magnitude of market response also depends on whether the rating change crosses the investment to speculative-grade border. Institutional investors are prohibited from holding the issues of investment grade, leading to a larger price movement when the border is crossed. This "investment-grade" effect is discussed in Jorion and Zhang (2005).

2.3 The informativeness of credit watch procedure

Aside from enormous empirical evidence concerning the upgrades and downgrades, the credit watch procedure, an issue little studied, has stirred interest in this related stream of research. On the theoretical side, Boot, Millbourn and Schmeits (2006) analyze the economic role played by credit rating agencies through the credit watch procedures in the financial markets. In their proposed model, the credit watch procedure helps to establish an implicit contractual relationship between the agencies and the rated firms. The mechanism works as follows. Suppose the agency observes potential deterioration in the firm's credit quality, it will ask the firm to deal with the unfavorable situation and place the firm on the watch list. The rated firm can choose whether or not to undertake recovery effort (observable to the rating agency but not by the market) after being put on negative credit watch list. If the firm succeeds in restoring the credit quality, the rating may get reconfirmed. Otherwise, it will be downgraded ultimately. The subsequent downgrade enables the market to realize that the downgraded firm did not undertake

recovery effort or failed in improving the credit quality. In contrast, for the downgrade in absence of a prior credit watch, the market only learns about the failure of the recovery effort over time, thus the price impact takes more time to materialize. Given that, they draw an empirical prediction: a rating change after a credit watch procedure is more likely to be informative than a rating change without an early warning. In addition, they propose that this mechanism only works in the case of downgrade because the rating agency has less incentive to put a company on the positive credit watch list. More importantly, their model is based on the conditionality of investment decisions on the credit rating, an institutional feature prevailing in the US market.

In related empirical work, Hand, Richard and Leftwich (1992) examine the security price reactions associated with the announcement of additions to credit watch list, more specifically to the negative watch list and positive watch list. When dealing with all the credit watch placements, they document virtually no significant non-zero abnormal return to those events. They then split all the observations into "expected" and "unexpected" subsamples using a price-impact model. No statistically significant impact on price is observed for the unexpected subsample of negative credit watch. However, in the case of positive watch placement, the market appears to be non-responsive.

2.4 The impact of information events in emerging market

Another related branch of literature is one that studies the impact of information events in emerging market. As noted earlier, the distinct features characterizing emerging markets could pose problems for event study, complicating the task of identifying the information value of various events. An examination of 32 firm-specific news

announcements in Mexico between 1994 and 1996 by Bhattacharya, Daouk, Jorgenson and Kehr (2000) shows no abnormal jump in stock returns around the announcement date. The authors then provide 5 possible candidates for the explanation of such an interesting finding. They are small sample size, inefficient market, efficient market but no information value inherent in those events, full anticipation by the market and unrestricted insider trading. Further, they provide evidence favoring the last one. They conclude that the insider trading causes the prices to fully incorporate the information before its public release, thus turning an event into a non-event.

As regards the information content of credit rating in developing and small economies, there appears to be little research addressing this issue. Different from many US studies that concentrate on company rating, most emerging market studies are primarily concerned with the effect of sovereign rating. The only study investigating the informativeness of rating at firm level in emerging markets is by Richards and Deddouche (1999). Surprisingly, the market is either insensitive to rating changes or responsive in an opposite direction from what is expected. However, the surprising results in this paper may arise from a non-robust empirical methodology. More broadly, the combination of 15 markets with differing level of sophistication could lead to misleading results. Using weekly data instead of daily data is not ideal since using a shorter observation interval is more effective in exploring daily trends or security price reactions on specific event days. In addition, further investigation on all industries is preferable to the concentration on only the banking industry. Therefore, there is scope for a more comprehensive analysis on this issue.

2.5 Comparison of the influence of rating agencies

A very limited number of studies have previously examined the differential impact of rating agencies. Kish, Karen and Olson document no evidence that market values one agency over the other by comparing the ratings from Moody's and S&P. Further, Shin and Moore (2003) compare credit ratings assigned to Japanese firms by two leading U.S. rating agencies and two leading Japanese agencies. Their findings suggest that the ratings by the U.S. agencies are systematically lower than those assigned by Japanese raters. A follow-up study by Li, Shin and Moore (2006) conclude that global agencies are more influential than local raters for downgrades in Japanese context. Also, they find the ratings by the two prominent rating agencies are homogenous.

Chapter 3: Data and Methodology

3.1 Event definition

We investigate the information value of credit ratings by examining the market reaction to rating revision events around the announcement date. For this analysis, we follow the existing related empirical works to analyze the upgrades and downgrades announcement.

However, it would be too limiting to centers purely on the upgrades and downgrades since doing so omits the potential differential effect between rating changes preceded by a watch and those that were not preceded by a watch. We extend our analysis to include partitioning our rating changes into anticipated and unanticipated ones to test their possible different impact. An anticipated event refers to a change where the rated company was put on the credit watch list prior to the announcement date, with a direction consistent with the actual subsequent changes. Credit watch is a valuable predictor of issuer's creditworthiness. By placing firms on the credit watch list, the rating agencies disseminate the information that an improvement or deterioration is likely to take place in the short term to market participants. Suppose the firm is ultimately downgraded or upgraded as the credit watch list indicates, the market reaction to the rating revision announcement might be muted since the news has already been anticipated by the public through the credit watch procedures. Therefore, we expect that the unanticipated events carry more information than the anticipated ones.

Aside from the actual rating changes, we also consider the credit watch events. The credit watch event deals with the announcement of additions to the credit watch list.

Specifically, “negative watch events” and “positive watch events” are defined based on the direction of the likely change indicated by the agency.

The exact definitions and specific examples of various rating events to be employed in the context of this study are outlined in table 3.1.

Table 3.1 about here

3.2 Data

3.21 Data source

The data required for the analysis include the credit revision events and time series stock price data of several major Asian markets. The credit rating change data are collected from the Bloomberg database. The information provided by Bloomberg consist of the announcement date, rating type, rating agency, current rating, last rating and industry type of the rated issuers. The ratings selected for analysis are from Moody’s, Standard and Poor’s and Fitch, the three most recognized rating agencies in the world. The raw sample collected covers changes in credit ratings between January 1997 and December 2005. Six Asian major markets excluding Japan are selected: Indonesia, Hong Kong, South Korea， Malaysia, Taiwan and Thailand. In addition to the rating information from the international raters, we also examine the rating revision announcement by local raters to obtain a more comprehensive analysis. Those data are obtained from Bloomberg. Aside from the actual rating changes information, Bloomberg also provides the credit watch indicators, which forms a part of our analysis.

As for the stock return of the rated companies, we use the daily closing price from the Datastream. These are supplemented with information from Bloomberg as well as from the local stock exchange. To measure the abnormal return, we also collect the daily local stock indices data denominated in local currencies of the 6 markets from Datastream. The sample of credit events is reduced substantially because of the data problems.

3.22 Data summary

Figure 3.1 about here

Figure 3.1 reports relative frequency of upgrades and downgrades in credit ratings by Fitch, Moody's and S&P in the sample period covering January 1997 to December 2005. As can be seen, relative to Moody's and Standard and Poor's, Fitch has a smaller proportion of rating revision announcements in all the markets covered. The prevalence of Moody's and S&P's rating revision announcements differs across markets. The rating changes announced by Moody's constitute the majority of the sample events in Thailand, South Korea, Hong Kong and Malaysia. For the remaining two markets, S&P dominates.

Figure 3.2 about here

The annual evolution and frequency of upgrades and downgrades are presented in figure 3.2. Two apparent features can be seen from this figure. First, it is characterized by the clustering of downgrade events in 1997 and 1998, a period experiencing the Asian

financial crisis. During the crisis period, the percentage of downgrades was excessively high for most markets in the sample except Taiwan. In the case of Taiwan, the clustering of downgrade is not as obvious as the other 5 markets. This is mainly because Taiwan was relatively unaffected by the crisis. South Korea, Thailand and Indonesia, countries most affected by the crisis, experienced a larger number of downgrades compared to other markets in the crisis period.Those findings indicate that the rating agencies behave pro-cyclically: upgrading countries in good times and downgrading them in bad times, which is discussed in Ferri, Liu, and Stiglitz (1999).

Another important feature of figure 3.2 is that the proportion of upgrades is substantially greater than that of downgrades in the non-crisis period for all the covered markets.

