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WEALTH, LEVERAGE AND CRISIS EFFECTS OF THE MALAYSIAN CORPORATE BOND RATING CHANGES: AN EMPIRICAL INVESTIGATION USING EVENT-STUDY METHODOLOGY

BY

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ABSTRACT

The main objective of this study is to examine the stock market reaction to various announcements by Rating Agency Malaysia (RAM) and the Malaysian Rating Corporation (MARC). The investigation involves testing the presence of the wealth effect following these announcements; examining whether the size of leverage matters in determining the extent of the market reaction to downgrades; testing whether the patterns of market reaction to each rating announcement have changed following the South East Asian financial crisis of the 1997/98 and evaluating the impact of corporate bond upgrades and downgrades on the yield premium. The study uses daily data for the stock returns for the period spanning from 1993 to 2003, and monthly data for the bond yields for the period that stretches from 1999 to 2003. Data were obtained from Rating Agency Malaysia (RAM), the Malaysian Rating Corporation (MARC), Bursa Malaysia (formerly, KLSE), New Straits Times (NST) database and Bank Negara Malaysia (BNM). Abnormal returns are calculated using two statistical models under the framework of event study methodology. Namely, the OLS market model and the ARMA-GARCH lag specification of the market model. On the other hand, the average differential yield premium is calculated using the method of differential yield premium (DYP). We find that, while corporate bond downgrades trigger a negative market reaction, upgrades do not. Significant fall in the wealth of shareholders is identified only with corporate bond downgrades. There are some signs of information leakage in the market. We also find that for high leverage firms, a downgrade does not matter. However, for low leverage firms, a downgrade causes significant decline in returns. Downgrades post-crisis are less significant to the market as compared to downgrades pre-crisis, perhaps, due to the tighter disclosure requirements imposed by the Securities Commission following the crisis. The tests designed to uncover the implications of corporate bond rating changes to the efficiency of Bursa Malaysia implies that the market is efficient. Finally, we find that the yield premium increases significantly following corporate bond downgrades. However, following bond upgrades, the yield premium falls.

ملخص البحث

تهدف هذه الدراسة الي اختبار مدى تفاعل البورصات الماليزية مع عدد من الاصدارات بواسطة كل من الوكالة الماليزية والهيئة الماليزية لتقييم الائتمان. تشتمل الدراسة علي: اختبار مدى تاثير الاصدارات اعلاه على ثروة الملاك ؛ اختبار ما اذا كان مستوى الرفع المالي يلعب اي دور في تحديد مدى تفاعل سوق الاسهم مع الاصدارات الخاصة بانخفاض قيمة الائتمان؛ اختبار ما اذا كان هنالك اي تغير في نمط تفاعل السوق مع اصدارات وكالات تقييم الائتمان بسبب الضائقة الاقتصادية التي ضربت منطقة جنوب شرق اسيا خلال العام 98/1997، و تقييم اثر انخفاض او ارتفاع قيمة الائتمان على السوق الثانوية لسندات الشركات. استخدمت الدراسة بيانات يوميه عن عائدات الاسهم للفتره من عام 1993 و حتى عام 2003، و بيانات شهرية عن عائدات السندات للفترة من عام 1999 و حتى عام 2003. تم الحصول على البيانات اعلاه من كل من الوكالة الماليزية لتقييم الائتمان؛ بورصة الاسهم و السندات الماليزية، مركز المعلومات بجريدة نيوسترايتس تايمز التي تصدر يوميا بماليزيا، و البنك المركزي الماليزي. تم حساب العائدات غير الطبيعية للاسهم باستخدام الطريقة التقليدية لدراسة الحدث و طريقة (*ارما- قارش*). أما عن متوسط الفرق في عائدات السندات فقد تم حسابه باستخدام طريقة الفرق في عائدات السندات. أظهرت الدراسة النتائج التالية: في الوقت الذي يتأثر فيه السوق سلبا بإصدارات الانخفاض في ائتمان السندات التجارية، فإن السوق لا يتفاعل مع إصدارات الارتفاع في ائتمان تلك السندات. انخفضت ثروة الملاك انخفاضاً ملحوظاً بعد إصدارات الانخفاض في ائتمان السندات التجارية. هنالك ظواهر تدل على تسرب المعلومات للسوق قبل إصدارها بواسطة وكالات تقييم الائتمان.

