Analyzing the Impact of Credit Ratings on Firm Performance and Stock Returns: An Evidence from Taiwan

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Abstract

The study covers three aspects; factors determining credit ratings, impact of credit ratings on performance of entities and the relationship between stock returns and credit ratings. The study focuses on the firms listed in Taiwan Stock Exchange (TSE) of Taiwan. The empirical analysis uses the data of 50 firms rated by Taiwan Ratings Corporation (TRC) for the period 2010-2015. Two estimation techniques Ordered Probit Model and Panel Data Regression are applied. Performance is measured using return on investment and Tobin's Q factors. The findings depict that credit ratings are predicted by important firm specific factors like size and growth opportunities, capital intensity, asset returns, sector type etc. Results also suggested that firms with higher credit ratings tend to have better performance. For future research, similar study may be conducted with the ratings issued by other Taiwanese or non-Taiwanese agencies covering more firms and time span.

Keywords: TRC, TSE, Credit Ratings, Stock Returns, Performance, Ordered Probit Model, Tobin's Q.

JEL Classification: G24.

1. Introduction

The credit rating concept of an entity is the reflection of the creditworthiness of the company and overall capacity to fulfill its

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financial obligations (S&P Global Ratings, 2017). These ratings are reflected by the opinion of Credit Rating Agencies (CRAs). Some of the main ratings used worldwide are Fitch, Moody and Standard and Poor (S&P). Credit Rating Agencies (CRAs) issue ratings for the companies with the intention to measure their aptitude regarding their financial obligations. These ratings are based on both the information provided by the public and the private statistics, as well as according to the idiosyncratic view of CRAs about the entities (FitchRatings, 2017).

Factually, companies are unable to overview the financial status of counterparty; therefore, they have to rely on ratings of CRAs for the precise portrayal of debtor's aptitude for payment of its financial obligations. Moreover, investors, intermediaries, issuers and financial/non-financial institutions use credit ratings to assess risk for themselves. Bankers also consider impact of credit ratings for tracking the capital flow from investors to issuers. The credit sensitive transactions are monitored by the financial institutions considering credit risk rating. Corporations, municipalities and government use credit ratings for self-governing analysis of creditworthiness and quality of debt issues (Moodys, 2017).

Research regarding relationship of credit ratings, firm performance and stock returns has been conducted for various countries and regions including US (Polito and Wickens, 2014; Blume et al., 1998), India (Saini and Saini, 2015), European Union (Polito and Wickens, 2015), United Kingdom (Al-Najjar and Elgammal, 2013; Adams et al., 2003), Australia and Japan (Bissoondoyal-Bheenick and Brooks, 2015; Gray et al., 2006), Brazil (De Souza Murcia et al., 2013) and Peru (Cisneros, D. et al., 2012). Erdem and Varli (2014) analyzed credit ratings in Emerging Markets of Brazil, China, India, Indonesia, Mexico, Russia, South Africa, and Turkey. Similarly, Freitas and Minardi (2013) studied the impact of credit ratings changes in Latin American stock markets. Only one study in Taiwan was conducted by Chu et al. (2013) which analyzed that CAPM and three factor model failed to explain positive premiums in high and low rated stocks.

Research gap exists regarding tri-partite relationship of credit ratings, firm performance and stock returns in Taiwan. No such study was ever conducted in Taiwan to confirm that (1) credit risk ratings

are predicted by important firm specific factors like size, growth opportunities, capital intensity, asset returns, sector type etc. (2) Performance of firm and Stock returns are linked with Credit Rating. Moreover, the results of previous studies are controversial and mixed, thus require further investigation in developing countries like Taiwan. Based on this problem statement, this study shall try to answer the following research questions:

- Do firm relevant variables determine credit risk rating?
- Do credit ratings affect the performance of firms operating in Taiwan?
- Is there any correlation between credit ratings and stock returns of entities operating in Taiwan?

The current study examined the credit ratings impact on the performance and stock returns of selected companies listed on Taiwan Stock Exchange (TSE). The current research, consequently added to the literature by investigating the connotation of credit ratings for identifying, simultaneously, business performance as well as stock market performance of the Taiwanese companies. Credit Ratings issued by Taiwan Rating Corporation (TRC) were used for underlying research. In the nutshell, the purpose of this research is to determine the elements of credit risk ratings and to examine the credit ratings impact on the performance of Taiwanese entities and their stock returns. The current study will help the investors to take investment decisions and assessing the credit risk by using the credit ratings impact.

