

Is International Portfolio Diversification Beneficial For Investors?

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Abstract:

Sensitivity of Global index have effect on market returns of developed and developing economies. The study is about literature review of research done in the area of cointegration of global markets in the recent time.

Keywords: CAPM, OECD, ADF

I. INTRODUCTION

Explosive growth in International stock market in past few decades have been due to growing economies, reforms in capital markets, changing policies, and varying regulations regarding freedom of cross border financial transactions. This has induced relativity among developed and developing countries. Where in developed economies have shown synchronization in their movements, developed economies tend to follow economies on which there is high dependency. Work of (Grubel, 1968) has introduced to world benefits to the investor in spreading portfolio beyond oceans. A research on various stock markets, their economies and cause effect relationship among them is very useful for investors. Country risk can be diluted by diversifying ones portfolio to markets.

Earlier correlation between varies economies was considered to determine cointegration among markets. It was understood that if cointegration among economies is high a shock in one market is transmitted to other markets. However correlation is not a good indicator of cointegration since correlation is determined based on long term as well as short term relationship between variables. Short term price fluctuations disturbs long term market trends. Therefore it is suggested to use cointegration so as to study long term equilibrium among markets as suggested by (Eangle & Granger, 1987)

II. COINTEGRATION

Cointegration is understood as a state when linear combination of nonstationary time series become stationary. Existence of cointegration is a indicator of long run equilibrium among the variables. Therefore, before we could the proceed with the tests of cointegration, we should make sure that the series were non-stationary and hence integrated of order 1. For this Augmented Dickey Fuller(ADF) tests is suggested on the series on the series and the differenced series to confirm that the series were indeed I (1). The unit root test is then carried out under the null hypothesis $\phi = 0$ against the alternative hypothesis of $\phi < 0$. If we can reject the null, we know the series is stationary and if the null cannot be rejected, we proceed with the assumption that the time series is non-stationary. All the time series should to stationary at level 1. Having established that the series are I (1), we should run Johansen test of cointegration. The lags were selected based on the Schwartz Information Criteria. The long-run bivariate relationship between the stock prices of a country and other countries is

$$y_{it} = a_{1,i} + \beta x_t + \epsilon_{i,t}$$

where x is the natural log of stock price of a country, y is the natural log of stock price of the i^{th} country and $\epsilon_{i,t}$ is the white noise process.

The Johansen test does a regression between two series then runs an augmented Dickey-Fuller test on the residuals to check if they are stationary. If the residuals are stationary, then one can assume that the variables are cointegrated. For each time series, the null hypothesis is that there is no cointegration and the alternate hypothesis is that there is one or greater than one cointegrating relationship. If we reject the null, then the next null hypothesis will be that there is one cointegrating relationship and the alternative will be that there are 2 cointegrating relationships.

III. LITERATURE REVIEW

(Khan, 2011) has done a study to find cointegration between US and 22 other economies using daily data. The study observes that China Malaysia and Austria provide good diversification opportunities to investors. It further observes that relative risk of a economy is a good indicator of its performance during recession, this is done using data relevant to year 2000 economic crisis. The study alsouses CAPM model to study effect of global events on each of the economies.

(Assidenou, 2011) has done a study of effect of 2008 financial crisis on 3 group of countries, OECD, pacific and asian. It is observed that while in 1998 crisis only few developed economies were affected but in 2008 almost all stock markets showed a sluggish trend. Even the closed market got a hit due to globalization and increased interdependency.

(Chiang, 2001) has observed correlation between stock market returns and there volatility for seven asian markets. The study observes asymmetric effect market returns. Volatility is lower due to positive shocks than due to negative shocks. TAR-GARCH model is considered for this study.

(Wong, Agarwal, & Du, 2005) have done a study to determine financial cointegration between India, US, UK and Japan stock market using Fractional Cointegration approach. Weekly data is considered for the study for the period from 1991 to 2003. Researcher observes a long run cointegration of Indian market with all other markets.

(Yang, Chen, Niu, & Qian Li, 2014) finds that cointegration has increased after subprime crisis, but then decreased from then to European debt crisis. US stock market which used to lead other markets before 2008 financial crisis, but from then to debt crisis it eventually decreased. Before subprime crisis China stock market had no influence on developed economies market movements. But Chinese market was integrated to other markets during 2008 depression and European Debt crisis. These observations were based on study of cointegration of 26 global markets.

(Jochum, 1999) studied stock price pattern of few countries in Europe and found that long run linkages existed prior to 1997-98 financial crisis. But this trend discontinued post crisis.

(Yang, Khan, & Pointer, 2003) investigate the 1987 stock market crisis and its effect on the long-run integration between the United States and 14 other countries. The Johansen test does not find any cointegration between the countries. However, the authors also use a recursive cointegration analysis to examine the time-varying nature of long-run relationships. Specifically, they test to see if the number of cointegration vectors between each country remains constant after the abolition of capital control and the 1987 crash. No significant change is observed in the number of cointegration factors after the stock market crash and the abolition of capital control. While no evidence of long-run cointegration between the US and the larger markets (Japan, United Kingdom and Germany), they do find increasing integration between the US and many smaller markets such as Belgium, Norway, Denmark and Sweden in the late 1990s.

IV. CONCLUSION

Most of the above studies show a very co-movement within markets specially during the recession period. Thus an investor cannot shield his portfolio during market depression by global investments. China's aggressive export policies has made it a market leader for Asian economies, studies done on 2008 financial crisis provides evidence for it. Money circulation is more systematic in developed countries and are thus expected to be more cointegrated. However in the recent years developing markets are providing better returns and a risk cushion to investors it will be interesting to see if this trend can develop portfolio investment.

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