CRITICAL APPRAISAL OF FINANCIAL MODELS IN INVESTMENT DECISIONS & SECURITY TRADING

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Abstract

The current research aims to appraise financial models and analyse their usefulness in security trading. One of the main issues considered in this paper is the Capital Asset Pricing Model and the Arbitrage Pricing Theory, their major differences and implication in portfolio management. The results showed that these two theories, despite common ground, differ in terms of systematic risk measurement. However, both theories are used as a fundamental for portfolio management. The second issue analysed in the research is the logic of theBehavioural Finance Theory. The theory is a background for the application of technical analysis which is used to maximise investor's profit and make decisions for buying and selling. Finally, the third part of the study investigates the application of the yield curve in trading securities. As results demonstrated, the yield curve is applied not only in investment decision making processes, but in forecasting economic situations. Itprovides information on future inflation and interest rates and helps to determine if the fixed-interest security is under-priced or overpriced.

Keywords – *CAPM; AP; Behavioural Finance Theory; Yield Curve*

1. Introduction

Taking the decision for investing in different assets and contracting the portfolio investors and managers are guided by two major variables, expected return and risk that they can bear. However, there are also a number of financial theories and models which can be used in the investment decision making and the security trading process. The Capital Asset Pricing Model (CAPM) and the Arbitrage Pricing Theory (APT), as well as behavioural finance and yield curve models are the main ones which are applied in trading securities. Both the CAPM and the APT are used for portfolio construction, while behavioural finance studies the biases in human behaviour and serves as a background for the technical analysis in the investment decision making processes. The yield curve construction, in its turn, helps not only to make strategic investment decisions but also predict future economic conditions in general. Thus, the objective of the current study is to critically investigate the above mentioned theories and analyse their usefulness in security trading.

2. Comparison of the CAPM and the APT

The CAPMis one of the financial tools used by professionals to calculate the expected return of a particular investment portfolio based on a risk measurement. The risk in this model relies on the systematic risk multiplier that isBeta coefficient. The implication of the CAPM is the evaluation of the performance of managed portfolios (Bodie, Kane, & Markus, 2008, p. 293). The APT, in its turn, is also an asset pricing theory with the main objective to secure better understanding of portfolio establishment and the estimation of return and, thus, to improve the overall portfolio performance. The APT is different from CAPM due to the underlying reason that it is less restrictive in its assumptions.Moreover, the APT equated the expected return of an asset to number of macro-economic factors, so each of them comes with a specific Beta coefficient factor.

Although the CAPM model is known to be one of the best theoretical models which provides explanation of expected return on risky assets, it fails empirically since it depends on a single factor only which means that the return of the portfolio is determined by only one factor of risk, that is the systematic risk or Beta (Fama & French, 2004).Both theories, the CAPM and the APT, provide information to financial decision makers regarding the estimation of the rate of return on portfolio including risky securities. But in implication they are different from each other in terms of their assumptions, and practical usefulness for portfolio management. The following mentioned are some of the differences between the CAPM and the APT:

1. Proponents of the CAPM argue that β, a measure of systematic risk relative to the market portfolio, is the sole determinant of return. The expected return in the case of the CAPM is calculated on the basis of a single factor namely systematic risk or Beta. On the other hand, in the case of the APT it depends on multiple factorssuch as GDP, interest rates and inflation, and likewise has multiple Betas to measure the risk of portfolio.

2. The APT is known to be an improvement over the CAPM. But as far as the implication of these theories in the real world is concerned, the APT is more complex.

3. The CAPM is more accurate to apply for the measurement of the performance of portfolio over a short period of time as compared to APT which is more suitable over long periods of time.

4. The APT has the advantage over the CAPM as its main focus is towards risk factors and, thus, it does not require constructing an equivalent portfolio for the measurement of risk (Bodie, Kane, & Markus, 2008).

5. The CAPM does not address non-systematic risk in its structure, while the APT recognises the impact of non-systematic risk in the model itself.

Even though both of these asset pricing approaches are based on unrealistic assumptions regarding consideration of limited number of factors to predict risk, at the same time they are used as rule of thumb for the measurement and improvement of the well diversified portfolio.

3. Behavioural Finance and the Use of Technical Analysis

According to Zimmermann (n.d.), behavioral finance is "the application of scientific research on the psychological, social, and emotional contributions to market participants and market price trends". It studies why market participants make irrational decisions influenced by their psychological or cognitive biases when interacting with the financial markets. Based on these suboptimal decisions, investors may over-react to market information, or make errors such as taking profits early or holding on to losing positions. Examples for such psychological biases are:

- Mental accounting - the tendency of people to divide their money among separate accounts based on a variety of subjective criteria, such as intent for each account and the source of the money;

- Herd Behaviour - the tendency of people to follow the majority when making decisions;

- Anchoring - the tendency of people to judge the quality or performance of an asset merely by its face value;

- Overconfidence - the tendency of the people to overestimate their abilities and the precision of their forecasts.