وجدنا أيضاً أن الانخفاض في الائتمان لا يؤثر على عائدات الأسهم بالشركات ذات الرفع المالي الكبير. أما بالنسبة للشركات ذات الرفع المالي الأقل نسبياً فإن الانخفاض في قيمة الائتمان يسبب انخفاضاً كبيراً في عائدات الأسهم. أثبتت الدراسة أيضا أن انخفاض قيمة ائتمان السندات التجارية ليس له تأثير يذكر قبل الضائقة الاقتصادية لعام 98/1997 مقارنة بالفترة ما بعد الضائقة. وربما يرجع هذا التباين الى حقيقة أن المفوضية الماليزية لإدارة البورصات قد الزمت الشركات بالإفصاح عن بياناتها المالية بصورة ربع سنوية وذلك بعُيد حدوث الضائقة الاقتصادية في جنوب شرق أسيا في العام 98/1997. الاختبارات التي أُجريت لدراسة تأثير الانخفاض والارتفاع في قيمة ائتمان السندات على كفاءة السوق أثبتت كفاءه البورصة الماليزية للاسهم. واخيراً وجدنا أن عائدات السندات تزداد بصورة كبيرة تبعا لاصدارات الانخفاض في قيمة ائتمان السندات و تنخفض بصورة أقل نسبيا تبعا لاصدارات الارتفاع في قيمة ائتمان السندات.

APPROVAL PAGE

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DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

Izzeldin Eldoma Abd alla

Signature.. Date..16/1/2006..........

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Affirmed by Izzeldin Eldoma Abdalla

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To my parents, to my wife and to my beloved Children.

Lemiya, Sami, & Yasmeen

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LIST OF ABBREVIATIONS

ADYP	Average Differential Yield Premium
ARMA	Auto-Regressive Moving Average
ASE	American Stock Exchange
bg	bank guarantee
BHAR	Buy and Hold Abnormal Returns
BM	Book-to-Market value
CAR	Cumulative Abnormal Returns
cg	corporate guarantee
CPE	Cumulative Prediction Error
CRSP	Center for Research in Security Prices
EPS	Earnings per Share
GARCH	Generalized auto-regressive conditional heteroscedasticity
GLS	Generalized least squares
ID	Islamic debt
KLSE	Kuala Lumpur stock exchange
MARC	Malaysian Rating Corporation
MCAR	Mean Cumulative Abnormal Returns
MDYP	Mean Differential Yield Premium
ML	Maximum likelihood
MSCPE	Mean standard cumulative prediction error
MVE	Market value of equity
NST	New Straits Times
NYSE	New York Stock Exchange
OLS	Ordinary least squares
PDS	Private Debt Securities
PE	prediction error
RAM	Rating Agency Malaysia
S&P	Standards and Poor's
SIMM	Single Index Market Model
SPE	Standard prediction error

WSJI	Wall Street Journal Index
YTM	Yield to Maturity

CHAPTER 1

INTRODUCTION

1.1 AN OVERVIEW OF THE ISSUES

Recently, bond rating agencies have been under increasing scrutiny due to their failure to accurately predict and warn investors of imminent firm-related financial difficulties such as the Enron Corporation bankruptcy[1]. This failure has revived interest among academic circles, investors, and financial analysts to investigate whether announcements by rating agencies contain valuable information. More specifically, the interest has focused on whether rating changes signal the arrival of new information to the capital markets.

Arguably, bond rating provides investors with a system of relative creditworthiness of bond issue that incorporates all the major ingredients of default risk into a single code.

These ratings are widely acknowledged as the principal source of information to investors about the default risk of bonds. While the usefulness of credit ratings as measures of prospective bond quality and ex-ante default of bond is generally accepted, whether ratings provide new information that is not already reflected in the security prices continue to be an issue of debate. A number of studies have been conducted to ascertain the independent impact of bond ratings on security prices and yields. The thrust of research in this area has focused on the impact of rating changes on stock or bond prices.

