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The Effects of Developed Country Equity Markets on Developing Country Trading Partner Growth

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THE EFFECTS OF DEVELOPED COUNTRY EQUITY MARKETS ON DEVELOPING COUNTRY TRADING PARTNER GROWTH

A Dissertation

by

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ABSTRACT

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In Chapter I, I find that developed country equity markets strongly influence the domestic returns as the primary indicator during both fixed and floating exchange rate regimes, while trade is irrelevant. More importantly, the developing country annual stock returns during floating regimes prove to be greater than that for the fixed regimes. Even though domestic equity market volatility is greater during the floating exchange rate period, it is not considerable enough to merit a developing countries' reluctance to adopt a floating exchange rate regime. Contrary to some researchers, these results favor the attraction for developing countries to adopt a floating currency, a move toward a market-oriented economy. Monetary policy as outlined by the Mundell-Fleming Theory is found to be ineffective for developing countries during their floating exchange rate regime periods. Extended research regarding the degree of influence by the theory's assumptions is suggested.

In Chapter II, the primary driver during both the pre- and post-crisis periods is the external developed country equity market factor. These findings support the premise that financial channels and not trade channels are more important in crisis recovery. As expected, the developed countries have rebounded quicker than the developing countries, suggesting an asymmetric affect based on country development with the developing countries absorbing a

much greater initial adverse effect on returns. However, the current average annual returns for the developed and developing countries do not differ.

In Chapter III, I summarize that emerging countries continue to grow and increase in their contribution to the world economy. With the tendency of developing countries moving toward increased exchange rate flexibility, they are automatically drawn into the integrated world economy in terms of trade of good and services, and financial transactions. I provide evidence that the benefits associated with a floating exchange rate regime for a developing country is greater than maintaining a fixed exchange rate policy. I provide evidence that the benefits provide an incremental increase in economic control through monetary policy. These findings benefit both researchers and investors in their decision-making process as developing countries continue to move toward an equity market-based economy.

DEDICATION

I dedicate this dissertation to my wife, children, recently deceased mother and brother, father, brother, sister-in-law, Ph.D. cohorts, and various friends who have supported me throughout this entire process. I especially want to thank my wife Rosie, who is very special to me. I could not have completed this dissertation without her continuous understanding, encouragement, and willingness to accept numerous sacrifices in exchange for the commitment and focus required to fulfil this obligation.

I dedicate this work to my father, Salomon Maldonado, who throughout my life has shown me the value of hard work and the importance of integrity, ethics, and honesty in one's character. I see him as a "tower of power" and a source of inspiration for accomplishing the impossible.

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during numerous courses, peaked my interest. You are the source and catalyst of my motivation in pursuing global monetary policy and economics.

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CHAPTER I

"ATTRACTION TO ADOPT A FLOAT" OR "FEAR TO FLOAT?"

1.1. Introduction

International monetary economics from the late 1960s through the early 1980s focused on fixed exchange rate macroeconomic behavior of open economies, until the collapse of the Bretton Woods system of monetary management in 1973. The policy approach to open economy macroeconomics was primarily developed by Meade (1951) and expanded by Mundell (1963a) and Fleming (1962). The objective of government controlled national economic policy is to maintain full employment and internal national economic balance, while controlling national income (Frenkel and Mussa, 1985). After the collapse of the Bretton Woods system of monetary management in 1973, research shifted to floating exchange rate regimes, toward a market-oriented economy, with a focus away from the topic of balance of payment and to economic determinants of the behavior of exchange rate regimes, in particular, the asset market approach to exchange rates. This emphasis is motivated on equilibrium conditions of equity stock markets and national currencies. Various exchange rate regimes have been utilized by the monetary authorities to directly affect exchange rates in both developed and developing countries. Much research has been established on this topic regarding developing country growth. Macroeconomic variables, such as inflation, interest rates, and money supply, and bi-lateral exchange rates have a significant effect on developing country economies, which make an

important contribution to global economics (Sullivan, 2013). AssefaEsqueda and Mollick (2017) suggest that over a period from 1999 to 2013, quarterly stock returns for developing countries exceeded those for developed countries by 356 percent. During this period, an annual growth of 1.19 percent is observed for the developed countries as compared to 4.22 percent for the developing countries. Per the International Monetary Fund (IMF) in 2014, developing markets account for 57 percent of the global economy and represent 85 percent of the world's population. These developing markets are expected to grow to 70 percent by 2030. It is believed that the "great recession" impacted the middle class of these developing countries leading to a lower growth in the short term. However, a rebound is expected through the continued growth in GDP (Kharas, 2017). It is important to realize the varying magnitudes and significance of developing country macroeconomic variables across markets to improve investor portfolio performance (Abugri, 2008). Aitken (1998) suggests that investors lacking local market fundamental knowledge leads to a loss in the capitalization on arbitrage opportunities. The purpose of this paper is to provide empirical results to reduce the knowledge gap pertaining to the effects that developed countries have on their developing country trading partners equity markets during a period of both fixed and floating exchange rate regimes, while also identifying the differential significance and effect of domestic macroeconomic variables for each period. There are various reasons for a country's reluctance to endure a change in exchange rate regimes, but the predominant lack of motivation is that of "fear". The output cost associated with exchange rate fluctuations is an inherent risk and the source of a "fear of floating" (Calvo and Reinhart, 2002). During the adoption of a floating exchange rate regime, Caballero and Krishnamurthy (2001) suggest that the inelastic supply of external funding during crisis may be responsible for an overshoot of a floating exchange rate, therefore validating this fear. Calvo and Reinhart (2002)

find that exchange rate variations, which are common during an exchange rate regime change, lead to equity market volatility and fiscal credibility issues. Frenkel and Mussa (1980) suggest that exchange rate volatility is greater than the relative cost of living indices during the exchange rate conversion period, which suggests that other factors such as volatility in income, government intervention, or unanticipated news may also contribute to the exchange rate market instability. Due to the absence of "sticky" behavior like that of other asset prices, the exchange rate reacts quicker than goods pricing. These issues result in a loss of access to international capital which in turn cause a reduction in domestic equity market participation, adversely effecting market returns.

There are risks and benefits associated with an exchange rate conversion. Fixed rates are typically used as a monetary policy in an effort to stabilize currency and maintain a low level of inflation (Ghosh, 2014). In the long run, this regime will tend to maintain low interest rates and stimulate increased trade and investment. However, domestic currency behavior is based on its reference value and not on its own national merit. These rates are usually fixed to another country's rate, or a rate based on that of a group of countries. Frankel (1999) finds that no single currency regime is suitable for all countries or at all times. Implying that economic perfection cannot be achieved through exchange rate conversion. Some developing country financial systems that allow for deposits dominated in foreign currencies, curtail the freedom of domestic monetary policy and rule out the feasibility, or need, of a floating exchange rate (Diaz-Alejandro, 1985). It is important to note that the effect of monetary policies differ for each of the regimes. Monetary policy is ineffective under a fixed exchange rate regime, and fiscal policy is ineffective during a floating rate regime Mundell (1963a). Fleming agrees that monetary policy

is more effective during a floating regime, however, believes that it is not totally ineffective during a fixed exchange rate period (Fleming, 1962).

The foreign exchange market is the largest market in the world with more than $ 5.3 trillion traded in currency on a daily basis (McLeod, 2014). In this analysis, I consider a bi-lateral analysis of each developed country and their corresponding trading partners during the two exchange rate systems with the consideration of the effect that domestic macroeconomic variables have on domestic equity markets. The variables include the developed country equity market real stock returns, M1 money supply, trade balance, interest rate, the bi-lateral exchange rate, and the domestic real stock returns. For this analysis, I do not differentiate between the numerous levels of floating exchange rate regime management arrangements as identified by Reinhart and Rogoff (2004) . The floating regime category is all encompassing of these variants. The developed markets during a period of floating regimes that participate in large volumes of foreign trade for this study include Australia, US, Canada, New Zealand, Israel, and Japan. Members of the European Union that trade exclusively with their own members, and members who do not trade with developing countries are excluded. This type of globalization of currency structure prohibits a proper monetary policy exchange rate analysis as intended by this paper.

The developing trading partners that trade or accept trade from the developed countries include South Korea, Thailand, Indonesia, China, Mexico, and Brazil, several of which participate as trade partners to more than one of the developed countries in this study. Another constraint is that each of the developing countries must have traded with their developed partner during both fixed and floating exchange rate regimes.