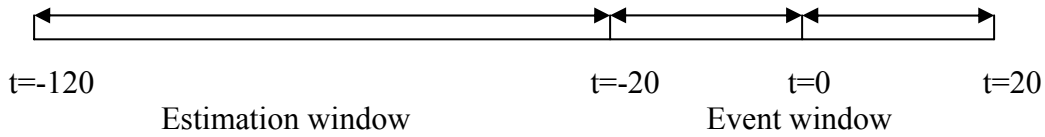
3.23 Sample selection

To avoid a loss of power in our tests resulting from other events with potentially confounding effect on stock prices, we eliminate the observation if another news announcement concerning earnings and mergers occurred during the event window of 41 days. There are also some cases where the rating is changed consecutively by multiple agencies. The temporal clustering of rating revisions for the same company might be potentially problematic for empirical analysis since it may induce a biased estimate of stock price movement around a particular event. For the two consecutive events within a 10 day window, we include the event if both are upgrades or both are downgrades. In this case, the earlier not the later event is included. The resulting sample used for analysis is summarized in table 3.2.

Table 3.2 about here

3.3 Event study methodology

The information content of rating is examined by means of an event study. The length of the event window and the estimation window are illustrated below:



The choice of the event window is based on an attempt to obtain a comprehensive picture of how does the market respond to rating-related events. With the event announcement day specified as day 0, a period of 20 days on both sides of this day are chosen. The event window is split into three sub-windows. To capture the likely information leakage, we define the period (-20,-1) as the pre-announcement period. Although the information from Bloomberg includes the announcement day of each event, we cannot identify the exact time of announcement and thus can not determine whether the announcement occurs during the trading hours. Therefore, we choose a two-day period (0, 1) as the announcement window to account for this uncertainty. In addition, we also examine another period (2, 20) following the announcement window to take the possible lagged reaction into consideration.

This paper uses daily stock price data to compute two different measures of returns for the rated companies. The first measure is based on the market model as follows:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \varepsilon_{it} \qquad (1)$$

where

R_{it} = return on firm i for day t

R_{mt} = return on market index for day t

ε_{it} = error for day t.

The coefficients are estimated for a given firm over a 100-day estimation window starting 120 days prior to the announced event and ending 20 days before the event day. The abnormal return is defined as the difference between actual returns and the returns predicted by the above model.

Another measure computes the excess return version of the market model:

$$R_{it} = R_{ft} + \beta_i (R_{mt} - R_{ft}) + \varepsilon_{it} \qquad (2)$$

where the risk free rate R_{ft} is collected from Datastream. The results of this model are not materially different from the other model, and hence we only report the results of equation 1.

Next, the average abnormal return, AAR, is calculated by averaging the n events for a specific event day t:

$$AAR_t = \frac{1}{N} \sum_{i=1}^{N} AR_{it} \qquad (3)$$

Then, the AARs are aggregated in order to draw overall inferences for a certain period

$$CAAR_{t1,\,t2} = \sum_{t=t1}^{t2} AAR_t \qquad (4)$$

The test statistic for the significance of AAR equals to the ratio of AAR to its standard deviation. The standard deviation is estimated by the data obtained within the estimation window.

Further, the standard deviation of cumulative average abnormal return is given by standard deviation of AAR multiplied by the square root of the number of days in the period.

$$t = \frac{AAR_t}{s(AAR_t)} \tag{5}$$

$$s(AAR_t) = \sqrt{\frac{1}{100}\sum_{-120}^{-20}(AAR_t - \overline{AAR})^2} \tag{6}$$

Chapter 4: Empirical Results

This chapter discusses the empirical analysis by examining the information value of credit rating in four different aspects. In each case, the results for average abnormal returns on five specific event days are presented. Besides, cumulative average abnormal returns over the pre-announcement, announcement and post-announcement windows are reported respectively. The discussion in this chapter centers on the price movement over the 3 windows in order to give a more comprehensive picture of the price adjustment.

4.1 Is there any market reaction to actual rating changes and credit watch related events?

The first section examines whether stock returns are significantly influenced by actual rating changes announcement and by credit watch placement announcement. The inclusion of credit watch event is based on an expectation that the placement of a firm on the credit watch list may convey some new price-relevant information to the market because the credit watch list serves as an early warning system for likely rating changes in the short run. The results are reported by market in table 4.1.

Table 4.1 about here

Hong Kong and South Korea display a uniform response pattern to the events investigated. More specifically, price adjustment surrounding downgrades are significantly negative, reinforcing the evidence of information value of downgrades

observed in other markets. For upgrades, there is little evidence of significant price movement. It is apparent that the two markets do not treat upgrades as an informational event. These findings suggest that South Korea and Hong Kong appear to behave in a manner consistent with other mature markets. For the credit watch events, only the negative watch placement has an impact on market and the magnitude of reaction is smaller than that of downgrades for both markets, indicating that a possibility of being downgraded is less informative than an actual downgrade. This evidence is consistent with prior research (Hand, Richard and Leftwich (1992)). As regards the difference between the two markets, the price adjustment observed in South Korea is more drastic than that in Hong Kong in terms of magnitude and significance level.

In the case of Indonesia, there is no market reaction associated with upgrades and credit watch events. As regards downgrades, there appears to be a full information leakage which translates into a strong negative cumulative average abnormal return of -15.809 over the pre-announcement window. The information is found to be incorporated into prices prior to downgrade announcements, suggesting a degree of inefficiency in the Indonesia market.

As shown in table 4.1, the Malaysia market reacts to both negative watch placement and downgrades announcements. An interesting finding is that a significant lagged price adjustment appears for upgrades over the post-announcement window, indicating that upgrade constitutes an informational event in the context of Malaysia. This detected response is contrary to the usual result found in previous literature that upgrades do not have an impact on market.

For the Thailand market, it appears that the good news announcements contain new information that surprises investors. More specifically, positive watch placement contributes to a highly significant cumulative average abnormal return of 2.660 over the two-day announcement window. In addition, positive price adjustment is observed for upgrades announcement. In terms of bad news, the market apparently does not treat downgrades and negative watch placement as informational events, thus no evident market reaction being detected. It is obvious that the Thailand market behaves in a totally different way from its more developed counterparties. The informative upgrades may arise from the limited access to information in developing economies, an explanation can be provided to account for the similar market reaction to upgrades observed in Malaysia. For the lack of reaction to bad news, it is difficult to identify the exact reason. As discussed by Bhattacharya, Daouk, Jorgenson and Kehr (2000), five possibilities are suggested. It is possible that the market is too inefficient to reflect new information. Alternatively, there might be no price-relevant information in downgrades. Or the market has fully anticipated the event, thus no abnormal jumps in stock return are being detected around announcement period. Also, unrestricted insider trading, which can cause prices to fully incorporate the information prior to public announcement, may contribute to the observed insensitivity. Aside from those possibilities, another likely reason is that this result is only unique in this specific period which includes the Asian crisis. In our case, the first reason mentioned above is unlikely because there is evidence of response to upgrades in Thailand. In terms of other possibilities, it is too premature to conclude which one is the most relevant candidate and further discussion will follow.

As regards Taiwan, the results are to a great extent surprising. Neither upgrades nor downgrades have an effect on security prices. The discussions regarding Thailand can be applied to the case of Taiwan. No sign of information leakage is observed, indicating that insider trading seems unlikely in this case. In the subsequent sections, we'll seek to explore why Taiwan behaves in such an interesting way.

Based on findings in this section, it is apparent that a variety of different reactions exist across the Asian markets. The different market behaviors observed are in accord with prior expectation that markets with differing level of sophistication may exhibit unique patterns.

4.2 Do the unanticipated events carry more information than the anticipated ones?

Having determined that the six Asian markets differ in reaction to rating related events, we now attempt to reveal more about the nature of rating changes. This section hence extends the main results by segmenting the rating changes into anticipated and unanticipated ones according to whether the rerated firm was placed on credit watch list with the same direction as the announced rating change before the announcement. Table 4.2 provides the results from the six investigated markets.

Table 4.2 about here

Four markets present a similar pattern that the unanticipated events have a more drastic market impact. More specifically, in the case of Hong Kong, South Korea and Malaysia, the information value of downgrades observed in section 4.1 almost entirely

comes from the unanticipated downgrades. For the anticipated downgrades, no informational content is found, as shown by the insignificant market reaction over the event window. Also, the differential impact of anticipated and unanticipated downgrades holds true for the upgrades in Malaysia. While the anticipated upgrades appear to have an impact on the announcement date in Thailand, the impact of unanticipated upgrades is stronger over the two-day announcement window with a higher significance level. Looking at the downgrades in Thailand, there is still no abnormal jump in stock return surrounding downgrades even after we segment them based on market anticipation. It suggests that market anticipation mentioned in section 4.1 would not be responsible for the insensitivity detected earlier in the case of downgrades.