2. Literature Review
Credit ratings are widely considered by various stakeholders as a comparable, beneficial and abridged measure of the financial health and creditworthiness of the rated companies. Many researchers have studied rating methodologies with an intention of understanding the rigorous inputs of the models employed by these rating agencies. Horrigan (1966) was the first one to conduct empirical research on the subject of credit ratings considering corporate bonds of US rated by US ratings.

2.1 Credit Defaults
Some studies state that higher equity risk is a "distress puzzle" reflecting that low equity risks coincide with high credit default risk

measures (Friewald et al., 2014; Chu et al., 2013). Campbell et al. (2008) found anomalously low returns for financially distressed stocks of US companies during the period 1981-2006. The study conducted by Dichev (1998) proved that firms with high bankruptcy risk earn lower than average returns since 1980.

Overall there has been a cross-sectional upsurge of default risk due to deteriorating economic conditions that ultimately leads to the amplified credit default (Chava and Purnanandam, 2010; Claußen et al., 2017). Anginer and Yildizhan (2010) found that credit spreads predict corporate defaults better than previously used measures, such as, bond ratings, accounting variables and structural model parameters. Avramov et al. (2009) concluded that returns do not differ across credit risk groups in stable or improving credit conditions.

2.2 Impact of Credit Rating on Entities' Performance
A study regarding credit ratings impact on performance of entities was conducted by Singal (2013) and results depicted credit risk ratings are dependent of the past, present and anticipated future performance of the respective firms. It was further explained that performance is appositely assessed by credit ratings. Highly capital intensive and leveraged firms use credit risk ratings for the assessment of firm's financial condition.

2.3 Credit Rating Determinants
Bissoondoyal-Bheenick and Treepongkaruna (2011) examined credit rating determinants that were quantitative in nature using firm's financial ratios. The findings suggested that leverage, firm size and profitability are significantly and positively related to credit ratings prediction. It was also indicated that the downgraded credit ratings that effect market cannot become common for all agencies of credit ratings.

Australian credit rating determinants were examined by Gray et al. (2006). It was tested through Ordered Probit model that whether the financial ratios of firm regarding profitability, cash flow, leverage and interest coverage are associated with industry variables or not. Interest coverage and leverage ratios were resulted to have noteworthy impact on credit ratings. The remaining ratios and industry variables proved important in estimating credit ratings determinants. Credit rating

determinants of UK firms were also examined by Adams et al. (2003) using Multinomial Logit Model. The findings determined that rated likelihood is positively related to issuer profitability, while this likelihood was negatively related to the factor of firm leverage. It was also stated that higher profitability and liquidity levels are the sources of achieving higher credit ratings. Besides, leverage and ratings inverse relationship indicates that lower financial leverage leads to higher ratings.

2.4 Effects of Credit Rating Announcement/Declaration

EE (2008) identified three genuine reasons of equity responses to announcements of changes in credit ratings in the region of Latin America. These reasons include; (1) Corporate Governance, (2) Regulatory issues, and (3) Public and private information upon which the credit ratings are based. Poon and Chan (2008) studied the information content of announcements of credit ratings in China and found an asymmetric accreditation effect. It was also found that as a result of change in credit ratings, negative nonstandard returns of manufacturing industry and the firm size also increased.

Elayan et al. (2003) inspected the effects of announcements of credit ratings on the stock prices of the companies listed in New Zealand for the period 1990-2000. The results establish a momentous response with declarations of credit rating. Linciano (2004) studied 299 Italian companies rated during the period 1991-2003 and found weak as well as negative abnormal returns in case of downgraded firms during the frame between one earlier day and one day afterward the date of rating declaration.

Jorion and Zhang (2007) analyzed the impact of ratings on stock returns by computing the Cumulative Abnormal Return (CAR). A frame was examined from one prior year (-1) and one later year (+1) on the date of announcement, where 0 is said to be the operative date of the declaration. Positive and noteworthy average CAR was found for upgraded companies as compared to downgraded companies. Goh and Ederington (1993) found that downgrades associated with deteriorating financial prospects convey new negative information to the capital market, but that downgrades due to changes in firms' leverage do not.