The developing country trading partners that comply with these restrictions for Australia include South Korea, Thailand, and Indonesia. Australia adopted a floating exchange rate

regime in January 1983. All three developing countries have participated in a fixed and floating exchange rate regime during Australia's floating regime period. In December 1997, South Korea adopted a floating exchange rate regime (Rajan, 2012) after employing various types of fixed regimes such as the "basket peg" in the 1980s and a "market average rate" in early 1990 (Nam and Kim, 1999). Thailand utilized a basket-peg monetary policy in 1984 before adopting a managed float in July 1997 (Nakornthab, 2009). After economic turmoil and monetary policy inconsistencies, Indonesia adopted a floating exchange rate regime on September 1997 (Nasution, 2015).

The US was one of the first countries to adopt a floating monetary regime soon after the suspension of the Bretton Woods system in September 1973. The US three largest developing trading partners include China, Mexico, and Brazil. India is not included in this study due to the lack of accessible data. China held a fixed regime until July 2005, when it adopted a managed floating rate system (Zhao, 2010). Mexico and Brazil adopted a floating exchange rate regime on December 1994, and January 1999, respectively. After the devaluation of the peso in December of 1994, Mexico adopted what most believed to be a transitory floating regime but remained in place as the monetary system gained support. The annualized volatility, based on the standard deviation of the monthly fluctuation of the exchange rate, finally gained stability in mid-1996 Martínez and Werner (2002). The Brazilian financial crisis associated to both fiscal and balance of payment weaknesses prompted the adoption of a floating exchange rate regime in January 1999 (Nogueira and León-Ledesma, 2009). The source of the panic stemmed from fiscal expenditures exceeding its income and the Russian default on debt, halting the capital flows to Brazil (Fraga, 2000).

Canada's largest trading partners include China, Mexico, and South Korea. Canada adopted a floating exchange rate regime in the 1950s, reverted to a fixed rate, and returned to a floating rate regime on January of 1971, during the dissolution of Bretton Woods which was completely dissolved in 1973. Their currency has floated ever since (Dunn, 1971).

China, South Korea, and Thailand represent the developing trading partner countries for New Zealand. The New Zealand dollar, informally called the Kiwi, is consistently one of the ten most traded currencies in the world. On March of 1985, the currency was floated (Blundell-Wignall and Gregory, 1990).

Due to data limitations, the model for the developed country of Israel includes China as the only developing country trading partner. The Israel shekel, as of January 1993, is a freely convertible floating currency determined by the market (Williamson, 1996).

Japan's developing market trading partners include Indonesia, Thailand, and South Korea. Malaysia was excluded from this study due to data constraints. All three developing countries have participated in both a fixed and floating exchange rate regime during Japans floating regime. Like the US, Japan adopted a floating rate regime in September 1973.

1.2. Related Literature and Hypotheses

1.2.1. Exchange Rates and Monetary Policy

In the study of international finance, Mundell (1963a) and Fleming (1962) have spearheaded the research of the importance of capital mobility in establishing monetary stabilization policies. The prerequisites for this model is "Keynesian" in that wages are fixed during the policy term, and money supply is completely controlled by the authorities, subsequently controlling interest rates in this theoretical insular economy (Kagel and Roth, 2016) . Mundell and Fleming differ in their speculative assumptions. Mundell's theory assumes that perfect capital mobility exists between domestic and foreign countries. Mundell proposes that monetary policy in changing output under a fixed exchange rate regime due to a capital account flow offset of monetary expansion is ineffective, and that fiscal policy is ineffective in changing output under floating rate regimes, due to the counter reaction of exchange rate adjustments in the trade account to fiscal policy. Contrary to Mundell, propositions under Fleming's theory, suggest that capital mobility is imperfect with each policy retaining some effectiveness under both regimes (Marston, 1981). Fleming's concept differs from that of the modern portfolio in that he suggests that capital flows are a function of interest rate levels, while the modern portfolio theory suggests that stock assets are affected by interest rates. Therefore, suggesting that capital flows are the results of portfolio adjustments including money balances and foreign bond holdings, and not a function of interest rates. In a global economy, an accurate understanding and perception of the law of "one price" becomes instrumental in maintaining domestic economic stability. The most basic theory in support of this law suggests that the price of a "basket of goods" in a domestic market is expected to be equivalent to the price of the same "basket of goods" in a foreign market. This is accomplished with the consideration of a foreign

exchange rate. Summers and Heston (1991) suggest that in an absolute consumption based-condition, purchasing power parity (PPP) requires

$$p = e + p^* \tag{2}$$

Where e denotes the logarithm of the exchange rate (the price of foreign money in terms of domestic money). Froot and Rogoff (1995) developed three stages of this Purchasing Power Parity (PPP) considering various assumptions. Some of the PPP variations are useful in practice. The "right" variation of PPP depends on the application (Rogoff, 1996).

Stage #1 is based on a linear relationship with the assumption that the error variable is insignificant, and the exchange rate is solely a function of the domestic and foreign goods price.

$$S_t = \alpha + \beta(P_t - P_t^*) + \varepsilon_t \tag{3}$$

This equation ignores the presence of any degree of causality. When $\beta=0$, the exchange rate becomes a function of the error factor only, resulting in a random walk relationship and nullifying the validity of the equation. The legitimacy of this equation can only be considered when β is close to 1 and the error factor is near zero. Testing includes correlations in which the null hypothesis is that the purchasing power parity holds true. These tests typically reject the validity of the PPP hypothesis. However, supporting evidence has emerged in PPP Stage #2 and Stage #3 (Xu, 2003).

Stage #2 assumes a constant mean and variance, resulting in a stationary relationship. This stage involves time series (unit root) tests in which the null hypothesis is that PPP deviations are completely permanent.

$$q_t \equiv s_t - p_t + p_t^* \tag{4}$$

The real exchange rate is represented by q_t, which is equivalent to the nominal exchange rate e * p^*/p. p_t is the price of domestic goods and p_t^* is the price of foreign goods. When PPP holds, the long run movement of s_t, p_t, and p_t^* cancel out, therefore (s_t, p_t, p_t^*) are cointegrated. Even though PPP is not a theory of exchange rate determination, it is a critical foundation unit and equilibrium condition for many international financial models (Levich, 1985).

In the short run, the exchange rate is completely random, but will eventually reach an equilibrium state. Lothian and Taylor (1996) use a stage 2 assumption in the statistical testing to investigate the long run mean-reverting properties of real exchange rates to gain insight into the exchange rate behavior by including floating exchange rate data in their 200-year study. The study of the bi-lateral exchange rates between the franc-sterling and dollar-sterling consist of annual frequency data. In conclusion, the autoregression tests find that the models can explain approximately 80 percent of the variation in the dollar-sterling real rate during the past two centuries and 60 percent of the variation in the franc-sterling real exchange rate. The results indicate that PPP is at an equilibrium condition which requires a long run constraint in effecting economic policy.

Stage #3 of Froot and Rogoff (1995) includes a time series cointegration analysis where each series contains a unit root. This stage, over long periods of time are found to be stationary, resulting in valid results.

Akram (2006) analyzed the validity of PPP in Norway during a medium run period that included exposure to real shocks such as the discoveries of large petroleum reserves and oil shocks. Generally, studies reject or present a weak support of this theory for developed countries that experience large shocks such as Norway. The post Bretton Wood bi-lateral exchange rate analysis includes its primary trading partners of Germany, Sweden, the UK, and the US. The

results support the case of PPP. Using stage #2, he confirms that q_t, the real exchange rate is consistent with PPP. But in testing for stage #3, only one vector is found to confirm nominal exchange rates in support of PPP.

Exchange rates are affected by domestic monetary policy. The Mundell-Fleming model for small open economies explains the dynamics of a short run relationships between an economy's nominal exchange rate, interest rate, and output resulting from changes in fiscal and monetary policy [(Fleming, 1962; Mundell, 1963b)]. This research shows the significance of capital mobility in establishing stabilization policy. The model is also known as the IS-LM-B_0P model, or the goods market curve, and is represented by the following group of equations:

IS curve- $$Y = C + I + G + NX \quad (5)$$

Where Y is GDP (production) or aggregate demand, C is consumption, I is investment, G is government spending, and NX is net exports.

Components embedded in the IS variables include the following:

$$i = i' + \left(\frac{de}{dt}\right)\left(\frac{1}{e}\right) \quad (6)$$

Where *i* is the foreign interest rate, i' is the domestic interest rate, and $\left(\frac{de}{dt}\right)$ is the change in exchange rate.

LM curve- $$M/P = L(i, Y) \quad (7)$$

Where M is the nominal money supply, P is the price level (effecting exchange rates), and L is liquidity preference (real money demand). A higher interest rate or a lower income (GDP) level leads to lower money demand.