Indonesia differs from the above markets. Based on the findings in section 4.1, there is a strong information leakage associated with downgrades during the twenty-day pre-announcement period. After the partition in this section, the unanticipated downgrades sustain the same pattern as the overall sample, given its more important weight in the overall sample. The anticipated downgrade, on the other hand, is perceived to have a strong effect over the announcement window. Unlike other markets, the difference between anticipated and unanticipated events lies in the response time instead of the magnitude. This difference appears to be driven by the differing incentives to possible leakage of information. In particular, for the unanticipated downgrades, insiders tend to trade on relevant information because it is more likely to be a shock to market, leading to a negative CAR of -18.423 preceding the announcement. For anticipated downgrades, however, the same incentives may not exist because the information regarding the downgrades was already conveyed to market when the firms in question were added to

the negative credit watch list. In addition, the significant announcement effect of anticipated downgrades contrasts with what was observed in other markets, suggesting that although investors may receive prior warning of downgrades in the form of credit watch placement, there is still uncertainty regarding the timing and magnitude of the possible downgrades. This uncertainty is reflected in the negatively significant market reaction, which is suggestive of a component of surprise in the news.

As with Taiwan, the market is still insensitive to any kind of rating revisions when the market anticipation is taken into consideration. Therefore, it is tempting to conclude that the market anticipation may not explain the curious findings of Taiwan in section 4.1.

4.3 Does the Asian crisis have an impact on the market reaction to news announcements?

In addition to the differences in the response induced by market anticipation, the market reaction may differ in other ways. The selected period in previous discussion incorporates the Asian financial crisis which leads to a spike in downgrades. As discussed in Reisen (2002), the rating agencies were accused for reacting to events rather than anticipating them in the Mexican crisis of 1994-1995. This opinion is in line with the argument of Reisen and von Maltzan (1999) that the performance of rating agencies is poor during the Asian crisis. The discussion with regard to agency performance in emerging markets is mainly concerned with the sovereign rating. We thus expect that the poor performance may hold true for ratings at company level. Given that, in this section, we examine the different response patterns to various market conditions by splitting the sample into crisis period and non-crisis period. The crisis period is defined as July, 1997

to December, 1998. Since almost all the upgrades cluster in the non-crisis period, this analysis is only carried out for downgrades. Sample size and empirical results are presented in table 4.3 and 4.4 respectively.

Table 4.3 about here

Table 4.4 about here

Panel A in table 4.4 looks at Thailand, Hong Kong and Indonesia. Among the three markets, the first two markets share some common features. In particular, no effect is encountered for downgrades in crisis period, whereas strong impact exists for those during the non-crisis period. This phenomenon can be attributed to the likely excess pessimism due to the financial crisis in which investors tend to have a negative anticipation towards the financial status of firms in the market. This psychological factor may turn a piece of negative news into a non-surprise. In this way, downgrades in a bad time would not have any impact on market. Now we can safely conclude that the interesting finding for downgrades in Thailand detected in section 4.1 can be attributed to the time period chosen. The result of overall sample is neutralized by the lack of response in the crisis period.

The Indonesia market appears to behave in a slightly different way. The negative effect of downgrades during non-crisis period is much stronger than that of the other two markets. While there is no announcement effect from downgrades in crisis period, the large negative reaction over pre-announcement window makes clear that market reacts

more quickly. This evidence is consistent with the so-called procyclical nature of rating discussed by Ferri, Liu and Stiglitz (1999). An alternative explanation for it is that the information leakage through insider trading causes the market to fully incorporate relevant information into prices before publicly announced. Taken together, the results in panel A suggest that the rating changes during non-crisis period exert a much stronger announcement effect on market.

Further evidence from South Korea and Taiwan can be found in panel B. The result of South Korea contrasts with that of markets in panel A. While negative reaction is significant at 10% on day 1 in non-crisis period, the announcement effect over (0, 1) is much smaller than that of the crisis period. Such a finding could be related to the characteristics of South Korea market. As one of the leading economies in the Asia-Pacific region, South Korea has a relatively sound market condition which enjoys more investor confidence. In this case, it could be true that even if the market is under crisis, the investors may believe that there is a high probability of the economy recovering in the near future. In absence of the sagging investor confidence, there is still some element of surprise in the downgrades announcement. With regards to the downgrades in the non-crisis period, the muted effect may be due to a small sample size of 10.

Looking at the result of Taiwan, no significant movement of asset price is observed in crisis period and the results practically do not change during the non-crisis time. When investigating the rating revisions of Taiwan in the overall sample period in section 4.1, similar results are found. The non-response remains after dividing the overall sample into two parts, suggesting that the sample period chosen is not responsible for the lack of market reaction in Taiwan.

In a practical sense, there is something to get excited about. Referring to the third column in panel B, while the CARs over the announcement and post-announcement window are not statistically significant, the difference between the two figures is economically significant. An opportunity for profit might arise supposing the investors buy stocks of downgraded firms during the announcement period and then hold them for one month (about 20 trading days). We found similar evidence during the crisis period of Hong Kong, as shown by a difference of about 5.8% in column 2 of panel A.

4.4 Is there any difference between the market reaction to rating events announced by international and those by local agencies?

This section aims to measure the relative importance of rating agencies in the domestic market by testing whether the information released by renowned international rating agencies is more reliable and informative than that by smaller and less experienced local raters. The dataset utilizes the rating history of three local rating agencies: KIS (Korea Investor Services), TRC (Taiwan Rating Corporation) and TRIS (Thailand Rating Information Services). The exclusion of the other three markets discussed earlier is due to the lack of historical data of local ratings in Bloomberg. Another caveat results from the relatively short history of the included local raters. In particular, the respective sample periods for the three agencies are: 1997-2005 (KIS), 2000-2005 (TRC) and 2002-2005 (TRIS). In order to make the results more comparable and meaningful, the sample periods for global raters are confined to be consistent with their respective local counterparts. In addition, caution and prudence will be exercised in comparing the different markets due to the differing sample period across markets.

Table 4.5 about here

To get a sense of the distinct rating activities across agencies, table 4.5 outlines the coverage frequency of global and local raters using the raw sample. For all the markets, local agencies rate the largest number of firms, 93, 27 and 237 for TRC, TRIS and KIS respectively. However, among the rated firms, only a small number of firms are covered by both local and global agencies. This common feature can be attributed to the different client groups they have been serving. Generally, firms with large capitalization are more willing to request rating service from international agencies since their objective is to step into the global market and attract more international investors. The financially disadvantaged small issuers, in contrast, tend to choose local agencies who charge less prohibitive fees. Looking at the number of events announced by local and global raters, South Korea and Thailand share a resemblance that the majority of the upgrades and downgrades are by global raters and local raters respectively. This can be explained by the fact that large firms rated by global raters are more likely to be upgraded due to their relatively sound financial status, whereas there is a higher possibility for small and medium enterprises (SME) to be downgraded because they are in more volatile and vulnerable financial position. Among the three markets, South Korea has the largest number of rating revision events and the largest coverage of firms rated. This is possibly due to its relatively well-established and sophisticated financial market. This pattern still remains after its longer sample period has been taken into consideration.

The remaining sample after dropping events with insufficient data and those contaminated by other price-relevant news is summarized in table 4.6**.** Next, table 4.7 provides the event study results for the selected period.

Table 4.6 about here

Table 4.7 about here

For South Korea in panel A, there is no big difference in the global upgrades and local upgrades. As with downgrades by global raters, a statistically significant negative abnormal return of -2.14738 is detected. Compared to the price behavior of rated firms by global raters over the event period, the results for local downgrades show different characteristics. There is some indication that most downgrades are foreseen by the market. A significant negative CAR is observed over the (-20, -1) window. While the strong pre-announcement impact suggests a market anticipation, the negative CAR of -1.52522 over the announcement window makes clear that there is still a large element of surprise in the news announcement. In addition, a prolonged market reaction is observed over the subsequent period (2, 20). Therefore, the South Korea market, on average, reacts strongly to local downgrades, a supporting evidence for the higher influence of local agency.

In the case of Taiwan, upgrades, regardless of being rated by global agencies or by local ones, are statistically insignificant during the event window. The downgrades, however, exhibit different characteristics. There is no evidence that the market is responsive to downgrades by global raters, consistent with the earlier finding using an

alternative period from 1997-2005. (see panel B in table 4.1). Surprisingly, stock price responds significantly to downgrades by local agency in the expected direction. This result contrasts greatly with that of global agencies, providing evidence that local agency provides better quality information than its international counterparts at least in the Taiwan context.

As noted in the previous discussion regarding the non-response of Taiwan market to both upgrades and downgrades by global raters, six possibilities are potentially relevant: full market anticipation, insider trading, sample period chosen, small sample, inefficient market and value-irrelevant rating information. The fourth explanation fails to hold because the sample size of informative local downgrades is only slightly larger than that of global downgrades. Similarly, if Taiwan market is informationaly inefficient, we should not observe any significant price impact for the local downgrades. Given that the first three alternative possibilities have been ruled out in the earlier section, we, therefore, can conclude that the investors in Taiwan do not value the information as much from global rating agencies. In other words, there is little information value inherent in global rating changes.

