

The Effects of Macroeconomic Factors on Stock Return of Energy Sector in Shanghai Stock Market

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Abstract- The purpose of this study is to study the impact of macroeconomic factors on return of energy sector in Shanghai stock market (SEE), which are inflation rate, money supply (M2), exchange rate, industrial production, bond, exports, imports, foreign reserve and unemployment rate. The secondary data, collected from People's Bank of China and the National Bureau of Statistics of China, were for the period beginning January 2005 to December 2011 with no any missing monthly observations. The samples are selected from Shanghai Stock Exchange (SEE) to present the energy industry. The findings reveal that exchange rate, exports, foreign reserve and unemployment rate have effects on the stock return of energy sector in Shanghai stock market.

Index Terms- Arbitrage Pricing Theory (APT), Macroeconomic Factor, Shanghai Stock Exchange, Energy Sector

I. INTRODUCTION

The arbitrage pricing theory (APT) has been applied to test the impact of macroeconomic forces on stock return worldwide. Initially, the APT was applied by Ross (1976, 1977) to explain stock return in U.S market through the examination of seven macroeconomic variables which were terms structure, industrial production, risk premium, inflation, market return, consumption and oil price (Chen, Roll and Ross, 1986). The findings revealed the significant association between the macroeconomic variables and stock return especially in terms of industrial production, changes in risk premium, and twist in the yield curve. Hence, APT has been applied to test the expected return of investment and the impact of macroeconomic factors on the investment.

The purpose of this study is to investigate the performance of APT in Shanghai Stock Exchange (SEE) and to discover the association between a set of macroeconomic variables and stock return. In the study, nine macroeconomic factors are tested which are inflation, money supply (M2), exchange rate, industrial production, bond, export, import, foreign reserve and unemployment rate to price the stocks o SEE. 10 companies from energy sector in SEE were selected from January 2005 to December 2011 on monthly base.

The study consists of six sections. The first section briefly presents the background of the study. The section two discusses

literature review and the findings from previous studies. Section three provides data sources. Section four explains the research methodology. Section five provides the research finding, and section six concludes.

II. LITERATURE REVIEW

The Arbitrage Pricing Theory (APT) was initiated by Ross (1976) which is an alternative to the Capital Asset Pricing Model (CAPM). APT is a one-period model that explains the consistency of the stochastic properties of returns of capital assets with a variable structure (Ross, 1976; Huberman and Wang, 2005). According to Ross, the returns of an asset can be predicted through the association between the asset and other risk factors. The relationship between the return of a portfolio and the return of an asset is predictable. Based on the APT, a linear relation between expected returns of investments and their covariance with other random factor was defined (In the CAPM, the covariance is with the market portfolio's return.) The covariance is identified as a measurement of risk that investors cannot avoid by diversification. The slope coefficient in the linear relation between the expected returns and the covariance is defined as a risk premium (Huberman and Wang, 2005).

The Arbitrage Pricing Theory (APT) has been applied by various scholars to analyze the association between stock return and macroeconomic variables. GÜnsel and Çukur (2007) applied APT to study the impact of macroeconomic variables on stock return in the U.K. The seven macroeconomic variables were investigated that were the term structure of interest rate, risk premium, exchange rate, money supply and inflation, and the data were collected from 1980 to 1993 in a monthly base. Durbin-Watson (D-W) was applied to test the serial correlation of residuals, and the results showed that there was no evidence for serial correlation. Moreover, regression results revealed differences among industry portfolios. Özcam (1997) studied the impact of seven macroeconomic variables on asset return in Istanbul Stock Exchange (ISE) by applying APT, in which a regression model with two step testing methodology was implemented. The findings revealed that there was a significant relationship between beta coefficients of expected macroeconomic variables and asset return. Clare and Thomas (1994) studied the impact of 18 macroeconomic variables on stock returns in the U.K. The findings revealed that oil price, retail price index, bank lending and corporate default risk had significant influence on stock returns. Hamao (1988) applied APT in Japanese stock market, and the stock return was significantly affected by macroeconomic variables that were