B_oP (Balance of Payments) Curve- $$B_0P = CA + KA \quad (8)$$

Where B_0P is balance of payments surplus, CA is the current accounts surplus, and KA is the capital accounts surplus.

The numerous components in these formulas represent the cause and effect associated with monetary policy which in turn effect exchange rates. During a floating exchange rate regime, an increase in money stock, known as monetary expansion, results in an increase in output and a decrease in interest rates, effecting economic stability by increasing capital outflow and increasing exchange rates, therefore depreciating domestic currency. Under a fixed exchange rate regime, central banks announce an exchange rate at which they are prepared to buy or sell domestic currency. Therefore, net payment flows into and out of the country need not equal zero, resulting in an external exchange rate "e", and an endogenous B_oP variable. It follows that in order for a government to maintain a fixed rate, it must purchase foreign exchange reserves at a rate equal to that of the trade surplus (Frenkel and Mussa, 1985). This activity leads to the nullification of the monetary expansion process in its attempt to maintain stability and the fixed exchange rate.

Blanchard and Summers (1988), with the use of a vector autoregressive model during a floating exchange regime, finds that real interest rates, output, real exchange rates, and an index of governmental fiscal policy have a cointegrated effect. For example, an increase in production due to an expansion in fiscal policy will increase de/dt, depreciate the currency, forcing an overshoot of the fundamental exchange rate prior to reaching an equilibrium. It is good to note that the goods markets will be sluggish to this change, while the asset markets react much faster (Frenkel and Rodriguez, 1982). This overshooting of exchange rates, known as the "Dornbusch effect", only occurs in floating exchange rate regimes (Dornbusch, 1976). The foreign exchange rate temporarily overreacts to changes in monetary policy to compensate for the "sticky" prices

in the economy, resulting in a high level of volatility in the exchange rate due to the overshoot and adjustment. Caballero and Krishnamurthy (2001) suggest that an inelastic supply of external funds during a crisis may be responsible for an overshoot of the exchange rate, resulting in the validity of a country's fear in floating the exchange rate.

Shambaugh (2004) investigates the effects of fixed exchange rates on monetary policy for fixed and floating exchange rate regime countries and whether a fixed country regime follows the interest rate changes of the base targeted country. The evidence shows that fixed exchange rate countries follow targeted country interest rates more than the floating regime countries, and that various controls such as trade, volatility of exchange rate, and foreign debt do not alter this conclusion.

The two extreme exchange rate regimes of this economic topic include a fixed and floating regime. A fixed rate policy exists when a country's currency is fixed to the value of another country's single currency, a "basket of currencies", or to another measure of value. The Bretton Woods system of money management is the first system introduced to govern monetary relations among the US, Canada, Western Europe, Australia and Japan in 1944 (Dormael, 1978), during a conference by the same name. This conference founded the International Monetary Fund (IMF) and the World Bank. Guidelines were identified for fixed exchange rate systems, a gold price was established at a price of $35 per ounce, and participating countries pegged their currency to the US dollar, which became the reserve currency. This system continued until 1971, where under Richard Nixon, the US was freed from the gold standard. By late 1973, the Bretton Woods system had fully collapsed, and participating currencies were allowed to float freely (Bordo and Eichengreen, 2007). A "true" floating exchange rate can fluctuate as a function of macroeconomic factors such as interest rates, current account balances, economic growth and

relative inflation. In September 1973, the US, Japan, and others decided to let their currencies float. Within the next ten years most developed nation's followed suit.

The fact that exchange rate policies vary across countries and times suggest that the cause and effect of these regimes have various implications which can be empirically analyzed (Rose, 2011). This understanding results in the motivation for "Exchange Rate regimes in the Modern Era" (Klein and Shambaugh, 2012) which is a comprehensive glimpse at this topic. Flexibility in exchange rates becomes more critical when one considers the international effects of monetary policy. Even with the use of exchange rate smoothing by official intervention or private sector capital flows, the international effects of monetary policy are different under each exchange rate regime (Helliwell and Padmore, 1985). In 2001 the IMF believed that only the hard peg, intermediate, and floating exchange rate regimes existed, with each category representing various levels of flexibility (Fischer, 2001). He suggests that numerous pegged and floating arrangements are used by countries in fear of losing control of monetary policy. In contrast to the IMF, Reinhart and Rogoff (2004) classify fourteen categories of exchange rate regimes, ranging from no separate legal tender or a strict peg, to a dysfunctional "freely falling" float. A variation of a fixed regime includes those fixed to a basket of goods, pegged to a single currency, or fixed to a group of currencies. The floating exchange rate policies include independent free float, managed float, frequent devaluation or revaluation float, crawling peg, or tied by formula to an inflationary index. Currently the unpredictability and volatility of the exchange rate regime conversion process can inflict short and long term damage as well as magnify any economic weaknesses (Obstfeld and Rogoff, 1995a), which corresponds with the "fear of floating" theory (Calvo and Reinhart, 2002).

1.2.2. Fixed Exchange Rate Regimes

Many economists contend that monetary policy is powerless in affecting domestic interest rates or output due to the concept of the central bank expansionary open market operation being offset by a loss of foreign exchange reserves. This is true under perfect substitution between assets, where the monetary expansion is zero, or near zero as empirically supported by Kouri and Porter (1974). Theoretically, the higher the level of substitutability, the greater the change in foreign exchange reserves related to any active monetary policy. Under a fixed exchange rate regime, an increase of government spending is anticipated to fall only on domestic goods. The source of this currency is financed by the issuance of government bonds in lieu of taxes, with the government deficit generating a supply of bonds with no discrete change in the bond supply being able to affect current variables. In the absence of sterilization, this spending increase leads to an increase in output and interest rates. Since foreign exchange reserves increase during fixed exchange rate regimes, under floating rate regimes, we expect domestic currency to appreciate (Marston, 1985). During fixed regimes, governments lose control of monetary policy to Currency Board Arrangements (CBA) who are responsible for maintaining fixed rates. These boards do not possess discretionary power to affect monetary policy. Under this curriculum, currency is hard to fix to a foreign currency or basket of currencies, therefore resulting in the minimization of the central banking role in monetary policy. This board does not manipulate interest rates by establishing a discount like the central bank. Its primary purpose is to provide sufficient and unlimited convertibility between notes and the currency against which they are pegged.

In terms of advantages to a fixed regime, Fornaro (2015) finds that depreciating the exchange rate during a financial crisis has a positive impact on asset pricing, value of collateral,

and access to international markets. Cavallo, Kisselev, Perri et al. (2005) suggests that in the short run, negative wealth effects caused by changes in monetary policy can be mitigated due to the avoidance of exchange rate overshooting. An advantage of a fixed exchange rate is the belief that pegging or limiting to a low inflation currency will help to restrain domestic inflation pressures, whether they originate in excessive government budget deficits or in the wage and price set by the private sector (Ghosh, 1996).

In terms of literature, the disadvantages outweigh the advantages of a fixed exchange rate regime. The fundamental problem with a fixed exchange rate is related to the governments' loss of the utilization of monetary policy as a stabilization tool. Shambaugh (2004) investigates how fixed exchange rates effect monetary policy. Based on a sample combination of over 100 developing and industrialized countries from 1973 to 2000, he finds that all pegged countries lack monetary freedom and follow the base country interest rates more than non-pegged. Similar to the concepts supporting Bretton Woods and a fixed rate system, the basis in the monetary unification of the European Union originates from the principle that locks exchange rates, therefore maximizing the gains from a unified market (Obstfeld and Rogoff, 1995b). However, they suggest that the level of competition, created by exchange rate management can weaken free trade within the European Union. For this reason, this dissertation ignores the European Union countries. Even though developing countries fear the float, other literature supports the premise that fixed rate countries usually experience a long history of monetary instability due to its close integration in capital and transactions with another country. Sullivan (2001) suggests that countries that peg to the US, Europe, or Japan create currency exchange rate difficulties. For example, these countries were adversely affected by the appreciation of the dollar in 1995. Obstfeld and Rogoff (1995a) suggest that a focus should be applied to inflation and that

exchange rates should be used as an indicator, but not as a target for monetary policy. A short term look ahead suggests that this trend of maintaining a fixed exchange rate may continue, particularly among the developing market countries.

