# CHAPTER II

## Literature Review

The studies of capital structure try to explain the combination of the securities and financing sources used by the company to finance their project which are focused on the debt and equity. Different theories purpose the different determinants of capital structure, taxes and bankruptcy cost of having debt are focused by Trade off theory, while Pecking order focus on the asymmetric information, and free cash flow theory focus on solving the agency problem by issuing more debt. Yet, the theories of capital structure are not universal; each theory is suitable for different situation. Then the new theories continue purposed to explain the capital structure. One of the interesting theories is using credit rating in determining the capital structure purposed by Kisgen (2006). However, there is no paper study about the relationship between probability of default and capital structure, there are literatures study about the relationship between probability of default and credit rating, For example, Delianedis and Geske (1998), which I am interested to investigate this relationship. This section will be the review of literature of the capital structure theories, credit rating and capital structure, probability of default and credit rating, and capital structure difference among G7 nations respectively.

### 2.1 The market timing theory

Aside from the traditional theories, MM theory, Trade-off theory, and Pecking order theory, the theory of capital structure is going further. There is the theory proposed by Baker and Wurgler called "Market Timing theory", the idea is that firms will issue their equity or repurchase it up to the timing of the market. When managers found that their equity price is high relative to book value and past market values, the firms will issue equity, and when their equity price is low relative to book

value and past market value, firms will do repurchasing. This theory is against the traditional capital structure theories, MM theory, Trade-Off theory and Packing Order theory. For example, Trade-Off theory suggest that, when market equity price is high, debt to equity ratio will decrease and firms will rebalance this ratio to its optimal level by issue more debt. While Market Timing theory suggests that when market equity price is high firms should issue more equity. For Pecking Order theory, firms will finance from internal fund first and then debt and the last one is equity. For MM theory, firm should solely finance debt. The evidence support Market Timing theory are found by Graham and Harvey (2001), firm issue equity rather than debt when stock price is high, Asquith and Mullins (1986), Marsh (1982), Mikkelson and Partch (1986), Hovakimian, Opler, and Titman (2001), and Dittmar and Thakor (2007). Welch (2004) found that firms let their debt to equity ratios change with their stock prices, rather than move back to their optimal level of debt and equity. Most of U.S. firms do little action to counteract the influence of stock price change on their capital structure that make their debt to equity ratios vary closely with fluctuations in their own stock prices.

By the way, there are the evidences showing that the decision of choosing debt and equity to finance firm's project seem to depend on the firm's managements themselves. "Perhaps the theories are valid descriptions of what firms should do but corporations ignore the theoretical advice", Graham and Harvey (2001) P.233. Graham and Harvey (2001) do the field research and found that informal criteria such as financial flexibility and credit rating are the most important debt policy factors. They also found that financial executives are less likely to follow the academically proscribed factors and theories when determining capital structure. Next section will

discuss about the credit rating and capital structure of firms which is the inspiration of this paper.

## 2.2 Credit rating and capital structure

The paper that contributes the inspiration to this paper is Kisgen (2006) whose come up with "Credit Rating theory", he purpose that credit rating should have an affect with firms capital structure change; he links the credit rating of each firm into the predicting of firms' change in capital structure. He set up the characteristic of firms that tend to have change in its capital structure because observing the real change of credit rating will have some difficulties. He suppose that firms with plus (+) or minus (-) sign on its credit rating will be more likely to change its credit rating than the firms that do not have the sign, and test deep into each particular rating by divide a particular rating into 3 levels by credit scoring and assume that firms that get the top rank and the bottom one are more likely to change in their credit rating than the firm that get the middle rank. He concludes that credit rating have directly effect on capital structure. In Kisgen (2007), he goes further on his study on credit rating. He claims that the credit downgrade can be used to predict the capital structure especially in the case of downgrade to the speculative grade. By the way, the rating is suspected by the case of Enron and WorldCom collapsing. The accuracy of rating giving by rating agencies have been criticized for missing corporate scams. CFO: Magazine for Senior Financial Executives, Dec, 2004 report that "The confidence in the credit-rating process continue to be low among financial professionals," says Jim Kaitz, president of the AFP. These are the motivations of this paper to bridge another determinant, Probability of default, into the studying of capital structure in belief that the probability of default can be used as the determinant of firm's capital structure, have more explanatory power and easier to use than the credit rating does. Next section is

reviewing of the study of probability of default and credit rating, the first bridge of this paper.

### 2.3 Probability of default and credit rating

The relationship of probability of default and credit rating inspire this paper in studying the use of the probability of default in determining the firms' capital structure. The following section will review the previous paper study about the relationship of probability of default and credit rating.

Delianedis and Geske (1998) use the diffusion model of Merton (1974) and Geske(1977) to compute the probability of default. They claim that rating agencies like Moody and S&P give rating by compute from the historical default frequencies. But using Merton's model can calculate forward looking default frequencies. They found that the model produce the default probabilities that are capable of forecasting which firms are more likely to experience a future rating migration.

Kim and Nabar (2007) investigates the asymmetric stock market reaction on bond upgrades and downgrades by examining changes in firms' probabilities of bankruptcy and voluntary disclosure activity around rating change announcements using bankruptcy prediction models. They found that firms' stock prices do not react to announcements of upgrades of their bond ratings but affected firms' stock returns are negative when rating agencies announce bond downgrades.

### 2.4 The capital structure difference among G7 Nations

This paper extends the study of credit rating and capital structure, and probability of default and capital structure into G7 nations. There is the reason why the extension of the test on credit rating effect and the probability of default effect on the capital structure into G7 nations are needed and why the result from USA can not

be implied in other countries. First the international evidence point that the firms' capital structure among countries are different. Rajan and Zingales (1995) find that, at an aggregate level, firm leverage is more similar across the G7 countries; however a deeper examination of the U.S. and foreign evidence suggests that the theoretical underpinnings of the observed correlations are still largely unresolved. Mcclure, Clayton, and Hofler (1999) find that company capital structures are still significantly different by nationality for the G7 countries. The results show there are differences in capital structure among and between nations on both a book value and market value. Aggarwal and Jamdee (2003) Theories of the determinants of capital structure tested prior in the US do not seem to work as well in other countries especially in explaining variations in market-based leverage measures. The determinants of capital structure traditionally found useful in the U.S lose some of their explanatory power overseas. These evidences show that the result from USA only cannot be implied into other countries in G7 nations. Second reason of the extension of this study in to G7 nations is that these are the world leader of economic, business, and finance. A lot of firms are listed in these markets. The financial instrument used by these firms are various which the rating agencies can easily rate these firms. Thus, rating data in these countries is more available and easier to access than other countries, for example, emerging countries. Then, doing research on G7 nations will give the real result of the credit rating effect and probability of default effect on capital structure for each country and provide a convenience for the researcher to search for the data.