# Capital assets pricing model |analysis

Since 1970 the financial company using the Capital Assets Pricing Model (CAPM) to calculate their cost of the portfolio performance and the cost of capital. However, there are a lot of models in assets pricing have to identify the riskiness of the assets, and there are many of the researchers have developed the capital asset's pricing model (CAPM) and contribute in pricing the risky financial assets such as, Mossin (1966), Sharpe (1964) and Lintner (1965).

CAPM calculated the risk of assets by measuring the risk premium for each unit across the entire assets and measuring the means of market beta. Therefore, the CAPM module has a linear relationship between the market beta and the risk premium of the assets which can be considered as a methodical risk. Moreover, the CAPM illustrated that the asset's return is fluctuated due to the values of the asset's market beta. (Fazil, 2007)

## Advantages of CAPM

However, Capita Assets Pricing Model (CAPM) is useful to examine the performance of portfolios and evaluating the cost of equity for the companies. And determine the theories of asset pricing. While, before CAPM had been founded by John Linter (1965) and William Sharpe (1964) there were no models can help in assets pricing models and predictions about returns and risk.

The attraction of the capital asset pricing model considered to be powerful in assessing the risk and determine the relationship between the risk and expected return. In contrast, the simplicity of the CAPM reflects true failing and let to an inefficient record about invalidate the way it is used in

applications. Also, the inadequacy of the empirical tests and proxies for the market portfolio led to fail in the model. However, if the difficulties of the market broker invalidate the model test, it also will cancel many applications, which normally lend the market broker used in empirical tests. While, for the expectation about the expected return and risk, the researcher will start with the logic summary. After that, will illustrate the previous empirical application on the model and explanation about the challenges of the shortcoming of the Capital Assets Pricing Model (CAPM) (Fama and French, 2003)

## Fama and French model

The assessment of the cost of equity and the expected return for the individual investor or individual share is considered to be an important point for the financial decision, for instance, the investors who are associated to the capital budgeting, evaluating the performance and portfolio management. Therefore, there are two alternatives for this reason. Firstly, we can use on a factor which is Capital Assets Pricing Model (CAPM). Secondly, we can use the there-factor model which is known as Fama and French model. Although, there are many indications from academic literature for assess and evaluating the portfolio returns, and there are many users of the two models such as, Bruner, Eades, Harris and Higgins (1998) and Graham & Harvey (2001) who prefer the (CAPM) model to assess and evaluate the cost of equity.( Bartholdy and Peare, 2005).

The (CAPM) model consider the accurately of choosing a market portfolio broker, and the difference in the returns of the security is the only appropriate source of methodical risk. Consequently, the premium of the risk

on the portfolio of the securities or individual security consider as the function of methodical risk which can be measured by beta on the appropriate benchmark index. In contrast, Fama and French (1993) changed the capital asset's pricing model (CAPM) to three factors. Firstly, portfolios explain the variation in the return of the company with high opposed to the low market value ratio. Secondly, portfolios illustrate the difference in the expected returns of large and small companies (SMB). Finally, the premium of the risk on the security is primary for methodical risk and can be measured by betas. Moreover, Carhart (1997) added new factor for the Fama and French risk-return, and brings in a fourth factor known as a price momentum factor. This factor explains the tendency of the company with positive previous profits in order to gain positive future returns and for companies with negative previous profits in order to gain negative future returns. However, this model (Fama and French Model) is applying statistical regression as follows:

$$\mathbf{r - rft = a\ j + b\ j\ rmt - rft + b\ j\ SMBt + b\ j\ HMLt + e\ jt\ (1)}$$

where,

rjt: is the known profits on security j over period of time t;

rmt: is the profit have been made from the market over the period t. I got the chain of the known profit on the market, (rmt-rft) from ken Frenchs website4 where it is illustrated as the value weight return on all NASDAQ, AMEX and NYSE shares (from CRSP) and deducting the treasury bill for one month.

Rft: is the rate of the risk free over the period t and explained here by the monthly profit on the quarter period of treasury bill

a j: is the cut off and explained by the Arbitrage pricing model in order to be equal to zero.

b1 to b3 : is the betas factor on the factors of three risks which include the HML, SMB and the excess return on the market.

e jt : is the remaining profits on the portfolio j over the period of t

SMBt: is the variation in the profits for the small companies against companies over the period of t.

HMLt: is the variation in the profits of the companies with big market value

(B/M) ratio against the profits of the companies that have low B/M ratio.