1.2.3. Floating Exchange Rate Regimes

Some researchers suggest that floating exchange rates insulate economies from foreign monetary disturbances. Floating rates are generally found to dampen the effects of foreign monetary instabilities and signify an economic move toward a market-oriented economy. Prior studies before 1973, due to limited data, focus on research on models consistent with an emphasis in the key role of monetary factors in exchange rate determination (Frenkel, 1976). Post 1973 periods highlight the strong correlations between exchange rates compared to that of international price-level ratios, and the intermittent correlation between the exchange rate and the current account (Frenkel and Mussa, 1980), (Flood and Garber, 1991), (Shafer, Loopesko, Bryant et al., 1983). Unlike many other publications using yearly data, Reinhart and Rogoff (2004) used monthly frequencies for post-World War II exchange rate regimes spanning across 153 countries from 1946 to 2001. They argue that any study based on one official exchange rate system with no significant "black" or parallel market is flawed, since rarely is a "pure" form of a floating exchange rate regime sustained. For this reason, my study includes a fixed exchange rate period and a floating exchange rate period which include all floating exchange rate variants. The floating periods include the various flexible levels of floating regimes as outlined by Reinhart and Rogoff (2004). Fifty three percent of the post 1980s countries studied turned out to be de facto floating, crawling pegs, or took on the form of various levels of managed floating regimes.

Reinhart and Rogoff (2004) suggest that the crawling peg is the most popular non-fixed exchange rate subcategory at 26% from 1990 to 2001.

Most international economic models are based on defined exchange rate regimes. The most prevalent disadvantage of a fixed to floating exchange rate currency policy is the economic volatility linked to the change (Mussa, 1986). This is one guaranteed characteristic associated with the switch (Baxter and Stockman, 1989). Obstfeld and Rogoff (1995a) suggest that exchange rate uncertainty reduces international trade, discourages investment and effects asset markets. Most countries are unwilling to accept the risk associated with exchange rate fluctuations and for this reason, often entertain a more flexible version of a floating exchange rate, such as a "managed" float or other forms of floating regimes (Calvo and Reinhart, 2002).

Advantages of adopting a floating exchange rate system is the reduction of the effects of macroeconomic shocks (Sullivan, 2001). The behavior of a floating exchange rate is such that the exchange rate is the price that clears the foreign-exchange market, and is limited as being initiated by the current account and from exogenous capital flows as introduced by Mundell-Fleming (Kenen, 1985). These floating exchange rates are considered economic shock absorbers. They absorb unexpected economic bumps and protect the national economy from unexpected changes in foreign economic conditions such as foreign inflation (Marthinsen, 2014). As an example, a US trading partner experiences increases in inflation, which causes them to turn to a healthy US and increase demand for lower priced US goods and services. As this demand increases, upward pressure is applied to the US prices and their inflation rate. Floating exchange rates would absorb the increase in foreign demand by allowing the value of the dollar to rise, rather than stimulate inflation.

Masih and Masih (1998) evaluated the relationship in causality between price and money supply for Thailand, Malaysia, Singapore, and the Philippines from January 1961 to April 1990. They show that based on both bivariate and multivariate tests, M1 and M2 money supply have a greater causal effect on price, CPI and WPI, in opposition to the beliefs of the structuralists. Structuralists view excessive money supply as permissive rather than causal in explaining inflation, particularly in the developing countries. Levy-Yeyati and Sturzenegger (2003) suggest that economic growth is a function of exchange rate regimes for developing countries but have no significant impact on developed countries. Extensive evidence suggests that exchange rates tend to be greater in rich countries than in poor countries and that fast-growing countries realize real exchange rate appreciations (Froot and Rogoff, 1995).

Rogoff (1996) suggests that real exchange rate adjustments are relatively slow for developed countries with floating exchange rate regimes and that developing and maintaining economic credibility for countries has become increasingly difficult. Tsangarides (2010) empirical research on the linkages between the equity markets and growth in the real economy during the 1990s shows a positive relationship, primarily through the creation of liquidity to increase savings and investments (Fynn, 2012).

1.2.4. Macroeconomic Variables

The study of macroeconomic variables is excellent due to their ability to simultaneously effect a country's cash flows and investment opportunities. Furthermore, the rational expectations in macroeconomics has an valuable impact on exchange rate theory (Obstfeld and Stockman, 1985). GrahamPeltomäki and Piljak (2016) find that global economic activity is associated with higher developing market equity returns. Much evidence exists regarding the

negative relationship between common stock returns and inflation post-1953. Fama (1981) and Flannery and Protopapadakis (2002) find that stock market returns are significantly correlated with various macroeconomic factors which include CPI, PPI, monetary aggregate, balance of trade, employment, and other domestic variables during a period from 1980 to 1996. This study considers inflation adjusted returns even though data suggests that in the short term, changes in exchange rates are weakly correlated to national inflation rates as measured by the consumer price index (Frenkel and Mussa, 1985). While various models have been successful in examining the variability of exchange rates during specific sample periods, all have performed poorly when applied to out of sample data (Meese and Rogoff, 1983). In regards to the relationship of the macroeconomic variables, (Calvo and Reinhart, 2002), using vector autoregression analysis conclude that a positive correlation exists between exchange rates and interest rates. Realizing the importance of identifying economic growth through equity market real stock returns, this paper examines the effect of the developed country equity markets and various domestic developing country variables during each exchange rate regime. The variables in this study include real stock returns for the developed country, M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and the real stock returns for the developing country.

1.2.5. Trade

Comparative advantage trading raises the living standards of both the exporter and importer country. Irwin (2015) refers to comparative advantage as “good news” for economic development. Even if a developing country lacks an absolute advantage in any industry, it will always have a comparative advantage in the production of some goods, which will lead to

profitable advantaged economies. A common practice includes the trade of component products sold by an exporter to be assembled by an importer, who in turn exports a finished good with value greater than the sum of its components. Not unlike the variables addressed in the "Related Literature" section, the trade balance variable is a function of monetary policy and has been included in my models. LiuBurridge and Sinclair (2002) suggests that any decline in the growth of world markets, including developing markets, are related to a decline in trade. Trade balances are affected by capital flows, but also by inflation, demand for currency, economic growth, and export prices. Exchange rates have their greatest impact on trade and capital inflows (Helliwell and Padmore, 1985). An expansion in monetary policy leads to a reduction in interest rate which subsequently leads to a decrease in the capital account and a depreciation of currency (increase in exchange rate). With absence of government intervention, as the financial account declines, the current account is expected to improve by an equal amount, resulting in a positive trade account balance. Increases in exportation lead to an increase in productivity and economic growth (Lopez, 2005). Vo (2017) finds that timing and trading strategy of foreign investors offers strong implications in domestic market growth. Such behavior is based on portfolio strategy initiated by exchange rates and monetary policy. With the consideration of open economies, trade partners and diversification levels are significantly associated in growth regressions leading to as much as a 1.5 percent standard deviation unit increase in development (Önder and Yilmazkuday, 2016). Some countries engage in regional trade agreements (RTA). Moser and Rose (2014) conducted an analysis of 200 RTAs in 80 economies over 20 years. They find strong evidence that stock markets rise when RTAs are signed between two countries that are already participating in high volumes trades. These results continue to apply when poorer countries are involved.

1.2.6. Hypotheses

Financial systems have the ability to influence savings rates, investment decision, technological innovation, and subsequently long-term growth (Levine, 2005). Given national monetary policy presences, this analysis illustrates how developed country national policies interface under different sets of international monetary policy arrangements for both fixed and floating regimes for developing countries. This analysis empirically denotes results to establish an understanding of both the favorable and unfavorable regime attributes in terms of control over economic growth through market equity asset linkage, and the influence of macroeconomic variables such as the developing country domestic M1 money supply, trade balance, interest rate, and the bilateral exchange rate. The rapid expansion of developing country equity markets has attracted the attention of policy makers as well as researchers. Recent study focuses on the benefits for investors on holding a diversified portfolio and the advantages of countries removing barriers to international capital flows (Demirgüç-Kunt and Levine, 1996). In the seminal studies of Dornbusch (1975), and Frenkel and Rodriguez (1975) a fixed exchange rate is assumed in their application of the dynamic portfolio approach.

Exchange rate volatility resulting from changes in exchange rate regimes results in equity market instability and fiscal credibility issues. Mundell (1968) and Fleming (1962) express the importance of international financial linkages in determining the effects of stability policy. This volatility is followed by investment apprehension in equity markets, which negatively affect market returns. Obstfeld and Rogoff (1995a) find that the ambiguity associated with a country's exchange rate reduces international trade, deters investors and negatively affects equity markets. Obstfeld and Rogoff (1995b) examine a mixture of developed and developing countries and suggest that stock market return volatility is correlated with various macroeconomic factors such

as CPI, PPI, monetary aggregate, balance of trade, employment, and the number of housing starts. In robustness testing on GNP and industrial production, they find evidence that these factors are associated with lowering, rather than increasing stock return volatility. Flannery and Protopapadakis (2002) suggest that equity market returns are significantly correlated with inflation and money growth.

