EFFICIENT-MARKET HYPOTHESIS WITH THE RELATION BETWEEN EXCHANGE RATES AND STOCK PRICES

PhD Student Selma B. Tolgay, Erciyes University, Turkey
Assoc.Dr. Ferit Kula, Erciyes University, Turkey

ABSTRACT

The relationship between exchange rates and stock prices catches investor's attention for many years. The excessive volatility of stock prices will make the stock market become risky for investors. The investor who wants to make excess profit will sell his/her foreign assets and turn towards national assets. This will cause an increase in the value of national currency and a decrease in the exchange rate. Especially in the periods when the value of national currency is increasing and the exchange rate is decreasing, the investors will invest on exchange rate rather than buying stocks. It is obvious that there is an inverse relationship between exchange rates and stock prices. On developing markets, investors see the foreign exchange market as an alternative to stocks. Based on the inverse relationship between exchange rates and stock prices, it is necessary to know the factors effecting stock prices which make investors to turn towards exchange rates. For this purpose the efficient-market hypothesis is going to be examined in this paper.

Efficient Market Hypotehesis (EMH) proposes that markets contain all available information. If the EMH is valid, investors who participate in the market will not make above-normal profits. If efficiency can not be established, that is if the markets are not efficient, investors will have the opportunity to make above-normal profits.

Key Words: Efficient Market Hypothesis, Random Walk Hypothesis, Exchange Rate

In my Ph.D. dissertation I mentioned the deteminants of the exchange rate. Beside mentioning features of the exchange rate and the factors that determine the exchange rate, I am also going to adress the reasons why investors turn towards the exchange rate. While doing research on the determinants of excange rate it was confirmed that it helped to determine many macroeconomic variable exchange rates. That the investors turned towards excnahge rates results in loss of value of national currency and in increase of the exchange rate. The most remarkable thing among the reasons that drive investors to buy foreign currency is the stock price. The decline in stock prices leads investors to sell their existing assets to turn towards foreign assets. Thereby they will shift their investments towards foreign currency. Conversely an increase of stock prices will turn the investors to buy stocks. Therefore it is the inverse relationship between those two that determines invetor's choice between exchange rates and stocks. In my Ph. D. dissertation I examined the factors that determine exchange rates and in this paper I am going to discuss the objects that effect stock prices. Our main subject will be the Efficient Market Hypothesis which was the most important hypothesis proposed by Eugene Fama.

LITERATURE REVIEW

There is a strong relationship between stocks and macroeconomic variables. First of all the literature review about studies which focus on relationships between exchange rates an stocks are mentioned below.

One of the first studies that examines the relationship between exchange rates and stock prices was made by Franck and Young (1972) and as a result, they suggested that these two variables would not effect each other that much. If we look at other studies which were made on this subject, it becomes obvious that each researcher has obtained different results. In Aggarwall's study which he made for the USA through using monthly stock prices data and effective exchange rate data from the period between 1974-1978, he found out that there is a positive relationship between stock prices and the US Dollar and that short periods are more effective that long periods. Just as Aggarwall, also Solnik (1987), Roll (1992), Phylaktis and Ravazzollo (2005) have pointed out that these two variables effect themselves positively. In their study, Soenen and Hennigar (1988) used the monthly exchange rates data and stock prices data

© Copyright by author(s)

from 1980-1986 and came to the conclusion that there is a negative relationship between the US Dollar and stock prices. Also Kim's (2003) findings were towards the negative relationship between those variables. Bahmani i.a. (1992) have used S&P 500 index and monthly data of the US dolar from the period 1973- 1988 in their study. In contrast to other researchers they found both negative and positive relationships between two variables in short periods and argued that there is no relationship in long periods. Apart from these also Chow i.a., (1997), Nieh and Lee (2001) and Ozair (2006) confirmed that there is no relationship between exchange rates and stock prices. Ajayi i.a. (1998) have made a study in developed and developing countries. In this study, where they have used monthly frequency data from a long period, they concluded that there is a causation from stock returns towards exchange rates on the developed markets while it is not present on developing markets.