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[1] Enron Corporation is one of the biggest US energy corporations. For more on this issue, please see: Jennifer Morris. (2002. Investors *turn cool on the rating game*. Euromoney.. vol. (393). Pp.38.

Among these studies are Katz (1974); Pinches and Singleton (1978); Griffin and Sanvicente (1982); Ingram, Brooks, and Copeland (1983); Holthausen and Leftwich (1986); Hand, Holthausen, and Leftwich (1992); Goh and Ederington (1993); Kligar and Sarig (2000); and Dichev and Piotroski (2001). These studies, however, produced conflicting results. Accordingly, the issue of whether credit ratings have new independent impact on stock prices and bond yields remains debatable.

To our knowledge, the impact of bond rating changes on stock returns and bond yields has not been comprehensively tested using data for Malaysia. Since the adoption of the industrialization policies in the mid-80s, Malaysia has witnessed significant progress in the financial market. The progress of the stock and bond markets is widened by Islamic bonds. With this setting, it provides us with the motivation to test whether the results that have been recorded globally applies to Malaysia. It is also important to note that Malaysia is the only country in the world in which Islamic debt securities account for a large proportion of the private debt securities.

1.2 DEFINITION OF TERMS

The term "wealth effect" refers to the 'tendency for people to increase their consumption spending when the value of their financial and real assets rises or to decrease their consumption spending when the values of those assets fall' (McConnell and Brue, 2002). For the purpose of this study, a significant drop in equity prices following an increase in the default risk of a firm, would create a so-called "negative-wealth effect".

The term "leverage effect" is used to define the situation in which, the bonds issued by a certain firm are being downgraded because that firm increased its leverage (size of outstanding bond issue to market capitalization). In other words, more debt is introduced into the capital structure of the firm. It is argued that this increase in leverage should be good news to shareholders and accordingly, it must not have a negative impact on stock returns as previously claimed. But, certainly it will have a negative effect on bonds.

The term "crisis effect" stands for the likely impact of the South East Asian financial crisis of 1997/98 on the behavior of market agents, vis-à-vis various rating announcements by Rating Agency Malaysia (RAM); and the Malaysian Rating Corporation (MARC).

1.3 STATEMENT OF THE PROBLEM

Existing empirical research about the impact of bond rating changes on stock returns and bond yields provides contradictory results. This seems to be true despite the fact that a relatively large number of research efforts have concentrated on the issue. For instance, some rating revision studies indicate that stock and bond prices lead rating change announcements (Pinches and Singleton, 1978). In other words, rating changes provide no new information to the financial markets. On the contrary, a number of studies on bond rating changes found that security prices do indeed lag the rating change announcements, reinforcing the view that rating reclassifications convey new information to the financial markets. This represents the finding of Ingram, Brooks and Copeland (1983); Hand, Holthausen, and Leftwich (1992); and Dichev and Piotroski (2001). These two opposing findings are partially the products of some pre-determined theoretical formulations.

However, the theoretical formulations about the informational content of bond ratings and ratings changes are vague because of their dependence on the nature of information obtained by rating agencies. Whether or not rating agencies depend on private as well as public information is not yet so clear. This is because some researchers believe that rating agencies base their judgments solely on publicly available information, while others have no doubt that these agencies get private information provided by the managers of the firms concerned. Irrespective of which group spotted the correct guess, countless unanswered questions remain. For instance, what type of private information managers are willing to release to the rating agencies? When do rating agencies receive this information? How long does it take the rating agencies to process this information and come out with the default risk assessment in a timely manner?