Rose (2011) classifies the bilateral exchange rate factor as the most essential and idiosyncratic asset price in economics. However, it is right to add that no single currency exchange rate regime is right for all countries (Frankel, 1999). Rose (2011) suggests that cause and effect evaluation apply exceedingly to exchange rate policies because they can vary across countries and time. Shambaugh (2004) suggests that for developed and developing countries, the exogenous targeted interest rate is followed more than during a floating rate regime, which is expected. Sullivan (2001) finds that during floating exchange rate regimes, exchange rates and other macroeconomic variables reduce the impact of economic innovations. From the framework established above, the following hypothesis is deduced:

H1: During both a fixed and floating exchange rate regime, the trade variable does explain developing country domestic returns.

Moore and Wang (2014) conducted a 104-observation study on the linkage between real exchange rates in developed and developing Asian markets, using the S&P500 as a proxy for US equity stock market returns. They suggest that for developed countries, the primary driving force affecting equity returns is interest rates and the driving force for developing countries affecting domestic equity markets is the US stock returns. Abugri (2008) made 176 monthly observations on the Latin American developing countries of Argentina, Brazil, Chile, and Mexico covering

the period from 1986 to 2001. A seven-vector autoregressive model was utilized which included five domestic variables and 2 global variables. These domestic variables included M1 money supply, industrial production, the bilateral exchange rate, and 3-month interest rate. The world index (MSCI) and US interest rates represented the external global variables. The results show that domestic macroeconomic variables cannot be used to determine equity market returns, and that the global variables have the most consistent significant effects in explaining domestic returns in all four developing markets. Diamandis and Drakos (2011) examined the long and short run dynamics between stock prices and exchange rates based on exogenous shocks in Latin American countries. From January 1980 to January 2009, during a period which includes both fixed and floating exchange rate regimes during each countries' post liberation period, they find that domestic stocks and foreign exchange markets are positively related and that US stock markets act as a channel for these links. Additionally, the domestic stock market has the greatest influence on the market itself. In accordance with the literature above, the following hypothesis is deduced:

H2: For developing countries during both a fixed and floating exchange rate regime, the developed country equity market returns is the primary indicator explaining developing country real stock returns.

An advantage of a fixed exchange rate regime is the belief that fixing to a low inflation currency will limit domestic inflationary pressures, whether they are derived from excessive government budget deficits or in the wage and price setting decisions of the private sector (Fornaro, 2015). The one certain characteristic linked with floating exchange rates is that they are unstable (Baxter and Stockman, 1989; Mussa, 1986). Obstfeld and Rogoff (1995a) suggest

that exchange rate uncertainty shrinks international trade, dampens investment, and negatively influences asset markets. This finding further enhances the theory that a less volatile fixed regime attracts foreign investment. The process of adopting a floating exchange rate regime from a fixed regime has an adverse effect for developing countries. Currently the unpredictability and volatility of this process can inflict short and long term damage as well as magnify any economic weaknesses (Obstfeld and Rogoff, 1995a), subsequently resulting in the "fear of float" (Calvo and Reinhart, 2002). The literature above suggests that developing country exchange rate conversion involves many risks due to economic uncertainty, monetary instability, and equity market volatility. Based on this literature, the following hypothesis is deduced:

H3: For developing countries, the mean annual indices stock returns are lower during the floating exchange rate period as compared to the returns during the fixed exchange rate regime period.

1.3. Data Selection and Variables

1.3.1. Developed Countries and the Human Development Index

This paper focuses on the effect that various developed country equity markets have on their developing country trading partner real stock returns, with the consideration of various domestic variables during fixed and floating exchange rate regimes. Only those developing trading partners that have participated in both fixed and floating exchange rate regimes during the developed country's floating regime are considered. In this analysis, the developed countries were identified through the Human Development Index (HDI) rating system as established by the United Nations, that ranks social and economic development to evaluate growth. Various country development rating systems are available; however, I use the HDI ranking system due to its divers set of development attributes associated with its ranking system. This rating system is based on a matrix of a countries' characteristics that include life expectancy at birth, the adult literacy rate, education enrollment, and GDP per capita (Anand and Sen, 1994).

The developed countries as outlined in this study are based on a "very high human development" rating as outlined by the HDI. As of 2014, forty-nine countries represent this top HDI category with an index range between 0.80 and 1.00. The highest rating in this class is represented by Norway at 0.944 and the lowest rating is achieved by Montenegro at 0.802. Due to their unique economic and political unification, all European Union (EU) countries are excluded from this study. They include Austria, Belgium, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland, and the United Kingdom. Ogrokhina (2015) suggests that the Single European Act is predominantly responsible for the convergence of prices within the

European Union rather than the Euro. The Single European Act of 1957 reduced price differences and promoted market integration. Argentina and South Korea, which were recently awarded "very highly developed" country status in 2016, shall remain as developing countries for the purpose of this study since the floating exchange rate observations end on December 2015. The developed country of Singapore as included in the HDI ranking, is excluded from the study due to conflicting reports regarding its development status. The World Economic Situation and Prospects (WESP), developed by various organizations, including the Organization for Economic Cooperation and Development (OECD) and the International Monetary Fund (IMF) find that Singapore continues to be a developing country through 2014 (World Economic Situation and Prospects, 2014). Russia and the Ukraine are excluded due to data constraints. Hong Kong is excluded from this study due to unstable data arising from the transfer of sovereignty from the United Kingdom to China on July 1997.

Of the developed countries included in this analysis, Australia is the highest rated country ranked 2nd by the HDI. Australia adopted a floating exchange rate regime in 1983 (Beaumont and Cui, 2007). The US, ranked 8th by the HDI, adopted a floating exchange rate regime on September 1973. Canada, ranked 9th, established a floating exchange rate in the 1950s, reverted to a fixed regime, then returned to a floating regime once again in January 1971. Their currency has floated ever since (Dunn, 1971). New Zealand, tied with Canada with an HDI ranking of 9th, initiated a floating regime on January 1995. Since the collapse of the Bretton Woods system, various monetary exchange rate regimes have been utilized by the monetary authorities to directly affect the exchange rates. The Israel shekel, as of January 1993 is a freely convertible floating currency determined by the market (Williamson, 1996) and is ranked 18th by the HDI.

Japan, who ranked 20th , continues to remain a very highly developed country, and approved a floating regime in September 1973.

The developed country equity markets and composite indices are shown on Table A1.3.1 of Appendix "A1". Each index represents the most comprehensive equity index for each country. In Australia, the S&P/ASX 200 represents the top 200 stocks listed on the Australian Securities Exchange located in Sydney, as characterized by Standard & Poor's. The US equity market is based on the Standard and Poor's 500 index (S&P 500), which represents the market capitalization of 500 large firms listed on the NYSE and NASDAQ. This index is widely used as a measure of the general level of stock prices in both growth stock and value stock analysis. The S&P/TSX composite index is the headline index for the Toronto Stock Market in Canada, which reached an all-time high in February 2017. NZX50 is the New Zealand Stock Exchange primary stock market index. It consists of the country's 50 biggest stocks. The TA100, also known as the Tel Aviv 100, consists of the 100 most highly capitalized companies as listed on the Tel Aviv Stock Exchange in Israel. The Japanese equity market for this analysis is represented by the NIKKEI 225 index which includes the top 225 blue-chip Japanese stocks for the Tokyo Stock Exchange. The Nikkei 225 index that originated in 1950, is the Japanese equivalent of the Dow Jones index in the US.

1.3.2. Developing Country Trading Partners

Only those developing country trading partners that have participated in both fixed and floating exchange rate regimes during the developed country's floating regime period are considered in this dissertation. Each developing country equity market is represented by each country's most comprehensive equity index as illustrated in

A1.3.1 of Appendix "A1". The developing countries of South Korea and Thailand are represented by the KOSPI and SET indices, respectively. The trading capital of South Korea is in Seoul. The Korean Composite Stock Price Index (KOSPI), was introduced in 1983. The Stock Exchange of Thailand is in Bangkok. The SET index represents a composite of all the stocks and common shares that are traded in the Stock Exchange of Thailand (SET). The JAKARTA composite index represents all stocks listed in the Indonesia Stock Exchange located in Jakarta, Indonesia. The China SE180 trades on the Shanghai Stock Exchange and represents a composite index of the top 180 companies. The Mexican Bolsa De Valores is the only stock exchange in Mexico and is in the capital city of Mexico City. The Mexican Bolsa represents the index. The benchmark Brazil stock market gauge is the Bovespa Index. It represents 381 companies traded in Brazil's BM&F Bovespa Bolsa de Valores in Sau Paulo, the industrial capital of Brazil.