There are also some studies conducted in Turkey about the relationship between exchange rates and stocks. For instance Kasman (2003) has used the daily data from the exchange rate, BIST 100 Index and some sectoral indices between January 1990 and November 2002. As a result he found a regular relationship between the variables in long periods. Based upon the results he has obtained, Kıran (2009) found out that there is a cointegration relationship between the exchange rates and stock prices in long periods. Toda-Yamamoto came up with the suggestion that according to the causation analysis they made for the periods between 1990-2008 and 1995-2008 both variables effect each other. Ayvaz (2006), made a research about the relationship between stock markets and axchange rate and used the Time Series Analysis as monthly data. He took BIST National 100 Index and indices from financial sector, service sector and ındustry sector as stock data. And as exchange rate, he has chosen the US Dollar. He made a cointegration test and pointed out that there is a regular relationship between the exchange rate and Nationa 100 Index, between exchange rates and financial sector's index and between exchange rates and industry sector's index in long priods while there is no relationship between exchange rates and service sector's index. As a result he has found a bilateral causality between exchange rates and stock price indices.

Studies about Efficient Market Hypothesis –which is our main subject- was conducted by Fama (1961) for the first time. In his work " Efficient Capital Markets: A Review of Empirical Work" Fama (1970) has found some anomalies for the consequences of market's efficiency. Robert Menton (1973) has conducted the Capital Asset Pricing Model and explained the intertemporal general equilibrium. In his study "Asset Prices in an Exchange Economy" (1978),Robert Lucas has presented rational expectations and general equilibrium towards estimation based future. Burton Markile (1973) has published the first edition of his book "A Random Walk Down Wall Street" about the Random Walk Theory and argued that the stock prices for the future has to be estimated as continuation of the past.

THE EFFICIENT MARKET HYPOTHESIS

With the recent financial crisis, investor's seek for making profit is not limited to interest rates of countries any more. In most of the cases where an investment in stocks and shares is possible, the capital market's efficiency effects the investment decision. And this will be realized with the accurate determination of stock prices on the market. One of the most important things that an investor takes into consideration before investing is wether he /she has sufficient information about the securities or not. The demand for making excess profit is another factor that determines investor's choice.

The efficient markets theory, which was presented by Fama in 1961, is about having sufficient information and also about profit making opportunities that were in direct proportion to the accuracy of the information. Dissemination of the information which actually is not accesible for general public like annual earnings and stores of the firm and how fast those information arives at investors provides us an idea about the efficiency of the market. Fama presented his Efficient Market Hypothesis to show how fast the new information arives at the market and if it is consistent with the market. If the disseminating information is totally consistent with stock quotes it is called "efficient" and we can say that it is completely reflecting the market (Fama, 1970, p.383).

The starting point of the Efficient Market Hypothesis that it is based on current and future forecasts which effects investor's future choises. Investors will make their choises according to both successful forecasting procedures and the accurate forecast evaluations. (Timmermann, 2004, p.16)

While talking about the efficiency of the market there are 3 subjects which draws the first attention (Zeren F. 2013, p.142). First of them is the operating effectiveness which means that supply and demand of funds have to be realized with he least cost. Another one is the information effectiveness which consists of appropriate dissemination of resources- the Efficient Market Hypothesis is counted as a information effectiveness. And lastly the market efficiency suggests that the current and future positive changes will also effect the prices. In the literature it is also called pricing effectiveness.

Efficien Market Hypothesis is based on the assumptions that the stock prices are rapidly renewed with the information arrives to the market. It is also assumed that these new information is accurate and accesible for all investors at the same time. It is not a good method to forsee the future stock prices in regard to the old information. In other words, the fact that due to the random walk characteristic of the stock prices it is not possible to make forecastings about the future proves the efficiency of the market. (Al-Jafari, 2011, p. 14)

In the light of this information if we define the Efficient Market Hypothesis again, it means that the prices of securities reflect all available information.

Fama divided the Efficient Market Hypothesis into 3 categories (Fama,1991, p.1576).

1- Weak Form Efficiency: It contains the idea that all future return foracasts are as good as the past forecastings. In this form the future forecastings are built on the assumption that the investors will repeat their behaivours from the past.

2- Semi-strong Form Efficiency: These are the markets on which the stock prices are effected by publicly available information. The income shares and dividends of the firms, called as safety prices, are mentioned and it is speculated that those factors effect rapidly the prices.

3- Strong Form Efficiency: It states that also the private information which is actually not expected to effect the prices completely has the potential to effect the prices. This category not only includes forecastings from the past as in weak form but also new studies about forecastings which come with variables like interest rates and dividend yields.

Because of the fact that the issues about efficiency of the market and the equilibrium pricing are indissociable, anomalies like asset pricing models testings and their effectivenes scale accept that the returns can be foreseen. At the end there are information about firm's macroeconomic and private issues arriving on the market every day and they are effecting the prices. What matters is the speed o arrival to investors and if the investor recieve the complete information.

