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ABSTRACT

One analytical framework that seems to be mostly suitable to the analysis of the problem of exchange risk is the well-known Capital Asset Pricing Model (CAPM). CAPM is a two parameter, single period model that focuses on the expected return of an asset and the asset's riskiness. It is essentially a utility based valuation model that posits a linear relationship between the returns of an asset and the market risk premium.

The essence of CAPM was its first successful effort to illustrate the access of the risk of the cash flow, from a potential investment project and to estimate the projects cost of capital, and the expected rate of return, so the investors would demand if they choose or decide to invest in the project. The CAPM is a valuation model that combines considerations of risk of return that is a broadly accepted model in financial and stock markets.

INTRODUCTION

Capital Asset Pricing Model or CAPM is a general equilibrium theory of asset pricing. It is a theoretical model that economists have built into their capital budgeting process. Several model classes can be identified in different economic and financial literatures. The intertemporal capital asset pricing model (ICAPM), the arbitrage pricing theories (APT), the consumption oriented capital asset pricing model (CCAPM). However, the more general models have provided much weaker than the CAPM when empirically tested.(Luigi Buzzacchi, Luca L.Ghezzi) The importance of CAPM is that was the first apparently successful attempt to show how to access the risk of the cash flow, from a potential investment project and to estimate the projects cost of capital, and the expected rate of return the investors would demand if they choose or decide to invest in the project. Until recently a vast majority of researches were supportive of this model and they presented empirical data to support this model.This model was developed by Sharpe and Linter more than 35 years ago.

Since1992, Fama and French, conducted tests of the CAPM and made a conclusion that the CAPM model is useless for precisely of what was initially developed to do. Since than researches are divided in their opinions, there are some who have founded applications in different fields, which CAPM was not originally designed for, and there are those who totally oppose this model.

This project is designed in a way to show the two opposing sides, discuss and analyze their arguments and draw a clearer picture of what the CAPM model is, its applications, advantages, and disadvantages.

CAPITAL ASSET PRICING MODEL (CAPM)

The CAPM is a valuation model that combines considerations of risk of return is a widely accepted model in financial and stock markets. The CAPM was developed to explain the differences in risk premium across assets. According to the CAPM these differences are due to differences in the risk of the returns on the assets. Both Markowitz and Sharple won the Nobel Prize for their contribution to finance and economics. Also for the Sharpe's Capital Asset Pricing Model (CAPM) which is one of the most important models in finance. In the CAPM, the investor's "required rate of return", or "discount rate" is presented whit the following formula:

$$R_e = R_f + \beta_e \, (E(R_m) - R_f)$$

In words, the required rate of return is equal to the risk free rate plus a risk premium. Sharpe and Markowitz have decomposed the risk premium into two terms: market risk premium and security's beta coefficient. The first one reflects

the excess return of the overall market over the risk free rate while the second determines the contribution of the security to the risk of the market portfolio.(The Journal of Business Valuation,1999). CAPM is utilized in several types of investment decisions. It has an advantage that provides an objective method for qualifying risk and translating that risk into estimated expected return. CAPM explains that every investment carries two distinct risks. The risk which cannot be diversified away by holding a well- diversified portfolio (e.g. the market portfolio) will affect the market price of the asset. This risk is called systematic risk. The other is called diversifiable or unsystematic risk, which is correlated with the company's wealth. (Jonathan Burton, 1998, pp.20-28) Also unsystematic risk is the portion of risk that is unique to every individual investment, and can be eliminated through diversification when the investor holds a portfolio of investments. On the other hand systematic risk is non-diversifiable and unavoidable since it is related to the movement of the stock market, and it is on this risk that the CAPM is focusing for the risk/expected return relationship.

In the CAPM, risk is defined using the concept of beta. It is the ratio of the movements of an individual stock relative to the movements of the overall market portfolio. It is calculated using daily, weekly or monthly historical data through the years. Once beta is calculated, it is assumed to be a predictor of future market behavior. The theory is that there is a tendency for stock itself to go up or down by the same percentage multiplied by beta. That is the reason why stock with a beta greater than one are considered riskier.(John Price, Ph.D,1999)

DISCUSSION

The supporters of this model are arguing that the data is consistent with the predictions of the CAPM, given the fact that the model is only an approximation to reality just like any other model. A study conducted, that defended the model, was suggesting that all the errors arising from this model are connected to two possible reasons. The firs reason is the measurement and model specification error that arises due to the use of a proxy and not a actual market portfolio. They argue that this biases the regression line estimated slope towards zero. The second reason is that, if no risk free asset exists than there can not be a prediction of an interception of zero.

In other words the proponents of the CAPM argue that when the empirical evidence does not support the model, this is because the market is imperfect, rather than the model is not performing as expected.

On the contrary there have been many academic challenges to the validity of the CAPM. In a study by Banz in 1981, he argued and provided empirical evidence, that stocks on smaller firms earned a higher return than predicted by the CAPM. In another study in 1992 conducted by Fama and French there is an argument that they did not find any systematic relationship between return and risk as measured by beta. They also argued that the regression analysis suggests that the size of a company and the book-to-market equity ration perform better than beta in explaining cross-sectional variation in the cost of equity capital. (Cross section of expected stock returns in ISE)

Connecting to this issue another question arises, what is the market risk premium and how should be measured. A standard approach is to use past data of the average return earned by the market portfolio over a long period of time. A different approach is to avoid the historical period, and compute the equity premium using a forward looking approach.

It is argued that if we change the component of expected return on the SML with the component of valuing the customer relationship, that beta is in a direct relationship with that value. Here an issue arises, about the appropriate use of CAPM in relationship markets. As argued by Hopkinson, G. and Lum, Y.C. (2002) CAPM has been drawn from the context in which was originally developed (financial markets) and it has found its implication to the value of organizational relationships.

In addition, models like CAPM can help corporate managers by providing them with a practical way to learn about how investors judge the risk of potential investment opportunities. Than, this can be connected to the usage of the organizational resources more efficiently and thus it creates an advantage. In other words the capital asset pricing model provides a method of assessing the risk of cash flow from a project, and it estimates the relationship between risk and the cost of capital.

CONCLUSION

Empirical asset pricing has presented a plenty of formidable challenges for both the CAPM and the consumption-based CAPM in recent years. One of the most compelling of these was presented by Fama and French (1992, 1993) who showed that a broad stock-market beta could not explain the deference in return between portfolios with high and low book-to-market equity ratios. The failures of the CAPM and the consumption CAPM documented over the last 15 years have encouraged researchers to seek alternative empirical models for explaining the pattern of returns on portfolios formed according to size and book-to-market equity ratios. Since models that specify actual macroeconomic variables as risk factors have failed to explain a significant fraction of the variation in these returns, this contention persists.

This project was primarily based on the CAPM, we analyzed both opposing sides who favored or totally rejected this model. As a general conclusion, the Capital Asset Pricing Model should be examined and tested, since today's technology and the knowledge of economic can allow that to be performed. Until this debate is resolved, the search of a model of valuation that will forecast what to expect from financial markets in the future will continue.

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APPENDIX