The nominal stock return period for the developed countries include the fixed and floating regime periods of each developing country. The nominal returns for the developing countries are derived from each domestic equity stock market exchange and categorized as corresponding to a fixed or floating monetary regime. My primary data source is DataStream Thomson Reuter, henceforth referred to as DataStream.

The market equity return data is converted to real stock returns using their corresponding inflation rates. Where inflation data is unavailable, CPI is used in the conversion as follows:

$$Inf_t^{country} = \left(cpi_t^{country} - cpi_{t-12}^{country} \right) / cpi_{t-12}^{country} \quad (9)$$

Where $Inf_t^{country}$ is the current inflation rate at time *t*, $cpi_t^{country}$ is the monthly consumer price index variable at time *t*, and $cpi_{t-12}^{country}$ is the consumer price index at time *t* minus 12 months. CPI and or inflation variables are acquired from DataStream and Statistics Canada (Canada, 2016).

This paper focuses on the time series study of the reaction of developing countries real stock returns during each exchange rate regime in accordance with Levy-Yeyati and Sturzenegger (2003) who suggest that economic growth is a function of exchange rate regimes for developing countries. The stock market returns for each developing country reflects the economic benefits associated with each exchange rate regime. Investigations show that bi-directional causality exists between foreign direct investment, economic development, and trade.

1.3.3. Selection of Variables

The effects of the developed countries on their developing trading partner countries with consideration of their bi-lateral exchange rate and various domestic macroeconomic variables are examined during fixed and floating exchange rate regimes. The test data includes real stock returns for the developed and developing countries, M1 money supply, trade balance, 90-day interest rates, and bilateral exchange rates, under monthly horizons. The real rate of return, or inflation adjusted return variable, shall be used as a proxy for the developing country's growth. The equation is represented as follows:

$$RSR_{it}^{Market} = [[1+((stockprice_t^{Market} - stockprice_{t-1}^{Market}) / stockprice_{t-1}^{Market})] / [1+(CPI_t^{Market} - CPI_{t-12}^{Market}) / CPI_{t-12}^{Market})]] - 1 \quad (10)$$

The developed country stock index price, M1 money supply, trade balance, 90-day interest rate, developing country nominal stock index price, inflation, and CPI is acquired from DataStream, with exception to Thailand M1 money supply which is obtained from the Monetary Aggregates, Components, and Indicator section of the Bank of Thailand[4]. Bi-lateral exchange rate data for the US and its corresponding trading partners, China, Mexico, and Brazil is acquired from DataStream. The bilateral exchange rates between Australia and its trading partners South Korea, Thailand, and Indonesia are estimated using cross rates[5] between the US and Australia, and the US and each of the developing countries. The cross-rate process is also used for the exchange rates between Canada, New Zealand, Israel, and Japan and their trading partners which are illustrated in Appendix "A1" Table A1.3.1. Canada's exchange rate with the US is acquired from FXtop (FXtop, 2017), which has a larger vertical data range as required for this study.

Table A1.3.2 in Appendix "A1" shows the developed/developing market testing periods during fixed and floating exchange rate regimes for Australia, US, Canada, New Zealand, Israel, Japan, and each of their corresponding developing country trading partners. The table includes the number of observations for each bi-lateral analysis resulting in 32 individual tests. Note that several of the developed countries trade with the same developing countries. The beginnings of the floating exchange rate regime period have a decisive influence on key economic monetary policy objectives, which include financial stability as well as economic growth and development, and is therefore an important element in this paper.

[4] Bank of Thailand Statistics; For more information, see https://www.bot.or.th/English/Statistics/Pages/default.aspx.
[5] Clark (2002); Both forward and spot exchange rates between two currencies can be calculated against the US dollar. For more information, please see https://books.google.com/books?id=UztXu_p46CYC&pg=PA255&dq=CLARK+2002+INTERNATIONAL+FINANCE+THE+USE+OF+CROSS+RATES&hl=en&sa=X&ved=0ahUKEwj3ye-xuofYAhVI5oMKHQNwDy8Q6AEIKjAA#v=onepage&q=cross%20rates&f=false .

Australia, ranked the 2nd most developed country by the HDI, elected to float their currency on January 1983. However, the S&P/ASX200 was initiated on July 1992, therefore restricting the beginning of the fixed exchange rate periods for South Korea, Thailand, and Indonesia to August of 1992.

South Korea maintained a de facto dollar peg regime until 1970, which they termed a unified floating exchange rate system. In 1970, the currency was fixed to the US dollar until it experience large devaluations due to its lack of export competitiveness in 1971, 1974, and 1980 (Nam and Kim, 1999). In the 1980s, the government began to expand trade liberalization, and concurrently eliminating export subsidies and import protection regulations. The Korean won was pegged to a basket of currencies from major trading partners. The International Monetary Fund (IMF) classified the regime as a managed float during the 1980s (Ito and Krueger, 2007) . However, since late 1977, various types of floating exchange rates have been adopted. South Korea's fixed exchange rate period is from August 1992 to November 1997, consisting of 64 observations. The floating period is from December 1997 through December 2015, resulting in 217 observations.

Since July 1997, Thailand has participated in a managed floating exchange rate regime, which replaced a basket-peg regime which was in operation since 1984[6]. Since the float, the exchange rate has been closely related to the fluctuation in economic fundamentals. In May of 2000, an inflationary targeting regime was utilized (Nakornthab, 2009). Thailand's economic and social transformation efforts over the last 50 years have placed its ranks with the middle-income countries and in line to become a participant in the global value chain. On August 2012, the IMF credited the Bank of Thailand's inflation-targeting framework with mitigating the economic

[6] Bank of Thailand Statistics; For more information, see https://www.bot.or.th/English/Statistics/Pages/default.aspx.

impact from the three major shocks which occurred between 2008 and 2011 (Fernquest, 2012). These shocks included the housing crisis, the Japanese earthquake and tsunami, and the Thailand flood crisis. The inflationary targeting framework resulted in the maintenance of desired inflation over this medium term. Effective application of such a system requires a strong monetary system, and the absence of over indebtedness to the US. In order for the progressing Thailand to reach a level of economic consequence, involvement in high value segments of economic activity and the creation of high quality jobs is required (Bank, 2015). An enhancement in technological research and development (R&D) accompanied by an increase in employee skillset is required to obtain industrial capacity relevance. As of 2015, R&D spending is low at .25 percent of GDP. However, it is understood that a pre-requisite of meeting these goals requires the development of an advanced logistic infrastructure. In 2015, Thailand became the 12th largest automobile producer in the world and a leading producer of hard disk drives, ranking 14th in a transporter of high value goods. In terms of finance, Thailand needs to improve access to finance and technology for micro, small, and medium sized enterprises. A concerted effort in reducing unemployment can lead to a "Very High Human Development" ranking, and future HDI consideration in becoming a developed country. Due to trade balance data constraints, the testing range for Thailand's fixed exchange rate regime is from August 1992 to June 1997, resulting in 59 observations, and 222 floating exchange rate observations.

After the beginnings of the Bretton Woods collapse in 1971, Indonesia strictly managed the exchange rate for a few years despite continued devaluations. The bank of Indonesia had full control of monetary policy. It balanced its exchange rates by lending to commercial banks and through the buying and selling of foreign exchange units at fixed prices in exchange for domestic money. However, in August of 1997, the bank of Indonesia lost control of the foreign

component of the monetary base and began targeting soft inflation with use of the Taylor rule (Nasution, 2015). This model is linked to changes in employment, financial markets, CPI inflation and capacity utilization. Due to a growth collapse, followed by asset deflation, a liquidity crunch, bankruptcies and the collapse of investment, the unemployment rate rose from 4.9 percent to 6.4 percent between 1996 and 1999. The range of testing for Indonesia's fixed exchange rate regime is from August 1992 through August 1997 due to Australia S&P/ASX200 which originated in July 1992. The Indonesia data includes 61 observations for the fixed exchange rate period, and 220 observations for the floating regime period, ending on December 2015.