Results in panel C of table 4.7 are for rated firms in Thailand. As can be seen, the news by global raters has a CAR significant at 1% for the two-day announcement window, a result consistent with the finding in section 4.1 where a longer sample period is involved. It appears that the upgrades by global agencies contain new information that surprises investors and the market interprets it as good news. Nonetheless, this fails to hold true for upgrades by local agency and no significant effect is produced during the event period. There appears to be a greater average price impact of global rating relative

to local rating. In the case of downgrades, comparison is not available because all the downgrades by local raters happened before 2002. The result of local news shows no market reaction associated with downgrade announcements.

Having investigated the above three markets individually, we now seek to explore the reason why the relative importance of local raters vary across markets. To gain further insight into the three local rating agencies, we present their characteristics in table 4.8.

Table 4.8 about here

In terms of available services provided by local raters, TRIS has been offering the most extensive services to its clients, followed by KIS. In contrast, TRC do not expand its services as its peers do. Instead, it chooses to concentrate exclusively on the rating services. Looking at the various shareholding structures outlined in panel B, the "International CRA-Domestic CRA" link-ups seem to be a common practice. For instance, Moody has a 50% stake in KIS and S&P holds a 50% equity stake in TRC. Nevertheless, TRIS is an exception with no joint partnership with international CRAs.

The different background shown above may contribute to explaining the fairly divergent market reaction patterns observed. Among the analyzed local agencies, only TRIS has no impact on security price. It may be true that the possible political dependence, as shown by a government ownership of 19%, may deplete the credibility of TRIS. The stock price, therefore, is not responsive due to the market perception of political intervention. Aside from that, a more likely candidate might be the lack of joint partnership with global raters. The market may anticipate that the local raters are able to

receive technical support and skill transfer from their partner and thus enhance their credibility. This raises the possibility that the reponsiveness observed in the case of TRC and KIS may be partly the result of international rating agencies' participation in ownership.

Another interesting finding in this section is the strong differential effects of downgrades detected for global versus local agencies (TRC). It is possible that the difference arises from TRC's concentration on rating service, as indicated by panel A in table 4.8.

Chapter 5: Summary and Conclusion

5.1 Summary of the results

Credit ratings are quite prevalent in financial markets and a large body of literature has documented that the security price will be significantly affected when rating agencies revise the ratings they issued. However, there has been a lack of studies on Asian markets. Credit rating has been regarded as an effective channel to reduce the degree of information asymmetry. Hence the role played by rating agencies is more meaningful to smaller markets where transparency is weaker. Given that, this study aims to discuss the information value of credit ratings in smaller Asian markets excluding Japan. This issue is investigated by measuring the pre-announcement and post-announcement as well as the contemporaneous responses of six Asian financial markets to rating related events.

This study begins with an examination of market response to rating related events announced by Moody's, S&P and Fitch. The evidences from the six Asian markets are mixed, suggesting the manner in which markets react to credit rating differs across markets and relates to the distinct characteristics of specific markets. In particular, Hong Kong and South Korea, more advanced markets are found to behave in a similar way to their developed counterparties: immediate reaction to bad news but no response to good news. Strong evidence of information leakage is observed for Indonesia, indicating a degree of inefficiency. The results from the other three markets: Malaysia, Thailand and Taiwan are quite interesting. Malaysia and Thailand markets respond to upgrades. This finding can be attributed to the lesser availability of opportunities by firms to communicate good news in the two markets. Thailand, however, shows non-response to

downgrades. More surprisingly and interestingly, there is no impact associated with any kind of rating events announced by the international rating agencies in Taiwan.

Next, the main results from above are further investigated by the partition of rating changes. The segmentation is based on the differing market anticipation incorporated in rating revisions. The results suggest that, on average, the unanticipated events carry more information value than the anticipated ones. In the case of Taiwan, no difference is detected because the market remains unresponsive after the partition of the overall sample.

We also compare the impact of downgrades during the crisis periods with those during the non-crisis period to account for the potential impact of Asian financial crisis. Among the five examined markets, most of them behave in a similar manner. For Hong Kong, Thailand and Indonesia, the announcement effect of downgrades in the non-crisis period is much stronger than that in the crisis period. In the case of South Korea, the downgrades in the crisis period appear to be more informative. Taiwan is still insensitive in market response during any sub-sample.

Finally, different samples from the local agencies are examined to measure the relative influence of local versus global raters. In this analysis, three markets are investigated. South Korea and Taiwan seem to be more sensitive to local raters. The differential impact of local and global rater is extremely apparent in Taiwan, indicating that the local rater is much more credible in the domestic market. For the Thailand market, the global rater is more influential in terms of both market coverage and market impact.

To sum up, all the findings in this study show that generally the credit ratings in emerging markets do contain new information. However, the market reaction to the

information differs in term of market characteristics, rating agencies, markets conditions and investors anticipation.

5.2 Limitation of the study

There are some limitations with respect to the analysis and data that may affect the accuracy of the results.

1. The sample size for the covered markets is small due to the difficulty in the availability of data going farther back in time. This may bring bias into research. Using small sample size may increase the possibility that the final sample just happen to behave in the observed manner. The small number of events in this study might be a caveat, we therefore exercise prudence and caution when interpreting the empirical results to ensure a more reliable conclusion.

2. The sample of credit events is reduced substantially because of the data problems. Many rated companies do not issue stocks and the data of some listed companies is not available due to inactive trading.

5.3 Direction for future research

There are several additional avenues that could be explored, all of which would help in understanding this issue better.

An extension to this study would be to consider the cases of listing abroad. The globalization of financial market has catalyzed the growing migration of financing activities abroad and the number of companies seeking a foreign listing has increased over the last few decades. This is particularly the case in emerging markets where the

minority shareholder protection is weaker and hence the firms have incentives to signal the willingness to protect minority shareholder right through cross listing. Whether rating revisions to foreign listed firms from international rating agencies can trigger stronger reaction in the foreign market is worth investigating. Whether rating changes to local listed firms by domestic rating agencies have more influence on local market is another interesting issue. Further studies can be conducted to explore these possibilities.

5.4 Implication of the study

This study adds to the literature on the effects of credit ratings on financial markets. On the theoretical side, we present supporting evidence for the informational content of credit ratings in emerging markets. More importantly, we demonstrate how the information is reflected in the covered markets. On the practical side, our findings provide some insight for portfolio management. The market reaction displayed in this study can help portfolio managers have a better understanding of the price behavior in response to changing ratings and thus facilitate their investment decisions. Last but not least, the evidence that ratings in emerging markets do contain information has some implications from the policy perspective. The regulators in emerging markets can rely on ratings to monitor the banking industry, justifying the incorporation of external credit ratings into the capital adequacy requirements proposed by Basel Committee.

Table 3.1: Events definition

Event type	Definition	Examples
Upgrade	The announcement of a positive change in rating	BBB → AAA/AAA *+/AAA*- BBB *+ → AAA/AAA *+/AAA*-
Downgrade	The announcement of a negative change in rating	AAA→ BBB/ BBB*+/ BBB*- AAA*- →BBB/ BBB*+/ BBB*-
Anticipated upgrade	The announcement of an upgrade preceded by a positive watch indicator	BBB *+ → AAA/AAA *+/AAA*-
Unanticipated upgrade	The announcement of an upgrade not preceded by a prior watch indicator	BBB → AAA/AAA *+/AAA*-
Anticipated downgrade	The announcement of an downgrade preceded by a negative watch indicator	AAA*- → BBB/ BBB*+/ BBB*-
Unanticipated downgrade	The announcement of a downgrade not preceded by a prior watch indicator	AAA → BBB/ BBB*+/ BBB*-
Positive watch	The announcement of additions to the positive watch list	AAA→ AAA *+
Negative watch	The announcement of additions to the negative watch list	AAA→ AAA *-

Note: 1. *+ : positive credit watch indicator; *- : negative credit watch indicator; Cases involving developing credit watch (e.g. BBB*) are excluded
2. There are only a few cases in which the change direction is inconsistent with the credit watch indicators. These are omitted. (e.g. BBB*- → AAA/AAA*+/AAA*-, AAA*+ →BBB/ BBB*+/ BBB*-)
3. There are only a few cases where firms are removed from the credit watch list without subsequent rating change. (e.g. AAA*+ → AAA , AAA*- → AAA) These are omitted.
4. There are only a few cases involving changes in the status on credit watch list, but without changes in rating classification (e.g. AAA*+ → AAA*- , AAA*- → AAA*+). These are not considered.

