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An Empirical Testing of Capital Asset Pricing Model in India

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Abstract

This study focuses on empirical testing of Capital Asset Pricing Model (CAPM) in the Indian equity market. The study is conducted for a period of 10 years ranging from January 2004-December 2013 and the data is daily data for 10 years. This study is done with the help of rolling regression methodology, which helps in giving robust results. Rolling regression is applied on a rolling sample of three years where a window of three years keeps moving for a quarter. Further, the model developed for the second stage regression is a constrained model, in which the intercept term is assumed to be zero. A comparison between the developed model and the traditional model, has been made. The results show that CAPM is very much significant in the Indian equity market and the model developed in this study, performs better than the traditional model.

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Keywords: CAPM, Rolling regression, Indian equity market.

1. Introduction

The Capital Asset Pricing Model (CAPM) is the most fundamental and popular model in asset pricing. This model explains the relationship between the return of any asset and the risk component involved with that return. The model explains there is only one component which explains the return generating process of any asset, which is

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the systematic risk or the market related risk of that asset. This is why, CAPM is also known as single factor model. This model provides an equilibrium relationship between risk and return, which helps in identifying the underpriced and overpriced assets. This equilibrium relationship is also known as the security market line (SML). SML explains the relationship between the return of asset and beta of asset. But in the late twentieth century the model started losing its popularity as various other theories/ model of asset pricing came into existence, which contradicted the model and claimed that the single factor, beta, cannot explain the return generating process of assets. There are various other factors which influence risk return relationships and those factors should also be taken into account.

This kind of ambiguity prevailing in the financial literature has given the motivation to authors to empirically study the model in Indian context and analyse its nuances. Further the majority of studies have been conducted in the developed market, while developing markets have a very limited studies related to the testing of CAPM. This gap has also provided enough motivation to conduct this kind of study.

The study covers a period of ten years ranging from January 2004 to December 2013. The Results of this study show that the model is still significant. A new model with some econometric corrections, has been made, which show a significant improvement in the applicability of the CAPM in the practical world.

2. Literature Review

Capital Asset Pricing Model is the foundation of all asset pricing theories. The model has been tested across the globe empirically and the results of these tests are mixed.

The empirical tests conducted by Friend and Blume (1970), Black, Jensen and Scholes (1972) and Fama and MacBeth (1973) show support to CAPM and concluded that return of risky assets are a linear function of the beta factor.

On the contrary Basu (1977) reported the earning price ratio explains the returns of risky asset. Banz (1981) explained the size effect and the relationship between the stock returns and market capitalization. In the same way Bhandari (1988) explained that debt-equity ratio effect, plays a significant role in explaining the return generating process.

The most important work of Fama and French (1992, 1993 and 1995) declined the fact that 'Beta' is the only factor which can explain the return generating process of risky assets. However, size factor and book to market ratio factor are two other important factors, which helps in explaining the risk return relationship.

The major studies of empirical testing of CAPM are done in the US market. While developing countries have a dearth of such empirical tests of CAPM. In India too there are very few studies, which have addressed the same issue. Findings of these studies are also mixed.

Yalwar (1988) and Verma (1988) supported the CAPM and said that CAPM is applicable in the Indian stock market. While Gupta and Sehgal (1993), Ray (1994), Obaidullah (1994), Madhusoodan (1997) and Sehgal (1997) denied the applicability of CAPM in Indian stock market.

Ansari (2000) again supported the CAPM and reported that game is not lost for CAPM in the Indian market. Dhankar and Kumar (2007) explained that CAPM helps in explaining the risk return relationship in the Indian market.

The literature provides the mixed kind of evidences in support of CAPM. Now in the 21st century the Indian equity market has turned into a bigger and a better market. In this phase of the Indian equity market, testing of CAPM becomes essential. This empirical testing of CAPM will give a new and big picture of CAPM and the Indian equity market.

These issues and developments provide motivation to study the CAPM and its applicability in the Indian equity market.

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