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CAPITAL ASSET PRICING MODEL: A REVIEW OF LITERATURE

Krishan Gopal
Assistant Professor, Government National PG College, Sirsa,Haryana, India.

Abstract
In every economy, the capital market plays a pivotal role in determining its strength as well as development. Every capital market further needs an efficient mechanism/theory to pricing securities traded on that market. The capital asset pricing model (CAPM) developed almost fifty years ago, marks the birth of asset pricing theory. With some assumptions, the major result of the model is a statement of the relation between the expected risk premiums on individual assets and their "systematic risk." This relationship says that the expected excess return on any asset is directly proportional to its "systematic risk." The present study undertakes a survey literature on CAPM to highlight its validity across the capital markets of world. On the whole the empirical results regarding CAPM discussed in this study lead to diverse conclusions. Some of the studies advocate multifactor models due to failure of market beta alone to explain cross-sectional variation in security returns and others highlighted the methodological issues in testing CAPM. Overall, still the validity of the capital asset pricing model is testable and requires further examination of security prices.

Key words: Beta, Risk, Return, Variation.

Introduction

One of the most important parts of the financial system is the capital market which plays a pivotal role in the development of an economy. Furthermore, the cores issue of the capital market is the mechanism by which financial instruments are priced in that market. The price discovery mechanism heavily depends upon the risk-return relationship of the securities. The first and foremost formal theory of this relationship is the capital asset pricing model (CAPM) developed by Sharpe (1964), Lintner (1965) and Mossin (1968). Their input in the form of capital asset pricing model scripts the origin of asset pricing theories. This masterpiece of asset pricing model is based on certain assumption such as (1) all investors are single period risk-averse and prefer maximization of utility of terminal wealth and (2) they can choose portfolios solely on the basis of mean and variance, (3) there are no taxes or transactions costs, (4) all investors have homogeneous views regarding the parameters of the joint probability distribution of all security returns, and (5) all investors can borrow and lend at a given risk-less rate of interest. The vital outcome of this theory is an assertion of the relation between the expected return and expected risk (systematic risk) on individual assets as well as same of portfolios. According to this relationship, the expected excess return on individual asset is directly proportional to its systematic risk. The empirical validity of this thesis has comprehensive propositions in the areas of portfolio selection, capital budgeting, cost benefit analysis, and for other economic problems involving the information regarding the relation between risk and return. It does not matter how old is this model or the conditions and times when it was developed, the CAPM is still extensively useful in various fields, such as estimation of the cost of capital for firms and evaluating the performance of managed portfolios. Still, it is the centerpiece of many investment and financial market courses. There is still a great debate on the empirical validity of CAPM in finance literature. The present study aims to review the studies of CAPM in Indian context as well as international context

Review of Literature

The literature on asset pricing theories across the world has been divided into capital asset pricing model and multifactor pricing models. In the beginning, the empirical studies (Lintner, 1965; Douglas, 1969) on CAPM were chiefly cemented on the returns of individual assets and tinted the risk-return relationship. However, the outcomes of their study were discouraging. In a further study, Miller and Scholes (1972) encountered few statistical issues while dealing with returns of individual securities in examining the robustness of the capital asset pricing model. Most studies subsequently overcame this problem by using portfolio returns. Subsequently, this problem has been solved in a study carried out by Black, Jensen and Scholes (1972). They constructed portfolios using all the stocks listed on the New York Stock Exchange during the period of 1931-1965, and exhibited that the average excess portfolio return and the systematic risk (beta) of portfolios were linearly related. They also showed negative (positive) intercepts for high beta portfolios (low beta portfolios). Expanding the efforts of Black, Jensen and Scholes (1972), Fama and MacBeth (1973) illuminated the pricing theory by generating the evidences (i) that the linear relationship between the average return and the beta holds and, (ii) of a larger intercept term than the risk-free rate (iii) that the linear relationship holds well when the data covers a long time period. Succeeding literature,(For example, Fama and French (1992), He and Ng (1994), Davis (1994) and Miles and Timmermann (1996)) nevertheless, offered frail empirical evidences on these relationships. These mixed observed results on the average return-risk relationship impelled a number of answers: (i) Roll (1977) argued that the single-factor CAPM could be accepted in the situations where portfolio used as a market proxy was efficient. This relationship between risk and expected return can be insignificant in case of very small deviations from efficiency (Roll and Ross, 1994; Kandel and Stambaugh, 1995). (ii) Kothari, Shanken and