Behavioural finance is the theory behind technical analysis which is often used by investors in order to justify their spontaneous decisions specially when making short term investments. Technical analysis is a method of analysing the performance of securities by evaluating their past prices and volume. In other words, it tests historical data of securities in order to establish certain criteria to make buying and selling decisions with the objective of maximizing profits and minimizing losses. In contrast to a fundamental analysis, technical analysis does not recommend measuring a security's intrinsic value, which could serve as a disadvantage of the approach. However, as an advantage, it uses an array of forecasting techniques such as chart analysis, pattern recognition analysis, seasonality and cycle analysis and com-

puterized technical trading systems to identify patterns in order to predict future value of a particular security.

4. The Use of Yield Curve in Trading Securities

The yield curve is a line graph that describes the relationship between yields to maturity of a bond and its maturities. It depicts the differencesin yields starting from the shortest maturity to the longest one. The use of the yield curve in trading securities is expressed in the two following points:

-Significant indicator for forecasting economic conditions steep, flat and inverted yield curves are three main shapes of the yield curve that reflect different states of the economy: upturn, slowdown and recession (see Appendix). The curve helps to predict the future inflation and growth of emerging economies (Mehl, 2009). The monetary policy influences significantly on yield curve shape and, hence, the state of the economy in the future (Estrella & Mishkin, 1996; Estrella, 2005). For instance, when Central Banks increase interest rates to restrain the inflation and stabilize economies. The significant increase of interest rates and inflation means higher level of risk that influences the interests of investors. As a result, investors require more yield to compensate risks they may get, especially for long term investments if they expect the rapid growth of the economy in the future.

A yardstick for pricing fixed-interest securities and a fundamental for making investment decisions

Firstly, the Government bond yield curve can be seen as a benchmark for pricing other fixed-interest securities (Corcoran, 2013). Investing in Government bonds is less risky than in corporate bonds or other fixed-interest securities because investors do not face default risk. Hence, the yield ofriskier securities must be higher than the yield of Government bonds.

Secondly, the yield curve provides information on future inflation and interest rates based on expectation or requirement of investors which is reflected on the yield shape. The steep yield curve demonstrates the higher inflation and interest rates in the future. Hence, investors are supposed to cash out their investments in bonds or other long-term securities to invest in assets which are less influenced by changes of interest rates (Chand, n.d.).

Furthermore, there has been some yield curve strategies developed to help investors to increase their returns, such as "Riding the Yield Curve" which supposes that investors should hold their bonds or other fixed-interest securities for a period time then sell them before maturity to gain. Based on the movement on the yield curve, investors can forecast the change of

interest rates to ride the yield curve at the right time to increase their return. The strategy can help investors to strengthentheir holding period returns (Dyl & Joehnk, 1981).

Finally, investors can identify whether their fixed-interest securities are under-priced or over-priced usingthe fact that yields of securities with similar risks tend to lie along the yield curve at their maturity levels (Chand, n.d.). Therefore, when the rate of security return is above the yield curve, the security is temporarily under-priced compared to other securities of the same maturity and investors should buy.

5. Conclusion

To reiterate, the objective of the study was to critically investigate the main finance models and analyse their usefulness in security trading and the investment decision making process. The findings showed that the yield curve serves as a benchmark for pricing of other fixed-interest securities, as well as a basis for taking short or long positions through forecasting interest rates. The shape of the yield curve also predicts changes in the economic conditions. Additionally, behavioural finance aligns psychological aspects and financial decisions. Through application of technical analysis investors seek to maximise their profit or minimise the loss using securities performance evaluation. However, this approach is applicable only for a short-term period.

As for the CAPM and the APT, both models aim to evaluate the expected return ofaconstructed portfolio through risk measurement. However, the theories are different in terms of defining systematic risk measure which is represented by only one Beta coefficient in the CAPM and by several ones in the APT. The APT is also less restrictive and more complex comparing to the CAPM and defined as an improvement over the latter.

References

Bodie, Z., Kane, A., & Markus, A. (2008). Investments (7th ed.). Boston: The McGraw Hill Press.

Chand, S. (n.d.). What are the important uses of the yield curve? Retrieved from YourArticleLibrary: http://www.yourarticlelibrary.com/economics/what-are-the-important-uses-of-the-yield-curve/1585/

Corcoran, C. (2013). Yield curve investing: optimizing risk-adjusted returns. Global Journal of Business Research, 7(2), 95-102.

