CHAPTER 1

INTRODUCTION

The economic equilibrium pricing model to determine the market price for risk and the appropriate measure of risk for a single asset, developed almost simultaneously by Sharpe (1963,1964) and Treynor (1961) and developed further by Mossin (1966), Lintner (1965b, 1969) and Black (1972), is well known as Capital Asset Pricing Model (CAPM). Many assumptions concerning investors and the opportunity set are made in developing the CAPM. One of them is "asset markets are frictionless and information is costless and simultaneously available to all investors". Merton (1987) does not agree with this assumption. He believes in the rational, optimizing economic behavior but he mentions that financial models based on frictionless markets and complete information are often inadequate to capture the complexity of rationality in action. As a result, he develops a more general model called 'a simple model of Capital Market Equilibrium with Incomplete Information'. The key behavioral assumption of his model is that an investor uses security k in constructing his optimal portfolio only if the investor knows about security k. The primary purpose of my study is then to empirically test Merton(1987)'s model to determine to what extent the incomplete information affects the Thai common stock returns.

Copeland and Weston (1982, p. 332) has defined an information structure as a message that provides a probability distribution for the likelihood of the events to occur; and the value of the message depends on whether or not the investors take any

actions based on that message and what net benefits will result from their actions. In order to obtain the information, it definitely incurs some costs including the cost of gathering and processing data, the cost of transmitting information from one party to another which includes the incentive costs that stimulate managers to transmit information, the costs required to make the information credible, and the cost of making investors aware of the firm. Other than this information cost structure and asymmetric information trading cost of Grossman-Stiglitz (1976), the prime motivation for the posited behavior underlying Merton's model is that the portfolios held by actual investors (both individual and institutional) contain only a small fraction of the thousands of traded securities available.

The effect of information on asset pricing can be divided into 2 main areas:-

1. Differences in the depth of investor cognizance among securities
2. Differences in the breadth of investor cognizance

First, the price effects from differences in the depth of investor cognizance among securities focus on the differences in the quality of information across securities (differential information). Estimation risk is termed as the parameter concerning uncertainty in the model of asset pricing. Klein and Bawa (1977), Bawa, Brown and Klein (1979) and Barry and Brown (1983) find that low information securities have relatively high estimation risk and this leads risk averse investors to diversify away from such securities. Using the number of observations as a proxy for the degree of relative estimation risk, limited information can have an effect on systematic risk and required return. As a result, the positive abnormal returns are found in the equilibrium

setting portfolios of low information securities while the negative abnormal returns appear in the high information securities. Using period of listing as a proxy for quantity of information by Barry and Brown (1984), they find an association between period of listing and security returns. Barry and Brown (1985) find that when there are differences in the amount of estimation risk across securities, the estimation risk is systematic and not fully diversified and can have meaningful effects on security market equilibrium. They show that the existence of differential information will cause high information securities to have lower betas and low information securities to have higher betas. Therefore, without taking differential information into consideration, low information stocks may appear to have lower betas and their portfolio may earn positive abnormal returns. Handa and Linn (1993) has generalized the analysis of Barry and Brown (1985) by examining the implications of estimation risk in the Arbitrage Pricing Theory framework. They find that the estimation risk is not diversified and it affects high and low information securities differently. The existence of differential information could cause positive abnormal returns in the portfolio of low information securities and negative abnormal returns in the high information securities. However, studies done by Clarkson and Thompson (1990) and Coles, Loewenstien and Suay (1995) show that the excess returns that Barry and Brown (1984) find for low information firms may be explained by some phenomenon other than biases in betas. They do not conclude that empirical betas are biased upward for high information firms and downward for low information firms. Clarkson, Guedes, and Thompson (1996) have raised the questions whether the estimation risk can be priced or can be observable to researchers. If it is, then it cannot explain the abnormal return in the low information securities. They show that

the relative importance of estimation risk depends on the details of the market environment, and therefore, whether estimation risk or some other information-related factor, is responsible for the observed anomalies remains an empirical question.

Second, the differences in the breadth of investor cognizance focus on the same quality of information for all securities but different distributions of that information across investors. This study is done by Merton (1987). He derives the general model different from CAPM by adding one more factor that is the shadow cost of not knowing security and cost of incomplete information over all securities. He finds that the expected return of security is not only the increasing function of its systematic risk but also the increasing function of the firm-specific variance, the size and the decreasing function of the investor base. His result is consistent with the theory of 'generic' or 'neglected' stocks by Arbel and Strebel (1982), Arbel and Strebel (1983), Arbel, Carvell, and Strebel (1983), and Arbel (1985) that the generic stocks which are stocks that analysts neglect or do not follow on a regular basis incurs the information deficiency which finally results in higher estimation risk, and investors who hold these stocks should be compensated with higher returns. Merton (1987: 490) claims that if the investor base in his model or the number of investors who know about security k is relatively small, then security k would fit the definition of a neglected security in the generic or neglected theory. The results obtained by Merton is also consistent with the empirical findings that the expected return is the decreasing function of the investor base proxied by number of financial institutions holding common stocks of the firm, the percentage of the firm's outstanding shares held by institutions, weighted measure of institutional attention (Arbel, Carvell and

Strebel (1983), Arbel (1985), Mitra and Owers (1995)), period of listing (Barry and Brown (1984), Marston (1996)), coefficient of variation in analysts' mean earnings forecast (Arbel (1985)), bid-Ask spread (Amihud and Mendelson (1989)), and number of analysts following the firm (Shores (1990), Bhushan (1989b), Brennan and Hughes (1991), Arbel and Swanson (1993)). However, Marston (1996), using the number of financial analysts following the firm, finds the insignificant relationship between the investor base and the return. Dowen and Bauman (1986), using the number of institutional investors holding the stocks as a proxy for the neglect of a stock, finds that the institutional effect is dominated by the size effect, and the P/E ratio effect is independent of both size and neglect. However, Carvell and Strebel (1985) report that the neglected firm effect is a more robust anomaly than the size effect or the small firm effect is a proxy for the neglected firm effect. Therefore, in term of empirical findings, the question of how the incomplete information affects the asset pricing or common stock return still remains.

Previous studies (O'Brien and Bhushan (1991), Brennan & Hughes (1991), and Chung and Jo (1996) find that there are many factors that have the effect on number of analysts. One of them is return. At the same time, Merton (1987) find that number of analysts has the effect on return. As a result, the question of how return and number of analysts are related remains.

The objectives of this study are as follows:- to find out empirically the size and information effects and the interaction between them, and to find out to what extent the incomplete information has the effect on the common stock return. Second,

to determine the factors that drive the information effect, if any. Finally, simultaneous equations having return and number of analysts following as endogenous variables are tested. This study is going to be the initial study in Thailand that employs the data about the number of financial analysts following the firm from the I/B/E/S* Inc. in the empirical test. The main contribution of this paper is, therefore, to investigate the importance of the effect of incomplete information on the common stock return.

The paper will be structured as follows: Chapter 2 presents the literature review on the size and information effect , the incomplete information effect, and the anomalies on common stock return. Chapter 3 shows the data and methodology and empirical results. Chapter 4 discusses the simultaneous relationship between the return and number of analysts. Chapter 5 concludes the study.

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I/B/E/S stands for Institutional Brokers Estimate System of Lynch, Jones & Ryan. It provides information on over 18,000 companies in 52 countries. More than 7,000 financial analysts representing over 750 institutions continually contribute earnings expectation data to I/B/E/S.