Sloan (1995) raised the issue of the survivorship bias in the data used to examine the legitimacy of the asset pricing model specifications. (iii) Bos and Newbold (1984), Faff, Lee and Fry (1992), Brooks, Faff and Lee (1994) and Faff and Brooks (1998), reported the instability of beta.(iv) furthermore, several model specification issues were emerged: For example, (a) Kan and Zhang (1999) dwelled upon a time-varying risk premium, (b) Jagannathan and Wang (1996) exhibited that using a broader market portfolio can dramatically change the outcomes and (c) Clare, Priestley and Thomas (1998) discussed that failing to take into account possible correlations between idiosyncratic returns may have an impact on the results. In addition to this, many studies discovered that the besides beta, certain fundamental variables such as book to market ratio, size (Banz, 1981), (Rosenberg, Reid and Lanstein, 1985; Chan, Hamao and Lakonishok, 1991), macroeconomic variables and the price to earnings ratio (Basu, 1983) played a vital role in explaining the cross-sectional variation in average security returns. Fama and French (1995) exhibited that the two non-market risk factors SMB (the difference between the return on a portfolio of small stocks and the return on a portfolio of large stocks) and HML (the difference between the return on a portfolio of high-book-to-market stocks and the return on a portfolio of low-book-to-market stocks) were instrumental in explaining a cross-section of equity returns. Chung, Johnson and Schill (2001) argued that since higher-order systematic co-moments are embedded in the cross-sectional regressions for portfolio returns, the SMB and HML generally become insignificant. Therefore, they suggested that SMB and HML are fine proxies for higher-order co-moments. Groenewold and Fraser (1997) tested the robustness of the capital asset pricing model in Australian context and compared the performance of the empirical version of APT and the CAPM. Their empirical results supported the notion that the APT outperforms the CAPM. Recently, numerous studies (Braun, Nelson and Sunier (1995) (BNS hereafter) and Cho and Engle (1999) (CE hereafter)) examined the effect of bad and good news (leverage effects), as measured by negative and positive returns on beta. BNS examined the inconsistency of beta using bivariate Exponential GARCH (EGARCH) models permitting beta, portfolio volatility and market volatility to respond asymmetrically to positive and negative market and portfolio returns. On the other hand CE, employed a two-beta model with an EGARCH variance specification and daily stock returns of individual firms and concluded that news asymmetrically affects the betas while the BNS study which was based on monthly data on portfolios unable to detect this relationship. Galagedera and Faff (2003) examined the utility of a conditional three-beta model as a security return generating process. Their findings tremendously bolster that the betas in the low, usual and high volatility regimes are positive and significant, most of the security/ portfolio betas were not found to be significantly different in the three regimes. On the whole the empirical results regarding CAPM discussed in this section lead to mixed conclusions. Some the studies advocate multifactor models due to failure of market beta alone to explain cross-sectional variation in security returns and others highlighted the methodological issues in testing CAPM.

Conclusions

In every economy, the capital market plays a pivotal role in determining its strength as well as development. Every capital market further needs an efficient mechanism/theory to pricing securities traded on that market. The capital asset pricing model (CAPM) developed almost fifty years ago, marks the birth of asset pricing theory. With some assumptions, this theory produces a testimonial of an asset's risk-return relationship while developing the idea of systematic risk which affects all the securities traded in the market. The model yields the relationship which asserts that the return on any individual asset is linearly related to its beta i.e. systematic risk. The present study undertakes a survey literature on CAPM to highlight its validity across the capital markets of world. The present paper shed a light on the empirical evidences on the capital asset pricing model and it provide a mixture of evidences regarding the validity of CAPM. Majority of the results put higher weights in the favor of multifactor asset pricing models which directly portrayed the inability of systematic risk i.e. beta in explaining the variations in assets' returns while some studies discussed the factors related to methodologies for examining the CAPM. Overall, still the soundness of the capital asset pricing model is testable and requires further examination of security prices.

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