However, Carharts (1997) divided this model (Fama and French model) as follow:

$$r - r = a + b\, r - r + b\, SMB + b\, HML + b\, MOM + e \quad (2)$$

The price momentum factor (MOM) considers as the profit on high prior return portfolio and detected the average profit on low prior profit portfolios, which is the average profits on securities with the top profit from the performance over the previous year’s minus the average profit on securities, which is had the bad profits from the performance (Bello , 2008)

## Criticism of CAPM

Capital Assets Pricing Model does not give a clear view about the average stock returns. Particularly, the CAPM does not illustrate why during the previous 40 years, small shares do better than large shares. Also, CAPM does not illustrate how the companies which have high rate of a book to market (B/M) ratio did better than the companies with low (B/M) ratios. Moreover, it does not explain why the shares that continue to achieve high profit do better than the companies which achieve low profits. However, the aim of this research is to comprehend if the version of CAPM can illustrate these patterns.

According to Jensen (1968), Dybving and Ross (1985), Jagannathan and Wang (1996) who said that the Capital Assets Pricing Model (CAPM) can carry perfectly, time by the time, although that the shares are mispriced by the capital asset's pricing model CAPM. Also, the unqualified alpha can be zero when the alpha is not conditional, and if beta fluctuates during the time and is related with the market volatility or equity. In other words, the portfolio of the market can be variance and efficient. (Hansen and Richard, 1987)

Furthermore, there are many studies discussed that the time varying beta can illustrate the effect of B/M and the size. Also, Zhang (2005) contributes in developing the model when the high risk premium will lead to high B/M stock. Moreover, many researchers as Lettau and Ludvigson (2001), Lustig and Van Nieuwerburgh (2005), Jagannathan and Wang (1996), and Santos and Veronesi (2006) who explained that high, small B/M beat shares will be varying during the trade cycle, and according to the researchers, widely explained why those shares have good alpha. (Lewellena and Nagel, 2006)

According to Fama and French (1992) who illustrate a value premium in u. s share return in 1963, and shares that have a high ratio of the book value of equity to the market value of equity have higher profits than shares with a non-high book to market ratio. Expand the exam back to 1926, Fama and French (2000) document a rate premium in the profit of the beginning period.

Moreover, Fama and French (1993) illustrate that the capital asset's pricing model (CAPM) of Sharpe (1964), Ang and Chen (2005) and Lintner (1965) did not explain the premium value. Also, Loughran (1997) said the premium value from 1963 to 1995 in any case exacting to small shares. This paper has three aims. Firstly, to give a clear picture about the value premium fluctuating with the company size. Secondly, evaluating if Î² is in relative to the average profit by capital asset pricing model (CAPM). Finally, to measure whether the market of capital assets pricing model (CAPM) Î²s illustrate the premiums value.

Therefore, the results of the variation in premium value are easily summarized. Moreover, Loughran`s (1997) proved that and said there is no premium value among large shares appear to be exacting to (1) applying the book-to- market ratio as he growth value indicator. (2) the post-1963 period (3) determines the test to u. s. shares. During the period 1926 to 1963, the premium value is the same for small and big u. s. shares and when we use price earnings ratio rather than market to book ratio in order to distinguish growth stock and value, and during the period 1963-2004 introduce small variation between the premium value to big and small us shares. Moreover, they used another sample test, and they measured international premium

value during the period 1975 to 2004 from 14 main markets outside the united states of America (USA), and the results of B/M or E/P on international stocks shows that the premium value is parallel to big and small shares, and the indication on the USA premium value and the capital asset's pricing model (CAPM) is a bit more difficult.

The overall premium value in the USA average profit is very similar and there is no variation before and after 1963, while Franzoni (2001) found that market Î²s fluctuated dramatically. After that period, stocks value to indicate to lower Î²s than stock growth the overturn of the needs of the capital asset pricing model (CAPM) to illustrate the premium value. Accordingly, the capital asset's pricing model fails the exam during the period 1963 to 2004; if or not one permit to for time variation Î²s over the period 1963 to 2004. Furthermore, the stock value had higher Î²s compared to growth stock, and Ang and Chen (2005) found that the capital asset's pricing model determined the premium value in higher rate. And it is tempting to gather that the capital asset's pricing model gives a good explanation of the average profits before 1963.

## Conclusion

According to the CAPM which suggests that the all difference in Î² across securities is the same method with the expected returns. On the other hands Fama and French (1992) suggest that the difference in Î² connected to size proves up in the average returns when the portfolio is created on size and Î², but the difference in Î² unconnected to the size appears to go unrewarded.

This proposes that disagree with the CAPM, the size or a non-Î² risk linked to the size that counts, not with Î². Thus the examinations here expand this result. When the portfolios are formed on the size, B/M, and Î², they find that the difference in Î² linked with B/M and size are compensated with the average of the returns for 1928 to 1963, on the other hands the difference in Î² unconnected to size and B/M goes unrewarded during the period 1928 to 1963. (Fama, and French, 2006)

In conclusion, our evidence that the variation in Î² is irrelevant to B/M and size is unrewarded in average profits is as efficient for huge shares and for small shares. This should lay to rest the common claim that experiential infringement of the capital asset’s pricing model is inconsequential due to the limited small shares and consequently, small fraction of invested wealth.