3. Theoretical Framework
Various theories from previous studies prove to be a source of valid study. Thus, current study tends to follow various theories:

3.1 Agency Theory
Agency theory revolves around the agency problems existing between the principal and the agent. The credit ratings are rich in providing information content that diminishes agency clashes between minor shareholders and the management. Positive relation had been found between credit ratings, entity performance and corporate governance ratings (Jensen and Meckling, 1976). Debt stakeholders face two forms of agency conflicts that arise in agency theory and reduce their claims' value by the upsurge in default risk probability (Ashbaugh-Skaife et al., 2006).

3.2 Information Content Theory
Credit ratings studies mostly focused on price relevant information induced by the changes in credit ratings. Such changes in ratings signal the market regarding changed creditworthiness of the issuer. The announcement date of changes in credit ratings tends to induce reaction of stock prices according to the hypothesis of information content theory. It also provides the information about the intercompany condition and the source of management and financial demonstration (Foster, 1986).

3.3 Signaling Theory
One of the beneficial ways of reducing information asymmetry is by providing signals to stakeholders in order to able them to identify trustworthy financial reporting. Thus this signaling information is also a source of credit risk ratings (Mungniyati, 2009).

3.4 Hypotheses
    H_1: Firm relevant variables are the elements of credit ratings in Taiwan.
    H_2: Credit ratings impact the performance of firms in Taiwan.

    H_3: There is a correlation between credit risk ratings and the stock returns of entities in Taiwan.

4. Research Methodology

4.1 Sample Selection

The population of this study is all the companies listed on Taiwan Stock Exchange (TSE). Sampling Frame includes those listed companies which are rated by Taiwan Rating Corporation (TRC) during the period 2010-2015. Observations of 50 companies for the period 2010-2015 are considered enough to meet the requirements of this research. The statistical technique generally applied in the study is regression.

4.2 Data Collection

The data of variables used for credit ratings is obtained from the financial statements of respective entities that were available on official websites. Moreover, the stock prices of the firms are obtained from the website of TSE. TRC website is consulted to obtain the credit risk ratings of sample firms. This study considered Long term rating, keeping in view firm's long term stabilization. The independent variables are all firm specific variables. The dependent variable is credit rating, which has further divided into three categories, conveying ordinal risk evaluation;

- 1st category rating: AAA, AA, A
- 2nd category rating: BBB, BB, B

3rd category rating: CCC, CC, C, D

Table 1: Variables of Model

Variables	Symbol	Construction
Credit Rating	CR	Ratings assigned by TRC
Entity size	Size	Log of Total Assets
Leverage	LEV	Long term debt / Total assets
Liquidity	LIQ	Quick ratio
Return on asset	ROA	Net income / Total assets
Dividend per Share	DPS	Dividend / Outstanding # of shares
Tobin's Q	TQ	Market capitalization / Total assets
Capital Unburden	CAP_UNB	Gross fixed assets / Total assets
Loss Propensity	LOSS	1 for -ROA in current and last year, 0 otherwise
Industry Type	TYP_SEC	1 for financial sector, 0 otherwise
Stock Price	SP	Market value of per share
Stock Returns	SR	Current returns minus previous returns, divided by previous returns

4.3 Models Specification

4.3.1 Credit ratings determinants: Firm specific variables act as determinants for the credit ratings of the entities (Altman and Rijken, 2004, 2006; Ash-shu, 2013; Alali et al., 2012). So, succeeding model is used for the determinants' identifying the credit risk rating.

$$CR_{it} = a_0 + a_1 LEV_{it} + a_2 ROA_{it} + a_3 CAPUNB_{it} + a_4 LOSS_{it} + a_5 Size_{it} + a_6 TYPSEC_{it} + \varepsilon_i \qquad (1)$$

$$CR_{it} = a_0 + a_1 LEV_{it} + a_2 TQ_{it} + a_3 CAPUNB_{it} + a_4 LOSS_{it} + a_5 Size_{it} + a_6 TYPSEC_{it} + \varepsilon_i \qquad (2)$$

Where e_{it} is Error term and dummy variables are tendency of loss and type of sector.

4.3.2 Credit ratings impact on Entity Performance: Credit ratings impact on the performance of entity is investigated by using the following regression equation (Graham and Harvey, 2001; Bissoondoyal-Bheenick, E., and Treepongkaruna, 2011; Alali et al., 2012; Singal, 2013).

$$Perf_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 DPS_{it} + \beta_3 LEV_{it} + \beta_4 Size_{it} + \beta_5 LOSS_{it} + \beta_6 P_{it} + \varepsilon_{it} \qquad (3)$$

It is noted that Tobin Q (TQ) and return on assets (ROA) are used to measure the performance of the firm. However, here we used the same firm specific variables used in model 1 to investigate the impression of credit ratings on performance of the firm.