Table 3.2: Summary Statistics of final rating sample (1997-2005)

	Upgrades			Downgrades			Credit watch	
	Anticipated upgrade	Unanticipated upgrade	Total	Anticipated downgrade	Unanticipated downgrade	Total	Negative watch	Positive watch
Hong Kong	11	24	35	12	15	27	24	12
Indonesia	10	38	48	20	34	54	8	12
Malaysia	19	27	46	1	28	29	7	22
Taiwan	1	20	21	5	25	25	5	4
Thailand	19	59	69	8	59	67	7	24
South Korea	30	3	33	15	40	55	11	29

Note: Number of negative/positive watch exceeds number of anticipated downgrade/upgrade in some markets because some negative/positive watch firms subsequently became excluded from the sample. Some also remained as negative/positive watch at end of sample period.

Table 4.1 Market reaction to actual rating changes and credit watch events (1997-2005)

Panel A: Good news												
Days relative to event	Average abnormal returns											
	Hong Kong		South Korea		Indonesia		Malaysia		Thailand		Taiwan	
	Positive watch	Upgrade	Positive watch	Upgrade	Positive watch	Upgrade	Positive watch	Upgrade	Positive watch	Upgrade	Positive watch	Upgrade
-2	-0.593	0.149	0.655	-0.109	-4.619	-0.108	0.112	-0.187	0.038	0.300	-0.718	0.748
-1	-0.515	0.358	-0.145	-0.202	0.802	-0.699	0.550 *	0.241	0.659	0.069	0.716	0.151
0	0.246	0.111	0.644	0.465	-0.021	0.601	-0.151	0.266	2.289 ***	0.721 **	-1.088	-0.425
1	0.069	0.087	0.369	0.697	0.900	-0.187	0.432	0.056	0.371	0.2361	-0.729	0.273
2	0.531	-0.042	-0.389	0.204	-1.780	-0.091	-0.116	-0.180	-0.509	0.1867	-0.0002	-0.217
	Cumulative average abnormal returns											
-20 to -1	-2.276	0.354	-0.082	-0.532	1.780	-3.122	1.120	0.790	4.280	-1.348	5.934	0.410
0 to 1	0.315	0.199	1.013	1.163	0.879	0.414	0.281	0.322	2.660 ***	0.957 **	-1.817	-0.152
2 to 20	-0.38	0.056	-1.757	-2.028	-5.955	-2.644	0.032	2.053 **	-1.4967	-0.633	-6.631	-3.014
Panel B: Bad news												
Days relative to event	Average abnormal returns											
	Hong Kong		South Korea		Indonesia		Malaysia		Thailand		Taiwan	
	Negative watch	Downgrade	Negative watch	Downgrade	Negative watch	Downgrade	Negative watch	Downgrade	Negative watch	Downgrade	Negative watch	Downgrade
-2	-0.203	-0.285	-3.93 ***	0.779	0.108	-1.740 **	-0.048	-0.235	1.158	-0.359	2.870	-0.151
-1	0.383	0.899	-1.818*	-1.067 **	-2.284	-2.644 ***	0.851	-0.512	1.233	0.146	0.394	0.324
0	-0.098	0.163	-2.437 **	-0.662	1.013	0.373	-0.744	-0.910 *	2.160	-0.423	-0.201	-0.197
1	-1.292 **	-1.693 ***	-0.16	-1.486 ***	-1.140	0.197	-0.783	-0.491	-0.980	-0.169	-1.192	0.154
2	-1.196 **	0.062	-1.843 *	-0.362	-1.701	-0.853	-0.767	-0.070	-0.916	-0.246	0.085	-0.570
	Cumulative average abnormal returns											
-20 to -1	-3.357	4.276	-2.602	0.406	-7.282	-15.809***	0.760	1.998	3.845	2.204	-1.363	-2.255
0 to 1	-1.390 *	-1.53 **	-2.597*	-2.147***	-0.128	0.570	-1.527 *	-1.401 *	1.179	-0.592	-1.392	-0.042
2 to 20	-0.736	2.519	5.218	2.868	10.549	1.700	-1.3295	2.286	5.596	0.152	2.031	1.699

Notes: 1.Since the excess return results are almost identical to the market model results, only the latter model is reported.
2. The sample size is listed in table 3.2.
3. * indicates significance at the 10% level, ** at the 5% level and *** at the 1% level

Table 4.2 Market reaction to anticipated and unanticipated rating changes

Panel A: Anticipated events												
Days relative to event	Average abnormal returns											
	Hong Kong		South Korea		Malaysia		Thailand		Indonesia		Taiwan	
	Upgrade	Downgrade	Upgrade	Downgrade	Upgrade	Downgrade	Upgrade	Downgrade	Upgrade	Downgrade	Upgrade	Downgrade
-2	0.384	0.044	-0.056	0.668	-0.051	0.950	0.593	0.418	0.271	1.638	0.281	0.417
-1	0.051	0.256	-0.204	1.062	0.213	0.281	0.402	-0.164	-1.817	1.254	1.084	-1.531
0	-0.181	0.986	0.539	1.540	0.395	0.011	1.192 *	0.609	3.142	-3.083 ***	-0.037	0.456
1	-0.082	-1.948 **	0.706	-0.924	0.036	0.303	0.0009	0.580	-1.770	-3.485 ***	-0.166	-2.206
2	-0.026	-0.225	0.029	0.907	-0.336	-0.789	0.090	-0.270	-0.443	-1.355	0.678	-0.031
	Cumulative average abnormal returns											
-20 to -1	0.655	1.335	-1.479	-0.911	1.743	-1.731	-0.695	3.241	-6.895	-2.078	-0.639	-4.010
0 to 1	-0.263	-0.962	1.245	0.616	0.431	0.314	1.193	1.189	1.3725	-6.567 ***	-0.202	-1.750
2 to 20	1.382	-2.804	-3.073	5.487	1.366	4.490	0.427	-4.551	-5.151	1.571	3.240	0.274
Panel B: Unanticipated events												
Days relative to event	Average abnormal returns											
	Hong Kong		South Korea		Malaysia		Thailand		Indonesia		Taiwan	
	Upgrade	Downgrade	Upgrade	Downgrade	Upgrade	Downgrade	Upgrade	Downgrade	Upgrade	Downgrade	Upgrade	Downgrade
-2	0.421	-0.549	-0.640	0.658	-0.282	-0.277	0.186	-0.464	-0.207	-2.512 ***	0.771	-0.293
-1	0.117	0.613	-0.174	-1.68 **	0.261	-0.540	-0.058	0.188	-0.405	-2.664 ***	0.104	0.788
0	-0.193	-0.496	-0.270	-1.465**	0.174	-0.943 *	0.542 *	-0.563	-0.068	0.566	-0.445	-0.360
1	-0.097	-1.489**	0.608	-2.975 ***	0.070	-0.617	0.325	-0.271	0.230	0.384	0.295	0.744
2	-0.044	0.291	1.955	-1.567 **	-0.070	-0.045	0.222	-0.242	0.001	0.342	-0.262	-0.705
	Cumulative average abnormal returns											
-20 to -1	1.228	4.829	8.940	-0.495	0.119	2.131	-1.596	2.063	-2.129	-18.423 ***	0.463	-1.816
0 to 1	-0.289	-1.985**	0.338	-4.4405 ***	0.244	-1.560 **	0.867 **	-0.834	0.162	0.950	-0.150	0.384
2 to 20	1.412	4.777	8.422	1.4485	2.537 **	1.279	-1.035	0.790	-1.984	-1.455	-3.327	2.056

Notes: 1. Since the excess return results are almost identical to the market model results, only the latter model is reported.
2. The sample size is listed in table 3.2
3. The sample period is 1997-2005
4. * indicates significance at the 10% level, ** at the 5% level and *** at the 1% level

Table 4.3: Sample size of downgrades in crisis versus non-crisis period

	Thailand	Hong Kong	Indonesia	South Korea	Taiwan
Crisis period	51	14	44	45	9
Non-crisis period	16	13	10	10	16

Notes:1. The crisis period refers to July 2, 1997 to December 31, 1998.