Dyl, E. A., & Joehnk, M. D. (1981). Riding the yield curve: does it work? The Journal of Portfolio Management, 7(3), 13-17.

Estrella, A. (2005). Why does the yield curve predict output and inflation? The Economic Journal, 115(505), 722-744.

Estrella, A., & Mishkin, F. S. (1996). The yield curve as a predictor of U.S. recessions. *Current Issues in Economics and Finance, 2*(7), 1-6.

Fama, E., & French, K. (2004). The capital asset pricing model: theory and evidence. *Journal of Economic Prospectives, 18*(3), 25-46.

Kerkhoff, M. (2015, July 1). *What is the yield curve telling us about the future?* Retrieved from Financial Sense: http://www.financialsense.com/contributors/matthew-kerkhoff/what-is-yield-curve

Mehl, A. (2009). The yield curve as a predictor and emerging economies. *Open Economies Review, 20*, 683-716.

Zimmermann, W. J. (n.d.). *Behavioral finance and technical analysis as the solution to fundamental analysis and the efficient market hypothesis.* United-ICAP. Retrieved from http://www.united-icap.com/LinkClick.aspx?fileticket=d3Qxqx8EA9c%3D&tabid=88&mid=530

Appendix

Examples of the Yield Curve Shape

Flat Yield Curve

Y
i
e
l
d

Maturity

Yield Curve Inversion

Y
i
e
l
d

Maturity
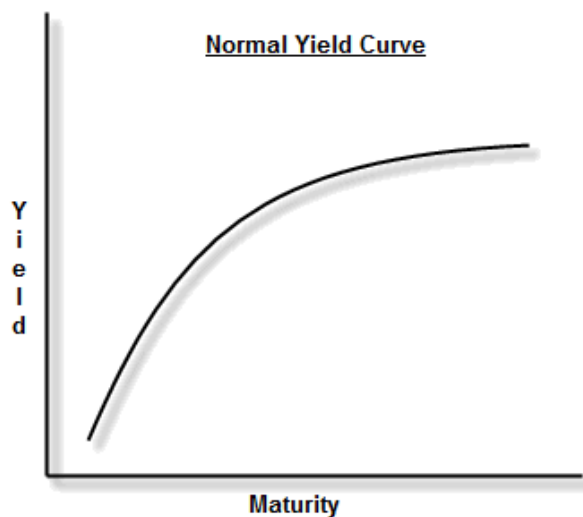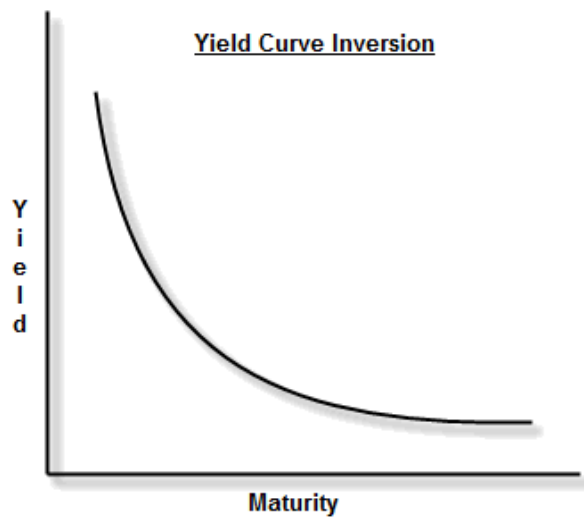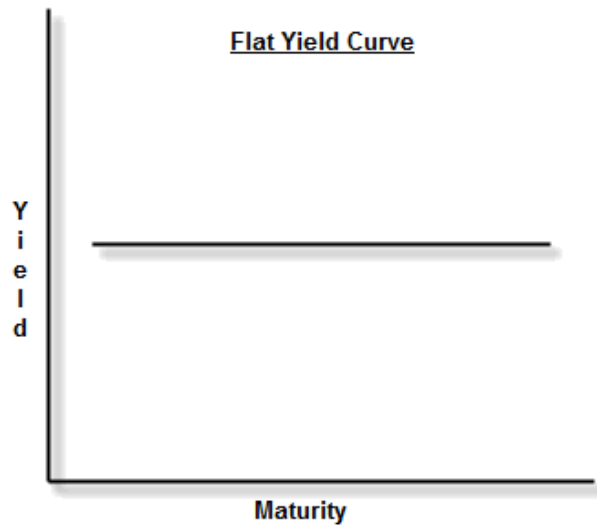
Note. Retrieved from Kerkhoff (2015)