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Stock Price Index and Exchange Rates: Literature Review

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Abstract

The relationship between stock market and exchange rate market has been invstigated for many scholars. However, the result of these two markets is found by many scholars for positive,negetive or even no existence and most of scholars previously emplyed cointegration technique and GARCH model to examine. What's more, they found that short-run relationship in these two markets exists in most countries. This paper mainly shows exploration process of the relationship of these two markets. Furthemore, this paper briefly introduces the investigation of this relationship in these two financial markets using quantile regression that recently used.

Keywords

Stock Market; Exchange Rate; Relationship.

1. Introduction

The interaction between the stock market and exchange rate marker has been discussed by many scholars previously. The relationship between the stock price index and exchange rate is various found by many scholars from reviewing previous papers, the relationship across different period variously, namely under-specification (Ma C K and Kao G W (1990)). The interaction shows as following in detail given by main content part. It is good to trace back the investigation on interaction between stock market and exchange rate market using cointegration technique, GARCH model and quantile regression. Generally, the result of this relationship is mixed (Mishra A (2004)). Scholars found the relationship positive, negative or even no evidence existence in some regression empirical result and most of them found short-run effect exists in these two financial markets, besides long-run effect.

2. Main Content

The causal linkages between the stock market and the exchange rate market have been found by Abdalla I S A and Murinde V (1997). They investigated India, Korea, Pakistan and the Philippines, using a bivariate vector autoregressive model and they supported that the linkages existence. They found that only unidirectional causality from stock prices to exchange rate in Philippines. Smith C E (1992) pointed that the stock market significantly affects the exchange rate via empirical result given by United States, Germany and Japan data respectively. Pan M S et.al (2007) investigated the relationship between exchange rate and stock price in Hong Kong, Japan, Korea, Malaysia, Singapore, Taiwan, and Thailand from 01/1988 to 10/1998. They applied Granger causality test and Vector autoregressive analysis to examine. A bidirectional relationship has been found in Hongkong.

Li Y and Huang L (2008) investigated the relation between stock return and exchange rate in China stock market from 21/07/2005 to 18/01/2008 using daily data. They applied Engle–Granger cointegration test and only short-run unidirectional causality is found from exchange rate market to stock market, expect long-run equilibrium relationship. Nieh C C and Lee C F (2001) investigated these two markets relation in Canada, France, Germany, Italy, Japan, the UK and the US from 01/10/1993 to 15/02/1996 using daily data. They employed Engle-

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Granger (EG) two steps, the Johansen maximum likelihood cointegration tests and vector error correction model (VECM) to test and they found that no long-run effect exists in these countries. However, a short-run relationship is found but only for one day. Bahmani-Oskooee M and Sohrabian A (1992) employed cointegration technique to test this relationship in the period from 07/1973 to 12/1988 in the US, using monthly data. They found that bidirectional causality exists in these two variables Standard and Poor's Composite Index of 500 stocks (S&P 500) and dollar exchange rate in short-run. However, there is no significant long-run relationship between these two markets. Similarly, the idea of no long-run equilibrium relationship in these two financial markets is supported by Smyth R and Nandha M (2003). They examined in Bangladesh, India, Pakistan and Sri Lanka using daily data from 1995 to 2001 by applying Engle–Granger two-step and Johansen cointegration methods. The unidirectional causality relation from exchange rates to stock prices only found in India and Sri Lanka, except Bangladesh and Pakistan. Scholars' investigation passion of the stock market and exchange rate market relation has never fade away. Inci A C and Lee B S (2014) examined these two markets causal relation in France, Germany, Italy, Switzerland, and the UK in the period from 1984 to 2009 using annual stock return. A bidirectional relation is found in the stock market and exchange rate market and the evidence is supported by Granger causality test. Additionally, they found that this relation is much more significant than in the bloom time of economy.

Some scholars attempt to find the interaction between the stock return and foreign exchange rate. For this topic, Mishra A K (2004) indicated that it is a guidance for the agents in financial market to help investors how to allocate the asset in different markets. This idea is supported by Abdalla I S A and Murinde V (1997), indicating investment diversification should across various financial markets. The relationship impression given by the empirical result, for instance, there exists positive relationship evidence in Asian countries given by Chiang et.al (2000) under a bivariate GARCH (1,1) process. According to Gavin M (1989) pointed that stock market and exchange rate related positively, indicating that stock market is strong enough. Phylaktis K and Ravazzolo F (2005) studied the dynamics relationship between the stock prices and exchange rate in Hong Kong, Malaysia, Singapore, Thailand and Philippines using cointegration methodology and multivariate Granger causality tests to test the period during 1980s. And they concluded that the relationship is positive obtained from the empirical result. Kanas A (2002) found that the volatility of exchange rate significantly influenced by the volatility of stock return in the US, the UK and Japan. Additionally, he found the value estimated coefficient for the US are 0.011, 0.04 are for the UK and 0.015 are for the Japan, indicating that a positive relationship between the volatility of stock return and the volatility of exchange rate based on EGARCH model (1,1). A positive relationship between stock market and exchange rate market also has been found by Diamandis P F and DrakosA A (2011) in Argentina, Brazil, Chile and Mexico. They investigated the period from 01/1980 to 02/2009 using monthly data by applying cointegration analysis and multivariate Granger causality tests. Furthermore, they found that this long-run relationship is affected by some financial crises in some extent, such as Mexican currency crisis.