2. The rating changes are by Moody's, S&P and Fitch.

3. All the downgrades in Malaysia are announced in the crisis period, thus this market is not included in this section

4. Since almost all the upgrades were announced in the non-crisis period, only downgrades are investigated.

Table 4.4: The impact of downgrades in crisis period and non-crisis period

Panel A: Hong Kong, Thailand and Indonesia						
Average abnormal returns						
Days relative to event	Hong Kong		Thailand		Indonesia	
	Crisis period	Non-crisis period	Crisis period	Non-crisis period	Crisis period	Non-crisis period
-2	-1.03286	0.52022	-0.52152	0.102082	-0.68601	-2.43719*
-1	0.988395	0.80210	-0.18665	0.541607	-1.3971	-0.61684
0	0.28511	0.03093	0.03478	-1.03845	0.88473	-8.0458**
1	-1.47616	-1.926 ***	-0.02901	-1.23014*	0.06547	-5.87398***
2	-0.049103	0.18090	-0.30902	0.076857	-0.06101	-1.19658
Cumulative average abnormal returns						
-20 to -1	5.7603	2.6774	2.3673	2.33899	-13.904***	-6.7784
0 to 1	-1.19105	-1.8950 **	0.00577	-2.26859 **	0.950200	-13.9198***
2 to 20	4.615898	0.25999	-2.86540	0.408246	-1.289299	4.60461

Panel B: South Korea and Taiwan				
Days relative to event	South Korea		Taiwan	
	Crisis period	Non-crisis period	Crisis period	Non-crisis period
-2	0.4789456	2.126784	-0.1472289	-0.15257
-1	-1.507427 ***	0.917559	1.54112	-0.35995
0	-1.144089 ***	1.510087	0.5195423	-0.59929
1	-1.155841 ***	-2.971 *	1.619222	-0.67007
2	-0.9026876 *	2.070228	-1.629059	0.026085
Cumulative average abnormal returns				
-20 to -1	0.976268	-2.15911	0.6031949	-3.863
0 to 1	-2.29993 ***	-1.46091	2.1387643	-1.26937
2 to 20	2.2599716	5.605767	0.0257177	2.640717

Notes: 1.The crisis period refers to July 2, 1997 to December 31, 1998.

2. The rating changes are by Moody's, S&P and Fitch.

3. All the downgrades in Malaysia are announced in the crisis period, thus this market is not included in this section.

4. * indicates significance at the 10% level, ** at the 5% level and *** at the 1% level.

Table 4.5 Coverage frequency of global and local rater (raw sample)

	Taiwan		Thailand		South Korea	
Number of upgrades announced by global rater	54	30.51%	86	64.66%	336	53.00%
Number of upgrades announced by local rater	123	69.49%	47	35.34%	298	47.00%
Total	177	100.00%	133	100.00%	634	100.00%
Number of downgrades announced by global rater	41	51.90%	3	20.00%	248	42.54%
Number of downgrades announced by local rater	38	48.10%	12	80.00%	335	57.46%
Total	95	100.00%	15	100.00%	583	100.00%
Number of firms covered by global rater	51	35.42%	23	46.00%	70	22.80%
Number of firms covered by local rater	93	64.58%	27	54.00%	237	77.20%
Total	144	100.00%	50	100.00%	307	100.00%
Number of firms covered by both global and local rater	5	N.A	2	N.A	10	N.A

Note: The sample periods for comparison are: 1997-2005 (South Korea), 2000-2005 (Taiwan) and 2002-2005 (Thailand).

Table 4.6: Summary Statistics of final rating sample

	Upgrades		Downgrades	
Markets	Global raters	Local rater	Global raters	Local rater
Taiwan	16	54	25	27
Thailand	50	24	0	7
South Korea	33	152	55	170

Notes: 1.The sample periods for comparison are: 1997-2005 (South Korea), 2000-2005 (Taiwan) and 2002-2005 (Thailand).

2. The global raters refer to Moody's, S&P and Fitch for all markets. The respective local raters are: KIS (South Korea), TRC (Taiwan) and TRIS (Thailand).

3. In the case of Thailand, no downgrade is announced in the clean sample by global raters for the period 2002-2005.

Table 4.7 A comparison of market reaction to rating changes announced by local raters and global raters

Panel A: South Korea				
Average abnormal returns				
Days relative to event	Upgrades		Downgrades	
	Global raters	Local raters	Global raters	Local raters
-2	-0.1088	-0.17563	0.778553	-0.6915134 ***
-1	-0.2015	0.058211	-1.06652 **	-0.1966708
0	0.46535	0.087466	-0.66151	-0.3448268
1	0.69746	0.048482	-1.48587 ***	-1.241045 ***
2	0.20387	-0.05639	-0.36216	0.3099338
Cumulative average abnormal returns				
-20 to -1	-0.5318	0.603431	0.406199	-4.4447652 ***
0 to 1	1.16281	0.135948	-2.14738 ***	-1.5252207 ***
2 to 20	-2.0277	-1.79404	2.868298	-4.4856167 ***
Panel B: Taiwan				
Average abnormal returns				
Days relative to event	Upgrades		Downgrades	
	Global raters	Local raters	Global raters	Local raters
-2	-0.15257	-0.24996	-0.15065	0.096381
-1	-0.35995	0.347911	0.324437	0.025023
0	-0.59929	-0.00045	-0.19651	-0.54219
1	-0.67007	-0.35024	0.154073	-0.71991 *
2	0.026085	0.21014	-0.56977	0.376818
Cumulative average abnormal returns				
-20 to -1	-3.863	-1.29834	-2.25517	-2.01076
0 to 1	-1.26937	-0.35069	-0.04244	-1.2621 **
2 to 20	2.640717	1.801828	1.699318	-1.61805
Panel C: Thailand				
Average abnormal returns				
Days relative to event	Upgrades		Downgrades	
	Global raters	Local raters	Global raters	Local raters
-2	0.256804	-0.3078	N.A	-0.8847939
-1	0.06252	0.019717	N.A	-1.386015
0	0.82356 ***	0.526949	N.A	-1.292597
1	0.216977	0.404707	N.A	0.1900476
2	0.404821	0.211373	N.A	0.7977986
Cumulative average abnormal returns				
-20 to -1	-0.4344	-1.00395	N.A	-3.646863
0 to 1	1.040537 ***	0.931656	N.A	-1.1025494
2 to 20	0.403141	-1.84061	N.A	3.3185554

Notes: 1.The sample periods for comparison are: 1997-2005 (South Korea), 2000-2005 (Taiwan) and 2002-2005 (Thailand).

2. The global raters refer to Moody's, S&P and Fitch for all markets. The respective local raters are: KIS (South Korea), TRC (Taiwan) and TRIS (Thailand).

3. In the case of Thailand, no downgrade is announced in the final sample by global raters for the period 2002-2005.

4. * indicates significance at the 10% level, ** at the 5% level and *** at the 1% level

Table 4.8 Summary of domestic rating agencies

Panel A: range of services				
Market	Agency	Year established	Major services	Additional services
South Korea	KIS	1985	-Rating services -Advisory services -Training	-Project financing rating
Taiwan	TRC	1997	-Rating services	No additional services
Thailand	TRIS	1993	-Rating services -Governance rating services -Performance evaluation services	-Guarantor rating -Government rating

Panel B: shareholding structures						
Market	Agency	Current share holding				
		Public listed	Local firms/banks	Govt	Intl CRA	Other
South Korea	KIS	50%	0%	0%	50%	0%
Taiwan	TRC	N.A	N.A	N.A	50%	N.A
Thailand	TRIS	0%	76%	19%	0%	5%

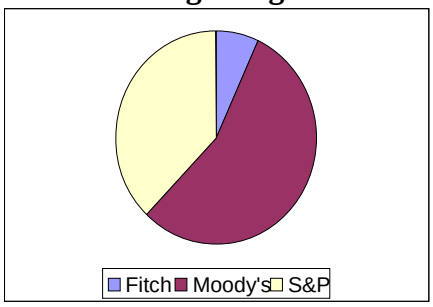
Notes: 1. Data source: 'Development of Regional Standards for Asian Credit Rating Agencies – Progress & Changes' prepared for ADB (2005)

2. N.A denotes data is not available

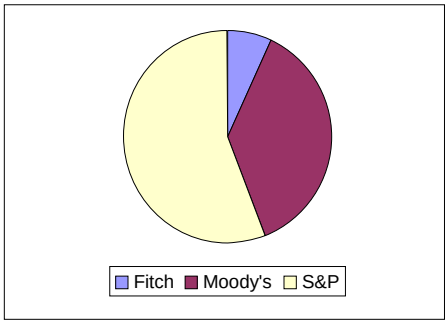
3. S&P initially took a 50% ownership stake in TRC and announced that it had signed an agreement to raise its stake in TRC from 50% to 51% on 27 September 2005.