The Efficient Market Hypothesis provides support for investors through market forecaster. Actually the origin of this hypothesis is the Random Walk Theory conducted by Bachelier in 1964. Strong competition on the market and investor's effect on prices trough receiving new information were the starting point of this theory. In fact this theory argues that the stock prices are unpredictable and it was just a coincidence if they follow the course of past prices.

Therefor if there is testing effectiveness in the weak form we can say that the stock returns are consistent with the Random Walk Hypothesis. But still, it is difficult to make forecasts about future prices through looking back to the past.

The accuracy of Random Walk Hypothesis depends on the accuracy of weak form testing of the Efficient Market Hypothesis. Because several researches regarding to Random Walk Hypothesis is also related with weak form testings (Tunçel, 2007, p.3). Best examples for the Random Walk hypothesis are

efficient markets safety stocks which differ it from big safety stocks. There are some cases in which the Random Walk Hypothesis is wrong.

We can define it as market comprising most of the investors who are willing to maximize the efficiency, rational and their profit and on which the latest and most important information about securities is recieved by all investors. The competition between most of the investors on a efficient market depends on the other issues that will effect security prices regarding to price changes in the future. It means that a good forecast of real value of securities will effect the accuracy of forecasts about future prices. The security should determine its own value and reflect it on new information and the price changes will show up simultaneously. In fact we can mention two uncertainty there: the first one is if higher prices than real prices are determined with the information received from securities there will be a try to not to exceed it. And the second one is price regulations are based on the variables and independent from the real prices (FAMA, 1995, p.76).

If investor's behaivors form efficient markets trough constant seek for profit, contrary to the fact that it is abolish most of other forecasts, the Efficient Market Hypothesis does not provide a basis for nonprofit strategies.(Timmermann, 2004, p.26) Starting point of the Efficient Market Hypothesis is that it is based on current and past forecasts which effects investor's future choices. Through establishing succesful forecast procedures and through accurate forecast evaluation, investors will choose their way.

Fama has some assumptions regarding the Efficient Market Hypothesis (Cootner, !962, p.24). The presence of a large number of buyers and seller on the market is similars to the perfect competition market and non of them can effect the market.

- All information arrived at the market quickly reach all investors without financial obligations. Any financial obligation will ruin constant operation of the market.
- Investors comprehend the information in the same way.
- Any changes made on the market should be realized in a way that does not ruin the market regulation.

There are some exceptions regarding the Efficient Market Hypothesis. (Güngör, 2003, p.117-125) If we look at them respectively:

1. Overreaction Hypothesis: This Hypothesis was represented by De Bondt and Thaler. It means that investors are overreacting if they are reflecting the ontained information on stock prices. Whether the information is good or bad, it will not effect their decisions and it was seen that they fix their reaction in 3 or 5 years.
2. Timeliness of Profit: This conception was presented by Ball and Brown. Taking the annual profit announcement of the firms in consideration and based on this information, they found out that the price reaction was made before this information was announced.
3. Firm size: It states that the firms effect the stock prices according their size and argues that the profit information recieved from small firms effect the market in a more rapid way.
4. Deviations after announcement: It was stated that soon after firms announced their profit information, excess yields were gained.

CONCLUSION

Because of the volatility of exchange rate, the raltionship between foreign currency and stocks has drawn many researcher's attention in recent years. Especially important are the reasons effecting the variables which have a reverse relationship with ech other. This study forms a part of may PH. D. dissertation. In this study I examined the relationship between Exchange rates and stock prices. I also studied on stock prices in consideration with the Efficient Market Hypothesis. The Efficient Market Hypothesis, which means that security prices reflect all the available information received by the market, has originated from the Random Walk Hypothesis. Random Walk Hypothesis is associated with weak form testings.

My next study will be based upon the examination that I made about Efficient Market Hypothesis in this paper. In my future works I will make an empirical study about exchange rates and stock prices for certain periods.

REFERENCES

AGGARWAL R. (1981). "Exchange Rates and Stock Prices: A Study of U.S.Capital Market Under Flaoting Exchange Rates". Akron Business and Economic Review. 12: 7-12.

AJAYI Richard A., Joseph FRIEDMAN and Seyed M. MEHDIAN. (1998). "On the Relationship between Stock Returns and Exchange Rates: Tests Of Granger Causality". Global Finance Journal. 9/2: 241-251.