However, these two variables negative relationship found by some scholars.

For example, Ajayi R A and Mougouė M (1996) employed error correction model (ECM) to investigate these two variables relationship and evidence is supported by example data from Canada, France, Germany, Italy, Japan, The Netherlands, United Kingdom, and United States. They found that a negative relationship between these two variables in these eight countries mentioned above in short-run. This negative relationship evidence also found by Ma C K and Kao G W (1990). Kim K (2003) investigated these two variables linkage in the period from 01/1974 to 12/1998 in United States by applying Johansen's cointegration test. He found that the relationship between S&P 500 stock price and the real exchange rate is negative. These two markets linkage has also been found by Ibrahim M H and Aziz H (2003) in Malaysia. They

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applied cointegration and vector autoregression to examine these markets relation in the period from 01/1977 to 08/1998 and they found that this relation is negative. What's more, their instability relation across over time. For this result, Kim K (2003) explained that in the assumption of the country economy robust compared with another country, the country would attract more much expectation form other country investors, due to the portfolio adjustment effect, a great amount of capital from the investors would flow into the country with robust economy stock market, however, the portfolio adjustment effect has its limitation and the great deal of capital pressure, the investors could probably get opposite result, hence, the relationship between these two markets would be negative.

Scholars Bartov E and Bodnar G M (1994) found no evidence to supported existence of these two variables relationship. And they explained that this result may be due to mispricing. Mishra A K (2004) found that there no Granger's causality between them. He employed the Granger's Causality test and Vector Auto Regression (VAR) to test whether the stock return related to the exchange rate return using monthly data. Interestingly, he found that the empirical result from VAR model there exists no longer consistent relationship between the stock return and exchange rate return.

The relationship between stock market and exchange rate market is a pretty interesting topic that has absorbed many scholars to investigate. Recently, some researchers spawn their interest in the topic of the relationship between the stock price and exchange rate using the quantile regression that provides impression of estimated coefficients in different quantiles (Koenker R and Bassett Jr G,1978). Koenker R and Bassett Jr G (1978) pointed that this regression provides a better solution in minimization sum of absolute residuals. Additionally, they pointed that the traditional least squares estimators have its limit when facing non-Gaussian situation, especially in solving long-tailed situation. However, quantile regression is an approach that permit scholars to observe impression of conditional dependence in specified quantile with corresponding variables, according to Mensi W et. al (2014). It clearly reveals how the explained variable related with explanatory variable across various quantiles, according to Mishra S (2016).

For instance, this approach employed by Chiang T C, Li J and Tan L (2010) in investigating herding behavior of investors in Chinese stock markets. They found that investors in China stock market displaying herding behavior from the evidence given by different quantiles analysis. Tsai I C (2012) investigated the relationship between the stock price index and exchange rate in Singapore, Thailand, Malaysia, the Philippines, South Korea, and Taiwan using ordinary least squares regression (OLS) and quantile regression respectively. From the empirical result given by the OLS regression, the estimate coefficients for the six countries mentioned above that is -0.0943, -0.0597, -0.0989, -0.0672, -0.1699 and -0.0806 respectively and all basically significant at 1% level. Additionally, Tsai I C (2012) found that the estimated coefficient is negative and significant at 1% level as well at different quantiles. Consequently, the relationship between the stock market and the exchange rate market is negative, indicating that stock price and exchange rate volatile in opposite direction, responding the result of the relationship found by Ma C K and Kao G W (1990), Ajayi R A and Mougouė M (1996), Ibrahim M H and Aziz H (2003), Kim K (2003). Mensi W et. al (2014) applied the quantile regression method to investigate whether global factors affect in Brazil, Russia, India, China and South Africa stock market in the period from 09/1997 to 09/2013. And they indicated that investors should take more attention to the international markets' changes, such as the changes of oil price, thus the investor could take good care of the risk management of the investment in advance. Hence, they could minimize the loss they deserved as much as possible. Mishra S (2016) researched the dynamic relationship between the stock returns and exchange rate changes in Brazil, Russia, India and China in the period from 01/1998 to 06/2015. He pointed that the empirical result provided by ordinary least square regression in solving biased problem may

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be not satisfied, thus he preferred the quantile regression to make contribution to the relation between economy growth and the stock market development. From this regression empirical result, Mishra S (2016) concluded that only in China the estimated coefficients are not so significant. Tsai I C (2012) pointed that quantile regression model depicts conditional distribution in different quantiles, displaying overall information from the data. However, the estimated result from ordinary least square regression model is only reflect in 0.5th quantile.

3. Conclusion

From the literature review, the relationship between stock market and exchange rate market is different given by scholars investigated various countries using different empirical methods. Consequently, it is a reasonably from various angles to understand global financial markets interrelation. Basically, the result of these two variables is found variously, short-run, long-run, positive, negative or even no existence evidence. Whatever, the exploration of linkage of these two financial markets is worth, analyzing changes interaction of financial markets, conducting investors portfolio management implement.

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