4.3.4 Credit ratings impact on Stock Returns: The model for the investigation of credit ratings impact along with entity intensive variables on the stock returns is according to the study of Chen et al. (1986). The respective relationship is expressed as follows;

$$SR_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 DPS_{it} + \beta_3 LEV_{it} + \beta_4 Size_{it} + \beta_5 ROA_{it} + \beta_6 LIQ_{it} + \varepsilon_{it} \qquad (4)$$

4.3.5 Estimation Techniques: Two estimation techniques are used; Ordered Probit approach for determining the determinants of credit ratings and Panel data estimation technique for estimating the

impression of credit ratings on entity performance as well as stock returns.

a. Ordered Probit Model: The structural model for credit ratings developed by Adams et al. (2003) is used in Ordered Probit estimation techniques. This model follows the following latent model;

$$y_i^* = x'_i\beta + \varepsilon_i$$

Where;

y_i^* = The latent variable that in unobserved and tend to measures risk level

x'_i = Descriptive variables' vector of entity 'i'

β = Unidentified parameters' vector

ε_i = Random disturbance term.

b. Panel data regression: The technique of Panel data estimation considers individual effect to be common, fixed or random. This technique employs F-test to compare common or fixed effect model. Hausman test is used that assumes the non-correlation of independent variables and error terms in null hypothesis. The value of respective test less than 0.05 is considered significant and proposes fixed effect model. Whereas, insignificant value greater than 0.05 suggests random effect model.

5. Results and Discussions
5.1 Descriptive Statistics – Results and Discussion

Table 2: Descriptive Statistics

STATISTIC	SIZE	LEV	LIQ	ROA	DPS	TQ	CAP_UNB
N	294	294	294	294	294	294	294
MEAN	7.656248	0.130976	1.008658	0.035506	0.224876	2.720136	0.4138503
ST. DEV.	0.781338	0.168445	0.998369	0.086339	0.358634	3.707176	0.2921932
MEDIAN	7.694672	0.074202	0.7	0.016318	0.098664	1.691959	0.3985681
SKEWNESS	-0.37769	3.652483	2.238459	2.226271	2.804681	6.320146	0.1604282
KURTOSIS	2.414196	29.18309	12.11297	21.78627	13.44795	66.20277	1.598916

Descriptive indicators describe the measures of dispersion as well as central tendency of data. The results show that there are total 294 observations of the underlying study. The average firm size identifies the strong ability to offset the default risk, as these large firms attain from economies of scale. Average liquidity denotes that all the companies included in the sample are able to pay their debts somehow. Average leverage states that Taiwanese companies depend slightly higher on debt as compared to equity.

On other side, average profitability statistic, ROA (0.0355) does not predict sample firms to be profitable at all, thus they do not tend to face financial distress. The average Tobin's Q (2.7201) depicts that the selected firms have higher opportunity for growth in upcoming future. The highest standard deviation of Tobin's Q (3.7071) indicates the presence of outliers and wide range of data, while ROA (0.0863) with lowest standard deviation presents its values close to mean. Except firm size, all other variables are positively skewed, out of which Tobin's Q (6.3201) is highly positively skewed.

5.2 Correlation – Results and Discussion

Table 3: Correlation Matrix

	CR	SIZE	LEV	LIQ	ROA	DPS	TQ	CAP_UNB	LOSS	TYP_SEC	SP
CR	1										
SIZE	0.3155	1									
LEV	-0.1344	-0.0613	1								
LIQ	-0.1362	0.3129	-0.11	1							
ROA	-0.214	-0.3141	-0.0658	-0.0122	1						
DPS	-0.1296	0.1596	-0.1251	0.1232	0.2322	1					
TQ	0.0976	-0.3721	-0.035	-0.0586	0.4392	0.1795	1				
CAP_UNB	-0.0434	-0.3786	0.4051	-0.4189	0.1003	-0.1391	0.2263	1			
LOSS	0.2161	0.0116	-0.023	0.0222	-0.3651	-0.1972	-0.1604	0.0099	1		
TYP_SEC	0.2592	0.2812	-0.1508	0.3635	-0.097	-0.1507	-0.2578	-0.7235	0.0923	1	
SP	-0.1254	0.1332	-0.0836	-0.0979	0.0695	0.4801	0.3362	0.0203	-0.1558	-0.2604	1