The US adopted their floating exchange rate period shortly after the dissolution of the Bretton Woods system, on September 1973. Since China's composite index started on December 1996, the range of the fixed exchange rate analysis begins on January 1997 and ends on June 2005 before adopting a floating regime on July 2005, resulting in 102 fixed regime observations, and 126 observations for the floating period. Early on, despite a public statement regarding exchange rate regime choices, none of the Latin American countries let their currency float (Chang, 2007). Carstens and Werner (2000) suggest that a floating exchange rate regime became the only viable option for Mexico during the 1994-1995 currency crisis. Therefore, accompanied with a high inflation environment, the "Banco de Mexico" was seriously damaged. The Mexican exchange rate has been floating freely since late 1994, when it moved away from the pegged exchange rate system, to a floating regime, resulting in higher levels of volatility. The stabilization effort on volatility was successful due to the participation of the IMF and US who provided government loans. Mexico's Bolsa De Valores index was introduced on December 1988. The study for the fixed period ranges from January 1989 to November 1994,

resulting in 71 observations, while the floating period ranges from December 1994 through December 2015, resulting in 253 observations. In Brazil, the adoption of a floating exchange rate policy in January 1999, led to an inflation targeting policy in June 1999. Policy was put in place to attempt to tackle the construction of credibility and the high level of exchange rate volatility (Meirelles, 2009; Minella, de Freitas, Goldfajn et al., 2003). The recursive estimates of the coefficient on exchange rate change shows a structural break in the pass-through coefficient when the exchange rate regime changed. Data restrictions established Brazil's fixed exchange rate regime from June 1995 to December 1998, resulting in 43 observations, and 204 observations for the floating period.

The data for Canada is limited to July 1992, based on the founding of the S&P/ASX 200 price index. The floating range for the developing countries China and Mexico, were restricted to 102 and 71 observations, respectively. The fixed period resulted in 126 observations for China, and 253 for Mexico. The fixed exchange rate period for South Korea is from August 1992 to November 1997, resulting in 107 observations. The floating period from December 1997 through December 2015 results in 217 observations. New Zealand adopted a floating currency system on March of 1985 (Blundell-Wignall and Gregory, 1990). Due to index data limitations of its trading partners, the fixed currency period for its trading partner China, ranges from January 1997 to June 2005, resulting in 102 observations, and 126 floating exchange rate observations. South Korea, constrained by the KOSPI index data, requires a fixed period ranging from April 1986 to November 1997, resulting in 140 observations, and 217 floating exchange rate observations. For Thailand, constrained by New Zealand exchange rate data with the US, the fixed exchange rate period ranges from August 1992 to June 1997, resulting in 59 and 222 observations for the fixed and floating exchange rate periods, respectively.

Israel as of January 1993, is a freely convertible floating currency determined by the market (Williamson, 1996). Constrained by its trading partner China's index data, the fixed exchange rate period includes January 1997 through June 2005, resulting in 102 observations, and 126 floating exchange rate observations.

The Japanese yen, which is widely used as a reserve currency, is the third most traded currency in the foreign exchange market after the Euro and the US dollar. After the collapse of the Bretton Woods System in late 1971, on September 1973, it adopted the floating exchange rate monetary policy (Handfield, 2010). From 1973 to 1985 the yen appreciated and spiked in 1985 after the Plaza Accord was introduced. In 2009, the yen benefited from the economic crisis primarily due to its extensive foreign investment. The Plaza Accord, one of the most dramatic policy initiatives since the floating exchange rate, was designed to manipulate and devalue the US dollar for the purchase of other foreign currencies. This act was approved by the US and G-5 countries (Brazil, China, India, Mexico, and South Africa) in 1985. This was not necessarily a bad move since the US dollar had appreciated 26 percent over the short period from 1980 to 1984. The expansion of fiscal policy by Volcker from 1980 to 1982, combined with the expansion of fiscal policy associated with President Ronald Reagan from 1981 to 1984, resulted in a long term increase in interest rates which in turn increased capital inflow and appreciated currency as explained with the Mundell-Fleming model (Frankel, 2016).

The Indonesia index originated on December 1989, therefore restricting the fixed exchange rate data from January 1990 to August 1997, representing 92 observations. The floating period consists of 220 observations. Thailand's beginning fixed regime is constrained by import and export trade data. The fixed exchange rate regime for this bi-lateral analysis begins on January 1989 and ends on August 1997, resulting in 104 observations. The floating

exchange rate period, ending on December 2015, accounts for 120 observations. The South Korea fixed rate period includes the period of January 1989 through November 1997, resulting in 107 observations. The floating exchange rate period from December 1997 through December 2015 consists of 217 observations.

In preparation of panel data analysis, Table 1 shows the descriptive statistics for all developing countries in our study. Panel A and Panel B show the statistics during a fixed and floating exchange rate regime, respectively.

Table 1: Descriptive Statistics-All countries

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	1386	8.72E+06	2.99E+07	2.96E+03	1.57E+08
ΔM1	1386	-2.21E+06	1.01E+07	-3.35E+03	2.80E+07
TB	1386	-545.229	1768.378	-9952.000	3852.043
ΔTB	1386	-4.509	734.689	-13316.000	4876.910
IR	1386	10.752	9.896	1.500	57.172
ΔIR	1386	-0.068	1.855	-12.257	20.840
ER	1386	194.167	367.205	0.163	1757.895
ΔER	1386	0.436	33.793	-778.143	685.670
SE^{EM}	1386	1203.329	1382.617	0.001	13002.000
RSR^{EM}	1386	0.029	0.254	-0.356	1.198
Panel B-Floating exchange rate regime					
SE^{DM}	3186	6023.372	5431.269	448.920	20726.990
RSR^{DM}	3186	0.550	2.860	-0.253	21.174
M1	3186	1.79E+08	5.22E+08	9.77E+03	3.35E+09
ΔM1	3186	2.01E+06	1.80E+07	-1.05E+08	2.19E+08
TB	3186	1079.118	1910.527	-5906.410	10235.370
ΔTB	3186	13.446	1256.486	-6706.105	6564.472
IR	3186	6.777	7.578	0.666	74.750
ΔIR	3186	-0.031	1.456	-15.580	27.850
ER	3186	689.414	1916.472	0.251	11153.340
ΔER	3186	2.866	97.239	-1815.736	3033.287
SE^{EM}	3186	6713.127	13332.210	0.001	71897.000
RSR^{EM}	3186	0.0350	0.267	-0.600	1.312

This table shows the descriptive statistics in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of trade balance, interest rate, exchange rate, and M1 money supply . Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Each panel illustrates the number of observations during each regime and the test variables in levels, first difference, and returns. These variables include the developed market stock exchange indices and returns, M1 money supply, changes in M1 money supply, trade balance, changes in trade balance, interest rate, changes in interest rate, bi-lateral exchange rate, changes in bi-lateral exchange rate, developing market stock indices, and the developing market real stock returns. The descriptive statistics for each developed country and each of its trading

partners is similarly illustrated in Appendix "A1" Table A1.3.3 through Table A1.3.18. These tables show the statistics on Australia/South Korea, Australia/Thailand, Australia/Indonesia, US/China, US/Mexico, US/Brazil, Canada/China, Canada/Mexico, Canada/South Korea, New Zealand/China, New Zealand/South Korea, New Zealand/Thailand, Israel/China, Japan/Indonesia, Japan/Thailand, and Japan/South Korea.

The stock returns for the developed and developing countries during each monetary regime deserve attention. The average annual developed country real stock returns during the entire range of study is 8.58 percent. For the developing countries, the annual real stock returns are 28.01 percent and 30.18 percent, for the fixed and floating exchange rate periods, respectively. The annual real stock returns, with consideration of inflation for South Korea increased from -4.05 percent during a fixed regime to 21.39 percent during the floating regime. Thailand's annual real returns increased from -10.01 percent to 5.96 percent. Indonesia experienced the highest degree to change, from an annual 5.81 percent equity market real return to 40.45 percent for the fixed and floating regimes, respectively. China experienced a 4.81 percent annual real return during a fixed regime, which increased to 21.48 percent during the floating regime. Brazil enjoyed an increase from 1.42 percent to a 19.68 percent equity market annual real returns during a floating exchange rate regime. Mexico, during a fixed exchange rate regime experienced a 170.08 percent real return, as opposed to a 72.10 percent annual real return during the floating exchange rate period. DataStream data for the MXBOLSA index begins on January 1988 with a price of 131 per share and grows by 250 percent, to a price of 324 per share within the next 2 years. This trend continues throughout the fixed regime period until the currency crisis. On December 2015, the growth extends to 43984 shares. The strong fixed exchange rate real returns can be attributed to the inception of the MEXBOL index in 1989,

concurrent with increased openness which grew from a value of 34.88 to 53.23 during this period representing a 52.61 percent increase in trade openness. During the floating exchange rate regime, the growth in openness was less significant and ranged from 53.23 to 62.01 in 2010; representing only a 16.49 percent growth in openness (FRED, 2017).