Figure 3.1: Relative Frequency of Upgrades and Downgrades in Credit Ratings by Fitch, Moody's and S&P in the Sample Period Covering January 1997 to December 2005 (raw sample)

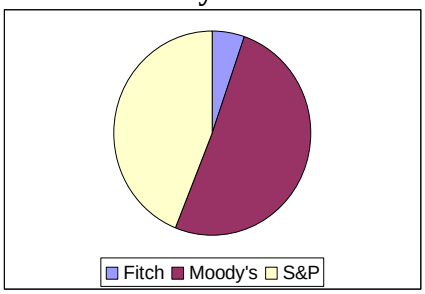
Panel A: Hong Kong



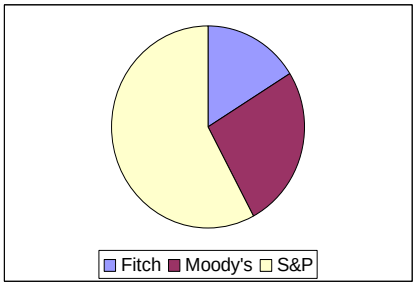
Panel B: Indonesia



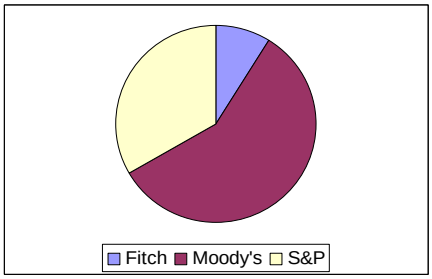
Panel C: Malaysia



Panel D: Taiwan



Panel E: Thailand



Panel F: South Korea

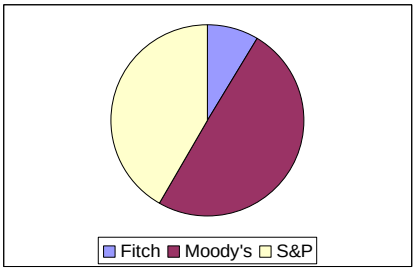
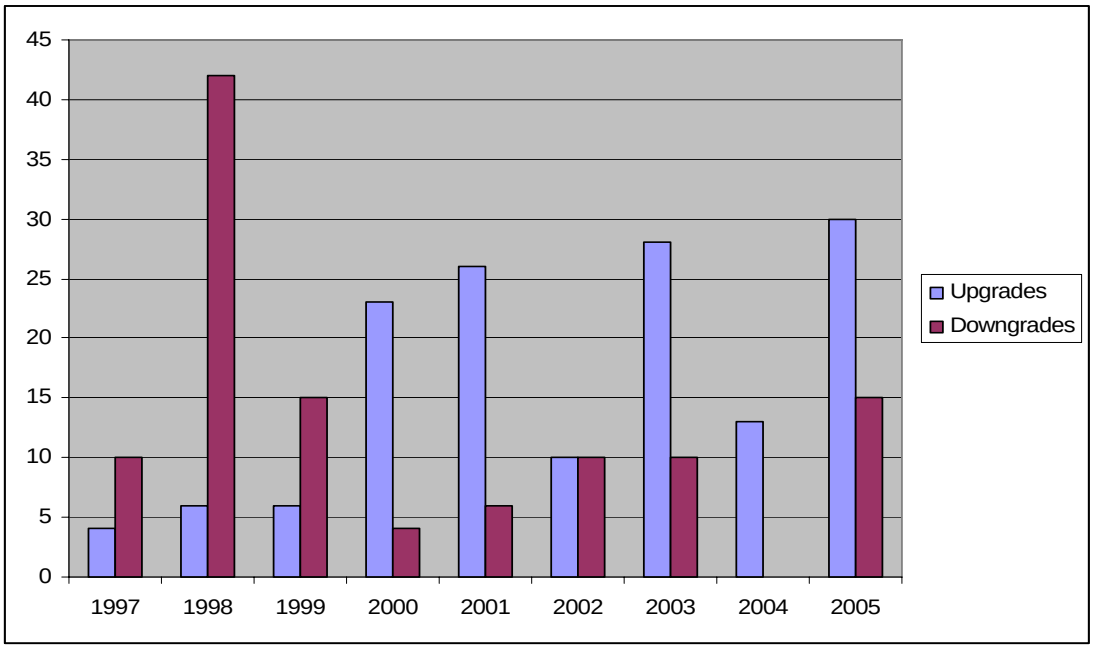
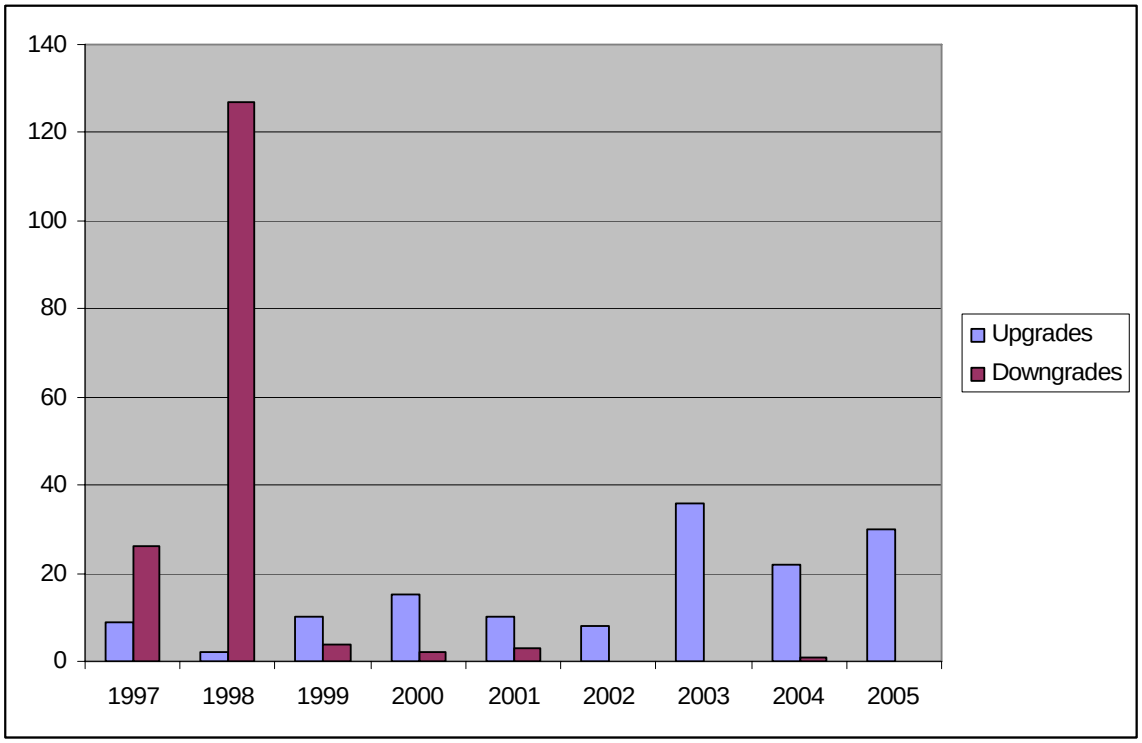


Figure 3.2 Frequency of Upgrades and Downgrades in Credit Ratings by Fitch, Moody's and S&P in the Sample Period Covering January 1997 to December 2005 (raw sample)

