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# THE EFFECT OF MACROECONOMIC VARIABLES ON STOCK MARKET INDEXES IN SRI LANKA

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The work described in this research was carried out by me under the supervision of Mrs. N.S. Nanayakkara and a report on this has not been submitted in whole or in part to any university or any other institution for another Degree/ Diploma.

C.A.S Fernando ..........................................................

Date ..06/06/2013..........

I certify that the above statement made by the candidate is true and that this research is suitable for submission to the University for the purpose of evaluation.

Mrs N.S. Nanayakkara.........................................................

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**CHAKRAWARITHGE ANTONETTE SHANIKA FERNANDO**

# ABSTRACT

Knowledge of share index behavior is important for stakeholders in the financial market. Share prices and market indexes are influenced by a number of company specific, industry specific and economic factors. Hence, the purpose of this study is to examine the effect of macroeconomic variables on share market indexes in emerging Sri Lankan stock market. This study uses interest rate, inflation, money supply and exchange rate as important macroeconomic variables that influence the performance of share indexes.

This study is based on monthly time series data covering the period from January 1996 to December 2012 inclusive of 192 data points. In order to achieve the research objective, a regression model has been specified and carried out various econometric tests. It is a modified version of model adapted by Coleman and Tettey (2008) and Pal and Mittal (2011) in their empirical studies. Existence of unit root in level and stationary at first difference caused to ascertain long run relationship among variables. Accordingly error correction term has been included in the regression to get better estimations.

The regression analysis indicates, out of the selected macroeconomic variables, only money supply and treasury bill rate have strong impact on the market indexes. Findings of the study reveal that interest rate, inflation and exchange rate have an adverse effect on share market indexes while money supply has a positive influence on share indexes. Signs of the coefficient on the money supply variable are predominantly positive and Milanka Price Index (MPI) is relatively more sensitive to the fluctuations in money supply compared to All Share Price Index (ASPI). Even though inflation and exchange rate were expected to show a significant impact on share market indexes, results of analysis indicates none of these variables were significant in explaining the movement in market indexes. Further, the findings of the study establish that there is cointegration between macroeconomic variables and share market indexes which is an indication of a long run relationship. The paper, as a whole, conclusively establishes that the share market indexes are dependent on macroeconomic variables.

The main contribution of this study is; examine the impact of macroeconomic variables on Milanka Price Index which has not been empirically studied earlier. These findings hold managerial and policy implication to policy makers, market regulators, investors and market analysts. The prediction of stock market indexes may possible in Sri Lanka. as the changes in macroeconomic variables make changes to share indexes. Further investors in the Colombo stock market should look at the systematic risks revealed by the money supply and short term interest rates when structuring portfolios and diversification strategies. Policymakers may need to take these macroeconomic variables into account when formulating economic and financial policies.

# CHAPTER 1 - INTRODUCTION

## 1.1 Introduction to the Study

The relationships between share market indexes and macroeconomic variables are supported by financial theory. Empirical studies have been conducted in this area with an aim to analyze the effect of economic forces on share prices and a large number of studies documented that a relationship exists between macroeconomic variables and share market. From the perspective of efficient market theory (Fama 1970) and Arbitrage Pricing Theory (Ross 1976, 1977), asset prices should depends on their exposures to the state variables that describe economy (Chen et al. 1986 p.402).

According to the efficient market hypothesis (EMH) supported by Fama (1970), the prices of particular securities should reflect all information about that security, in other words the rapid adjustment in security prices to arrival of new information is known as an effective capital market. The EMH believes that share prices fully and rationally incorporate with all relevant information. Hence, past information is unusable in predicting future price of assets. Thereby, new relevant information is only used to explain stock market movements (Fama, 1970). If so, no investor will be able to employ readily available information, in order to predict share price movements so that to make profits through trading shares. However, direct contradiction to the conclusion drawn by EMH, evidence that key macroeconomic variables help predict the time series of stock prices (Mayasami et al.  2004). The assault on the conclusion drawn from the EMH includes early studies by Fama and Schwert (1977), Nelson (1977), and Jaffe and Mandelker (1976), all affirming that macroeconomic variables influence stock returns (Mayasami et al. 2004, p. 48).