All variables in matrix are identified to be independent of one another. It specifies no indication of multi-collinearity among the explanatory variables of study. According to results, growth

opportunities, size, loss propensity and sector type are positively correlated with credit rating. All the other variables tend to show a slight negative correlation with credit rating. On contrary, stock price and dividend per share show highest positive correlation whereas highest negative correlation has been shown between capital intensity and type of sector.

5.3 Regression – Results and Discussion

This section covers the outcomes of regressions performed on the specified models of the study.

   5.3.1 Credit Rating Determinants in Taiwan. The results of Model I signify all variables to be expressively and positively related to entity's credit ratings (Table 4). The P-value of z-statistic indicate that size of firm, leverage, capital intensity, loss propensity and sector type are highly positively related to credit ratings of firm. These results indicate that with

Table 4: Credit Rating Determinants

Variables	Model I	VIF
Firm Size	0.00***	1.3
	(-0.121)	
Leverage	0.00***	1.3
	(-0.256)	
Assets Returns	0.00***	1.32
	(-0.782)	
Capital Unburden	0.00***	2.87
	(0.19)	
Loss Propensity	0.00***	1.21
	(0.01)	
Sector Type	0.00***	2.27
	(0.21)	
Observations	294	
Pseudo R^2	0.39	
Prob>chi^2	0.000***	
Hausman (p-value)	0.6086	

Note: Table 4 specifies z-statistics (P-value) and robust coefficients values at 1 percent significant level***. The Hausman test proposes Random Effect Model.

the use of one of the performance variables (ROA), all variables tend to show positive association with credit rating. Hausman test proposes the Random Effect Model because P-value is greater than 0.05 (0.6086). Moreover, all values of Variance Inflation Factor (VIF) are less than 5, indicating zero signs of multi-collinearity.

Model I: Credit Ratings = f (firm specific variables with ROA)

All the variables for Tobin's Q identify to be exceedingly significant and positively associated to credit ratings of the operating firms in Taiwan (Table 5). Also, overall P-value of model is substantial at 1 percent level of significance and Hausman test proposes Random Effect Model due to the value greater than 0.05 (0.9713). Further, the VIF factor of the model indicates no multi-collinearity factor in the regression model.

Table 5: Credit Rating Determinants

Variables	Model II	VIF
Firm Size	0.001***	1.31
	(-0.109)	
Leverage	0.000***	1.29
	(-0.230)	
Tobin's Q	0.000***	1.24
	(-0.009)	
Capital Unburden	0.002***	2.86
	0.174	
Loss Propensity	0.005***	1.05
	0.050	
Sector Type	0.000***	2.29
	0.194	
Observations	294	
Pseudo R^2	0.324	
Prob>chi^2	0.0000***	
Hausman (p-value)	0.9713	

Note: Table 5 specifies z-statistics (P-value) and robust coefficients values. 1 percent significant level***.The Hausman test proposes Random effect Model.

Model II: Credit Ratings = f (firm specific variables with TQ)

In both Models I and II, the positive linkage between credit ratings and size of firm revealed size variable to be an essential conclusive factor for credit ratings determination. Signaling theory is also reinforced by these results, stating that bigger firms tend to have higher predicted cash flows in future and are capable enough to face financial agony and insolvency. Positive growth prospect (Tobin's Q) reveals the scope of growth in the firms operating in Taiwan. Both financial as well as non–financial companies of Taiwan bear the potential for credit ratings determination.

Table 6: Credit Rating and Firm Performance

Variables	Model III		VIF
	ROA	Tobin's Q	
Credit Ratings	0.00***	0.00***	1.21
	(-0.129)	(-3.801)	
DPS	0.00***	0.244	1.36
	(0.056)	(0.679)	
Leverage	0.03**	0.268	1.05
	(-0.055)	(-1.200)	
Size	0.00***	0.00***	1.16
	(-0.050)	(-2.353)	
Loss propensity	0.00***	0.336	1.10
	(-0.037)	(-0.319)	
Stock Price	0.10*	0.00***	1.32
	(-0.0001)	(0.013)	
Observations	294	294	
R-squared	0.3515	0.3353	
Prob (F)	0.00***	0.00***	
Hausman (p-value)	0.00***	0.033**	

Note: Table 6 specifies robust coefficients and t-statistics (P-value) values. 10 percent significant level*; 5 percent significant level**; 1 percent significant level***. The Hausman test propose fixed effect Model.