AL-JAFARİ M. K. (2011). "Testing The Weak-Form Efficiency Of Bahrain Securities Market", International Research Journal Of Finance And Economics, 72 :14-15.

AYVAZ Özlem. (2006). "The Causality Relationship Between Exchange Rate and Stock Prices". Gazi University Journal of the Faculty of Economics and Administrative Sciences. 8 / 2: 1 – 14.

BAHMANİ-OSKOOEE M. and SOHRABIAN A. (1992). "Stock Prices and The Effective Exchange Rate Of The Dolar". Applied Economics. 24: 459–464.

CHOW E.H., LEE W.Y. and SOLT M.S. (1997). "The Exchange Rate Risk Exposure of Asset Returns". Journal of Business. 70: 105-123

COOTNER Paul H. (1962). "Stock Prices: Random Walk vs. Systematic Changes". Industrial Management Rewiev. 24-25.

FAMA Eugene F.(1970). " Efficient Capital Markets: A Rewiev of Theory and Ampirical Work". The Journal Of Finance. 383-417.

FAMA Eugene F.(1991). "Efficient Capital Markets:II". The Journal Of Finance. 5: 1575-1617.

FAMA Eugene F. (1995). " Random Walks in Stock Market Prices". Financial Analysts Journal. January-February: 75-80.

FRANK P. and YOUNG A. (1972). "Stock Price Reaction of Multinational Firms to Exchange Realignments". Financial Management. 1: 66-73.

GÜNGÖR Bener. (2003). "The concept of financial anomalies in the market and the efficient-market hypothesis". Journal of Ataturk University economics and administrative sciences. 17: 109-133.

KASMAN S. (2006). "Is there a relationship between stock prices and macroeconomic variables?", Journal of Economics. 238: 88-99.

KIRAN B. (2009). "A bounds test analysis of exchange rates and stock prices in Turkey", Journal of Economics, Business and Finance. 275: 66–88.

KIM K. (2003). "Dollar Exchange Rate and Stock Price: Evidence from Multivariate Cointegration and Error Correction Model". Review of Financial Economics. 12: 301-313.

MALKIEL Burton G. (2003). "The Efficient Market Hypothesis and Its Critics". Journal Of Economic Perspectives. 17: 59-82.

NIEH C.C. and LEE C.F. (2001). "Dynamic Relationship Between Stock Pricesand Exchange Rates for G-7 Countries". The Quarterly Review of Economics and Finance. 41: 477–490.

OZAIR, A. (2006). "Causality Between Stock prices and Exchange Rates: A Case of The United States". Florida Atlantic University. Master of Science Thesis.

ÖZER Ali, Abdulkadir KAYA ve Nevin ÖZER. (2011). "Interaction Of Macroeconomic Variables With Stock Prıces". Journal of Dokuz Eylul University Faculty of Economics and Administrative Sciences. 26/1:163-182.

PHYLAKTIS K and RAVAZZOLO F. (2005). "Stock Prices and Exchange Rate Dynamics". Journal of International Money and Finance. 24: 1031-1053.

ROLL R. (1992). "Industrial Structure and the Comparative Behaviour of International Stock Market Indices". Journal of Finance. 47: 3-41.

SOLNİK B. (1987). "Using Financial Prices to Test Exchange Rate Models: A Note". Journal of Finance. 42: 141-149.

SOENEN L. A. and HENNIGAR E. S. (1988). "An Analysis of Exchange Rates and Stock Prices: the U.S. Experience between 1980 and 1986". Akron Business and Economic Review. 7–16.

SHILLER Robert J. (2003). "From Efficient Markets Theory To Behavioral Finance" Journal of Economic Perspectives. 17/1:83-104.

TIMMERMANN A, GRANGER C.W.J. (2004). "Efficient Market Hypothesis and Forecasting". International Journal of Forecasting. 20: 15–27.

TUNÇEL Ahmet Kamil. (2007). "Testing of Random Walk Hypothesis in the ISE: Runs Test Application"" Gazi University Journal of the Faculty of Economics and Administrative Sciences. 9/2: 1 – 18.

WOOLLEY Paul and Senior FELLOW. (2014). "The Fallibility of the Efficient Market Theory: A New Paradigm". London School of Economics and Political Science. 32-35

ZEREN F, KARA H, ARI A. (2013). "Efficient Market Hypothesis: An Ampirical Analysis for IMKB". Dumlupınar University Journal of Social Sciences. 36:141-148.

© Copyright by author(s)