The Arbitrage Pricing Theory (APT) depends on the law of one price and classifies the risk of an asset into two parts namely systematic risk and unsystematic risk. Systematic risk is a result of more than one common factor. Accordingly the APT measures the risk premium using various factors that influence the return on assets. But neither the number of factors, nor the type of factors that determine the asset prices are specified in the APT. Therefore these theoretical gaps, combined with further attempts to understand the phenomena in capital markets and the asset pricing problem, provide a motivation for the empirical research in various stock markets in different time periods (Altay 2003).

Chen, Roll and Ross (1986) have firstly illustrated that economic forces affect discount rates, the ability of firms to generate cash flows, and future dividend payouts, provided the basis for the belief that relationship existed between stock prices and macroeconomic variables. Subsequently, empirical studies by Abdullah and Hayworth (1993), Asprem (1989), Bilson et al. (2001), Bulmash and Trivoli (1991), Chen et al. (2005) ,Fama (1981), Fama and French (1988), Gjerde et al. (1999) ,Wasserfallen (1989) have noted changes in share prices systematically respond to the changes in macro economic variables. These studies demonstrated that the movement of share market indexes are highly sensitive to the changes in the fundamentals parameters of the economy, to the changes in the expectation about future prospects (Ahmed, 2008) and may even serve as a proxy for the pervasive risk factors (Brown and Otsuki, 1990).

However these studies have focused on US markets and markets of other industrialized countries such as, Nelson (1976), Fama and Schwert (1977), Fama (1981) Chen et al. (1986), Wasserfallen (1989), Asprem (1989), Dhakal etal.(1993) , Barrows and Naka (1994). In recent times, global investors and researchers have turned their attention on the emerging financial markets, especially South-East Asia. Share markets in these countries have provided attractive investment to foreign investors and have become investment icon in the global financial market. Nevertheless, Sri Lanka's capital market remains underdeveloped but an emerging one, despite of efforts to bring up to date the share exchange services and promote foreign participation by the Sri Lankan Government. The Colombo stock market is important markets which play a prominent role in Sri Lankan economy. However, only a handful of studies (Menike 2006, Gunasekarage et al. 2004, TUI Peries and TSG Peries 2011, Wickramasinghe 2011) conducted on in Sri Lankan context. Therefore this paper attempts to identify the relationship between macroeconomic variables and market indexes in Sri Lanka.

### 1.2 Problem Statement

The movements of share indexes are sensitive to the changes in fundamentals of the economy and to the changes in expectations about future prospects of the company, industry and economy widely. Such expectations are influenced by the micro and macro fundamentals which may be made either adaptively or rationally on economic fundamentals, along with many subjective factors which are unpredictable and non-quantifiable.

According to the prior studies of Chen et al, (1986), (2005), Fama and French, (1988), Gjerde et al. (1999), Asprem, (1989), Wasserfallen, (1989), Fama, (1981), Barrows and Naka (1994) both internally and the externally generated factors such as performance of the company, declared dividends , company investment decision relating to business growth , exchange rates, interest rates, money supply, consumption, gross domestic product, foreign exchange rate, international crude oil price, industrial production index etc. have an impact on share prices and the share market indexes. Therefore it seems demand of a particular share depends on company fundamentals, external factors and market behavior. Chen et al. (1986) claimed that domestic economic fundamentals play determining role in the performance of share market and share indexes.

Share market is the focal point that assists in channelizing long term funds from savers to entrepreneurs. As supported by different economic theory and many empirical evidence throughout different developed as well as in emerging economies that indexes in stock markets are significantly affected by many micro and macro economic factors. Accordingly, it arise a research question, how macroeconomic variables are affect the performance of on Colombo stock exchange which is an emerging market in Asia.

On the other hand, even though early empirical studies have documented fundamental economic activities in developed countries are linked to stock market indexes, it is unclear whether such a relationship exists for emerging stock markets in developing countries as these stock exchanges are smaller in size and relatively illiquid. In addition, as Bilson et al. (2001) claim, the economies of emerging countries may be influenced by global economic indicators rather than domestic economic measures. Further, as Gunasekarge et al. (2004) stated the growing influence of foreign investors in these markets following their opening up to international investment inflows may weaken any link between national economic variables and share returns. CSE is emerging market and Sri Lanka is a developing economy. According to the above reasons the behavior of market indexes in Sri Lanka, may not be tied to economic fundamentals; rather the stock prices may be driven by the speculative activities of irrational investors.