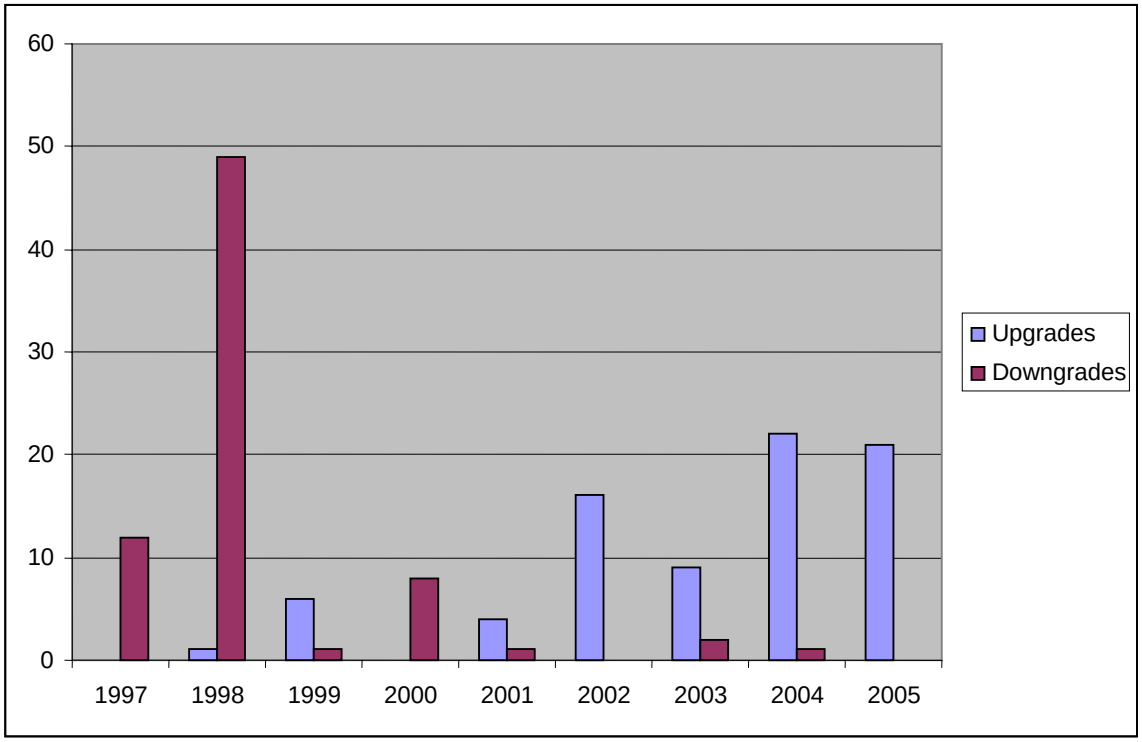
Panel A: Hong Kong



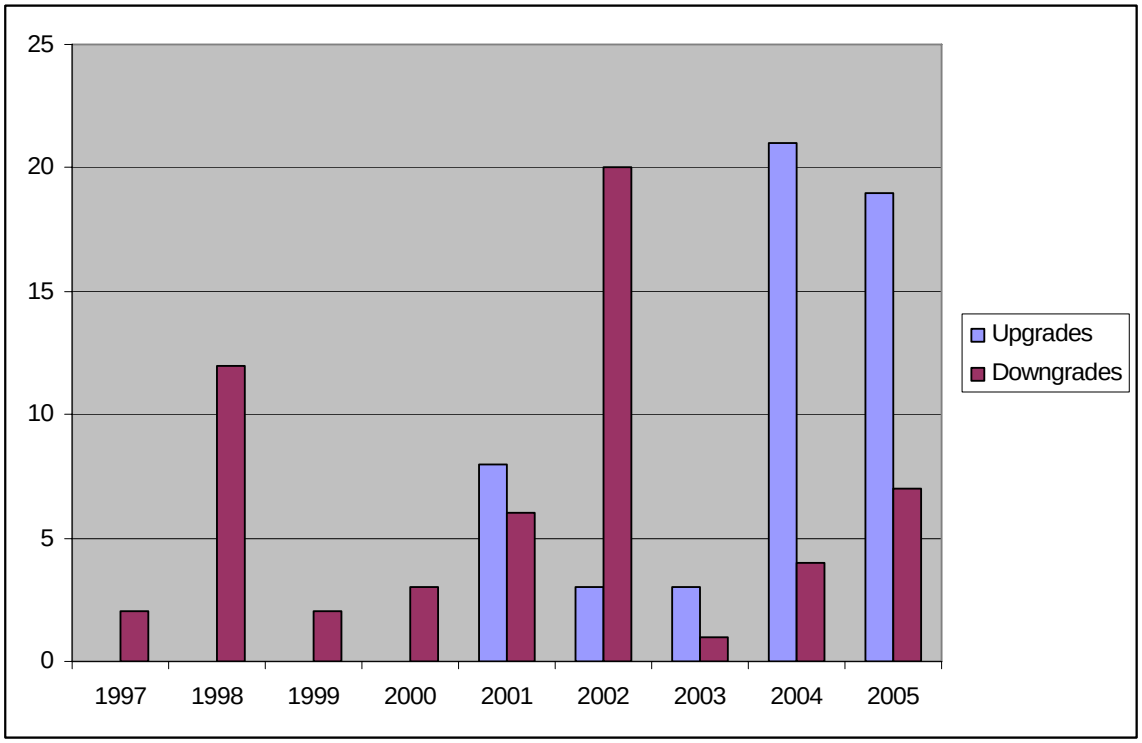
Panel B: Indonesia



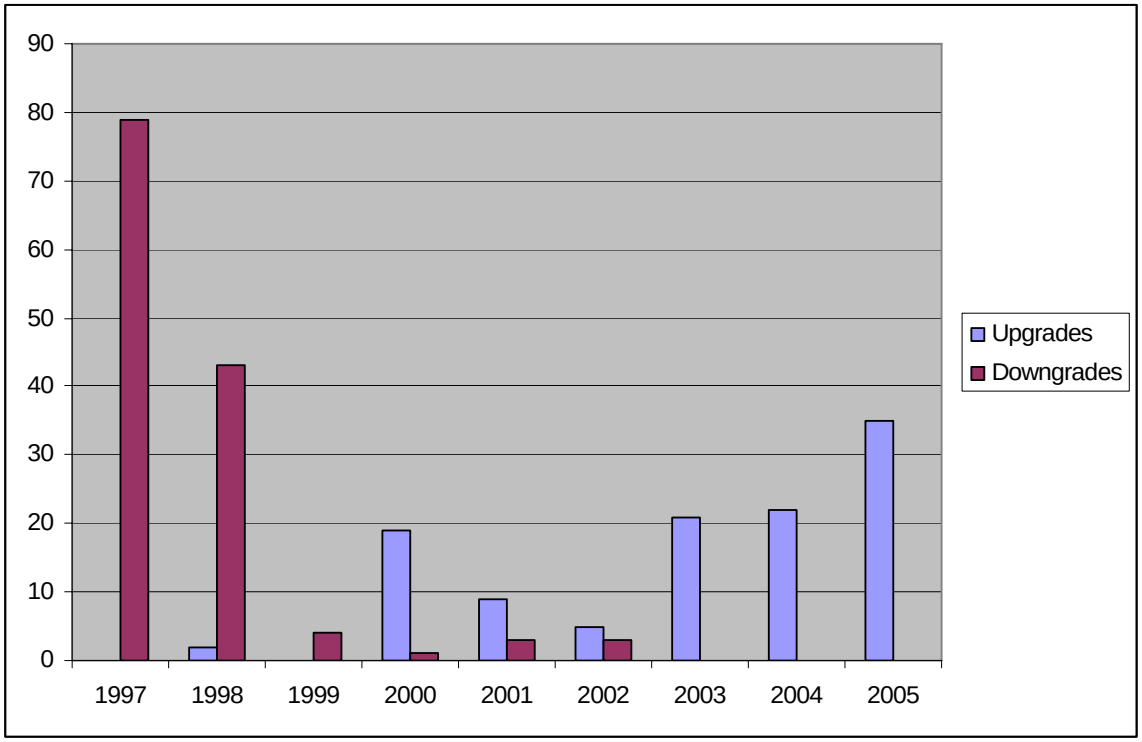
Panel C: Malaysia



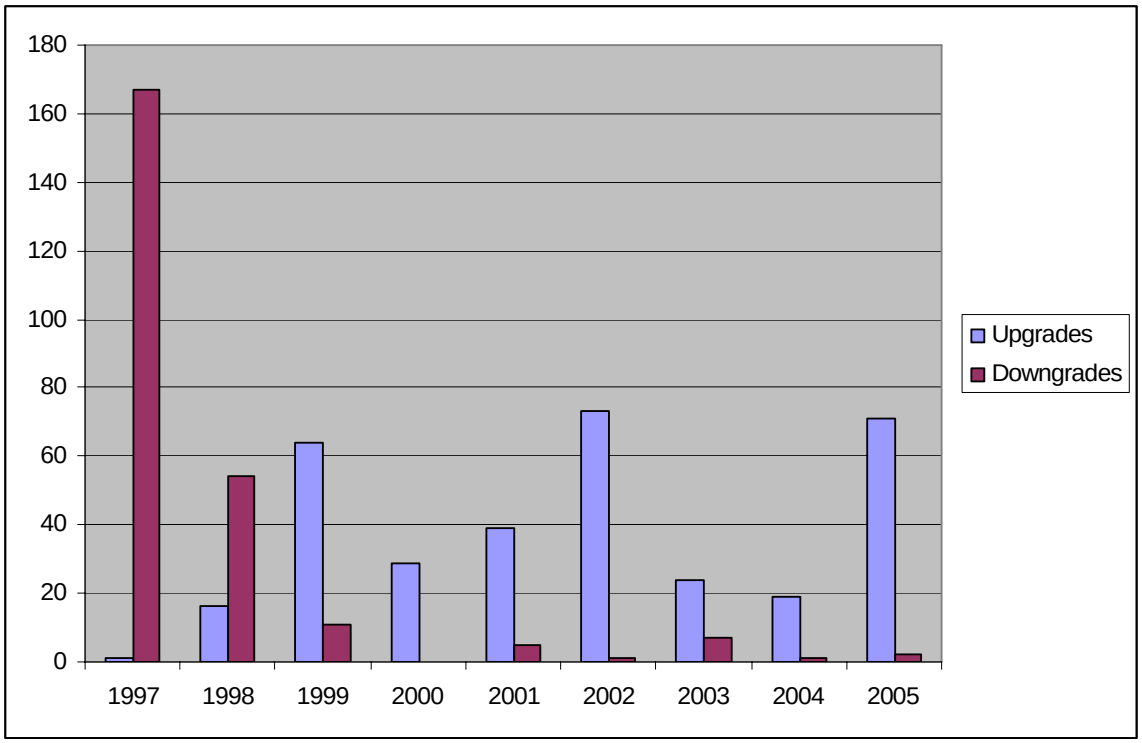
Panel D: Taiwan



Panel E: Thailand



Panel F: South Korea



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