5.3.2 Credit Ratings Impact on Entity Performance. The performance of firm in current study is indicated by two dynamics; Tobin's Q (as market measure) and ROA (Table 6). This Model uses the regression technique of panel data, along with the estimation of fixed and random effects models.

Model III: ROA = f (Credit ratings, firm specific variables)
Model III: TQ = f (Credit ratings, firm specific variables)

The analysis of performance models signifies highly positive impact of credit ratings on the performance of firms in both ROA and Tobin's Q. A negative association has been explored between ROA and all other entity intensive variables. The overall P-value of model is substantial. Hausman test suggests Fixed Effect Model. The results show that increased dividends and stock prices tend to indicate higher returns on stocks and higher performance. The higher credit ratings impact on ROA sends signals to the investors regarding higher returns on stocks. Contrary to this, positive and statistical relation has been resulted between Tobin's Q and two firm relevant variables; firm size and stock price. However, dividend per share, leverage and loss propensity tend to have negative association with Tobin's Q.

Table 7: Credit Rating and Stock Returns

Variables	Model 1V	VIF
Credit rating	0.002***	1.32
	(2.52)	
DPS	0.00***	1.14
	(-0.23)	
Leverage	0.00***	1.08
	(-0.17)	
Size	0.00***	1.56
	(0.91)	
ROA	0.003***	1.41
	(1.75)	
Liquidity	0.00***	1.13
	(-1.05)	
Observations	294	
R-squared	0.032	
Prob (F)	0.021**	
Hausman (p-value)	0.03**	

Note: Table 7 specifies robust coefficients and t-statistics values. 5 percent significant level**; 1 percent significant level***. The Hausman test proposes fixed effect Model.

Model IV: Stock returns = f (credit rating, firm specific variables)

5.3.3 Impact of Credit Ratings on Stock Returns. The results of Table 7 reveal all the coefficients to be positive and statistically significant relative to stock returns. It indicates that credit ratings essentially determines the stock returns of Taiwanese firms. The respective outcome also supports signaling theory, depicting credit ratings to be a signal for market traders regarding buying and selling decisions of company stocks.

6. Conclusion

The respective research was the source of understanding the worth of credit ratings that improves the status, reputation and solvency of the entities in Taiwan. A good credit rating is a symbol of better quality, high financial strength and solvency.

6.1. Implications of the Study

Firstly, the regression results of the underlying study revealed that both financial and non-financial firms of Taiwan tend to determine the extent of credit rating. It signified all variables to be expressively and positively linked with entity's credit rating. The results concluded that firms having higher firm size, growth prospects, asset return, capital intensity, loss propensity and sector type are more likely to have higher tendency of credit rating.

Secondly, this study tried to find out the impression of credit ratings on performance of entities. The analysis of performance models indicated highly positive influence of credit ratings on the performance of entities. However, all variables are positively and highly related to ROA, but in case of Tobin's Q, share dividends, debt intensity and loss propensity show negative association. Hence, firms can achieve higher credit ratings based on growth prospects that indicate the profitable side of the company. However, this growth excludes debt intensity and loss propensity of the firms to have higher performance factor.

Thirdly, countless theories hypothesized that credit ratings greatly affect the stock returns, reducing the risk of default and debt cost. The results of current study exposed that in case of Taiwanese firms, the

credit ratings essentially and significantly determined the stock returns. All these findings also supported signaling theory. The ratings issued by TRC send signals to investors regarding their buying and selling decisions pertaining to stocks.

6.2 Limitations and Future Research

Current study was limited to a specified sample. Data of all companies listed on TSE was not available. Moreover all companies, for which data was available, were not being rated by TRC. Due to these limitations of data availability, convenient sampling was used to select companies that were simultaneously listed in TSE and rated by TRC. Another limitation is this study considered the ratings issued by TRC only. For future research, similar study should be conducted with the ratings issued by other Taiwanese or non-Taiwanese agencies. Similarly all the companies can be selected for the sample. Likewise, other than financial and non-financial aspects, other funds and security aspects can also be considered for the future research.

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