In an attempt to explain the causes of this unresolved conflict of opinion on the empirical side, one could highlight the fact that previous research on the impact of corporate bond rating changes on stock and bond returns, failed to adopt correct specifications. For instance, they used the Ordinary Least Squares (OLS) market model to predict the normal performance of firms. This model assumes that the error term is normally distributed with zero mean, and constant and symmetric variance. It is also implied that assets are traded with frequencies similar to those of the market index (synchronous trading). However, recent researches suggest that a number of violations to these assumptions could possibly occur, leading eventually to an unwelcome inconsistency in the test statistics. Many of the earlier researchers also employed data with monthly frequency and did not control for data contamination by other concurrent announcements. This is in addition to their dependence on small samples. But very recent studies have shown that the use of small samples and/ or monthly data, together with the inability to control for contamination significantly weakens the power of the test.

1.4 RESEARCH OBJECTIVES

The primary focus of this research is to answer the empirical question. 'Do bond rating changes affect stock returns and bond yields in Malaysia?' The answer to this question depends on the nature of information possessed by the rating agency. If the rating agency relies on public information to assign credit ratings, then ratings or rating changes would have no significant impact on stock returns and bond yields. But if the rating agency has access to private information, then rating changes are expected to affect stock returns and bond yields. More specifically, this study aims to establish evidence on:

1. The impact of corporate bond rating changes (upgrades and downgrades) on stock returns and bond yields.
2. The impact of watch list placements of bonds on stock returns
3. The sensitivity of stock returns to bond downgrades within the investment-and-speculative grades.
4. The response of stock returns to downgrades within rating classes as compared to downgrades across rating classes.
5. The impact of bond downgrades on the stock returns of high leverage firms as compared to low leverage firms.
6. The impact of bond ratings changes on stock returns pre-and post-South East Asian financial turmoil in 1997.

1.5 RESEARCH QUESTIONS

The research will focus on answering the following questions:

1. Does the market respond to the announcement of corporate bond rating changes? And is there any wealth effect associated with these announcements?
2. What is the impact of watch-list placements on stock returns?
3. If rating changes do affect stock returns and bond yields, is there any difference between the investment grade and speculative grade with respect to the magnitude of the effect?
4. What would be the likely market response if bonds are downgraded within or across classes?
5. Does leverage matter? Size of outstanding bond issue to total equity.
6. What is the impact of corporate bond rating changes on stock returns in the pre-and post-1997 Asian financial crisis?

1.6 SCOPE AND LIMITATIONS

This research focuses on the public limited companies listed in Bursa Malaysia (formerly, KLSE) and rated either by Rating Agency Malaysia (RAM) or the Malaysian Rating Corporation (MARC). The main criterion for sample selection is that a company must have its bonds rated by a well-known credit rating agency[2].

There is at least one limitation to this study: Kliger and Sarig (2000) claim that rating changes are triggered by economic events. Nevertheless, it is not clear how much of the price reaction to rating changes is due to the rating announcement and how much is due to the triggering economic event itself. To clear this ambiguity, Hand, Holthausen, and Leftwich (1992) classified the observations as either

[2] Rating agency Malaysia (RAM) and the Malaysian rating corporation (MARC) are the only two rating agencies in Malaysia. However, RAM is established at the early 1990s, therefore most of our data regarding ratings and ratings changes are obtainable from RAM, especially for the pre-1997 period.

"contaminated" or "non-contaminated" by other news. We follow the same approach, but this depends on how successful we are in obtaining all the relevant news released simultaneously with our desired rating announcements. Our success in this regard is limited due to data constraints.

1.6 OUTLINE OF THE PAPER

The current study is divided into seven chapters. Chapter two provides a background for the bond market and rating agencies in Malaysia; the rating methodology of these agencies; and the rating process. Chapter three highlights the theoretical basis for bond ratings and rating changes. Chapter four reviews, summarizes and concludes the relevant literature that forms the basis of our empirical investigation. Chapter five discusses the empirical model and methods of estimation. That is, the OLS market model of the standard event study methodology; the ARMA-GARCH lag specification of the market model; and the method of differential yield premium (DYP). The chapter also develops a methodology, which is in line with the research hypotheses. It covers the description of the testable hypotheses; data and sample selection; and the methods of analysis. Chapter six discusses the results and presents the findings. Finally, Chapter seven summarizes the findings and provides concluding remarks.