This researcher believes that the returns would have been greater during the post-crisis period if not for the "great recession" crisis of June 2007 through December 2009 and other domestic crisis' that effected the growth of these developing countries. Mexico endured the currency crisis of 1994 and 2002 during their floating exchange rate period. In late 1997, Thailand spent billions of dollars of its foreign reserves to defend the Thai baht against speculation attacks. Mexico suffered the currency devaluation in December 1994 and prompted the exchange rate conversion and was affected by the Asian crisis in the liquidation of Asia's largest private investment bank. The IMF provided Brazil with a rescue package after the economy was affected by the collapse of the Asian stock markets. These results suggest that even though an investor can ignore risks in daily currency and inflation fluctuations by investing in fixed regimes, the unknown challenge of a country's effort in a change of monetary policy regime may have a positive influence in investment decisions. The indices for the developing equity markets during a floating regime perform better in all tests, with exception to Mexico.

The volatilities associated with the adoption of floating exchange rate regimes in this study prove to be substantial as suggested by Calvo and Reinhart (2002). The average developing country equity market return standard deviation for a period which includes one-year prior, and one-year after the floating exchange rate conversion is 203.3 percent greater than that of the previous year. Furthermore, the aggregate exchange rate volatility is 189 percent and 278

percent for the fixed and floating exchange rate periods, respectively, representing a 147 percent increase in volatility after the floating rate adoption as compared to that of a fixed rate period.

Table 2 shows the correlation matrix for all countries of the study in preparation for panel data analysis. Panel A and Panel B show the correlation during a fixed and floating exchange rate regime, respectively. The aggregate correlation matrix does not reflect any strong, or very strong correlations, at values between 0.60 to 1.00. The strongest correlation during the fixed exchange rate for South Korea is a negative 0.3080 which is a weak downhill correlation between the developed equity market and domestic trade balance. The strongest correlation for South Korea during a floating regime is 0.5917, a moderate positive correlation between the developing country M1 money supply and developing country equity market. The lack of correlation using aggregate data reflects a potential problem in VAR panel data analysis.

Table 2: Correlation Matrix; All Countries (Panel Data)

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-South Korea (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	-0.1418	1.0000				
	0.0000					
TB	-0.3080	-0.0994	1.0000			
	0.0000	0.0002				
IR	0.1250	0.2059	0.0469	1.0000		
	0.0000	0.0000	0.0810			
ER	-0.2430	-0.1508	0.1187	0.0959	1.0000	
	0.0000	0.0000	0.0000	0.0004		
SEEM	-0.1888	0.1061	0.0332	0.1148	-0.2724	1.0000
	0.0000	0.0001	0.2172	0.0000	0.0000	
Panel B-South Korea (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.0366	1.0000				
	0.0387					
TB	0.0558	-0.2853	1.0000			
	0.0016	0.0000				
IR	-0.0917	-0.0140	-0.0832	1.0000		
	0.0000	0.4300	0.0000			
ER	-0.0794	-0.1209	0.1195	0.0797	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	-0.1261	0.5917	-0.1121	0.1268	-0.1227	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	

*This table shows the aggregate correlation values between the stock indices of the developed countrys' equity markets and the emerging countrys' M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Each panel shows the degree of bi-variate correlations during a fixed and floating exchange rate regime in levels, first difference, and returns. These variables include the developed market stock exchange index, developed market stock returns, developing markets; M1 money supply, changes in M1 money supply, trade balance, changes in trade balance,

interest rate, changes in interest rate, exchange rate, changes in exchange rate, developing market stock index, and developing market real stock returns. The correlation matrices for each developed country and its corresponding trading partner is similarly illustrated in Appendix "A1" Table A1.3.19 through A1.3.34. These tables include the correlation at levels, first difference, and returns for each bi-lateral country analysis.

Table A1.3.35 in Appendix "A1" provides a summary of the correlation matrices on emerging market stock returns for each individual test between the developed country and their corresponding trading partners. Only the very strong relationships that possess a coefficient greater than 0.80 with significance of ***$p<0.001$ are considered in this evaluation. During a fixed exchange rate regime, in four of the sixteen tests, which include Australia/Indonesia, US/Mexico, Canada/Mexico, and Canada/South Korea, show a very strong correlation variable with domestic returns. The primary correlation variable for the fixed regime group is M1 money supply for three of the four tests. The average correlation value for the M1 money supply variable is a strong 0.9221. The secondary correlation variable is the developed country equity market, with a correlation level of 0.9290, but is only applicable in the case of Australia/Indonesia, as a primary correlation variable. The exchange rate and interest rate variables play a tertiary and quaternary correlation role only when Mexico participates as the developing country. The exchange rate correlation is 0.8788. The interest rate has an inverse effect on domestic returns at -0.8426 as expected. During a floating regime, eleven of the sixteen tests results indicate very strong correlations. The primary variable correlated with developing market returns is M1 money supply, with a strong correlation of 0.9133 for the eleven tests. The secondary variables are that of the developed country equity market and the bi-lateral exchange rate, with each correlating twice with domestic returns. Both variables are

highly correlated with an average correlation value of 0.8785 and 0.8625, for the developed equity market and exchange rate, respectively. Figure B1.3.1 in Appendix "B1" illustrates a column graph comparing the quantity of test correlations during each regime. During a fixed regime, M1 money supply is significant for four of the sixteen correlations, with the developed country equity market, bi-lateral exchange rate, and interest rate each representing two correlations each, out of the sixteen correlation tests. During a floating regime, M1 money supply is attributed in having eleven out of sixteen very strong correlations with domestic returns. The bilateral exchange rate is highly correlated in three of the sixteen correlation tests, followed by the developed equity market with two.

These results indicate that during a fixed exchange rate regime period, very few variables are very highly correlated with domestic returns but differ during a floating regime. M1 money supply is found to be a very highly correlated variable responsible for having a positive correlation on the domestic equity markets. These correlation results are in accordance with the Mundell-Fleming model for floating monetary policy expansion, suggesting that in the short run, output is increased, resulting in a concurrent increase in equity markets prior to the reduction in interest rates.

1.4. Methodology and Empirical Results

1.4.1. Methodology

The applied methodology in any form of research is important in dealing with interdependent variables. Interdependence among domestic macroeconomic variables introduce bias and therefore lead to a search of methodologies which can reduce or eliminate this collinearity. The problem of interdependence between variables has been ignored for a long time, and only in the last decade has it been seriously regarded (Jahn and Stephan, 2015). The techniques applied in this study are designed to correct for simultaneous equation bias and are routinely used as effective tools in macroeconomic studies. In using a bilateral model of small countries with a high level of openness, interdependences and causality is reduced. Vector autoregression (VAR), the impulse response functions (IRF), and variance decompositions (VD) methodologies are utilized to observe the effects of each model variable on the developing market real stock returns. The results identify the level of influence that developed countries have on each of its trading partners during a fixed and floating exchange rate regime, while considering domestic macroeconomic factors and trade.

It is common in empirical testing of macroeconomic VAR models to estimate impulse responses. The IRF graph results illustrate the monthly effect of one variable on another, based on a single standard deviation unit innovation to the independent variable. The confidence bands represent an upper and lower constraint significance of a 95% confidence level as statistical inference.

Variance decomposition tests measure the percentage contribution of each variable to the k-step-ahead forecast error variance of the dependent variable, therefore providing the means for determining the relative importance of innovations in explaining the variation of the variable and

its effect on other variables (Koray and Lastrapes, 1989). Some studies show that negative relationships exist between exchange rates and stock prices, and others show positive correlations. One reason for the negative relationship may be a continued manipulation of the exchange rate as suggested by Solnik (1987). Another supportive explanation may follow the premise that a decrease in stock prices cause a reduction in domestic investor wealth, therefore leading to a lower demand for money with ensuing lower interest rates. Lower rates encourage capital outflows, resulting in currency depreciation. Under the assumption of the portfolio approach, stock price is expected to lead exchange rate with a negative correlation (GrangerHuangb and Yang, 2000).

1.4.2. Unit Root and Lag Length Tests

The findings of Nelson and Plosser (1982) have implications for the understanding of economic fluctuations. Nelson and Plosser interpreted the unit root behavior of many variables as evidence that real (supply) shocks are a major source of economic fluctuations, a view emphasized by the Real Business Cycle approach advocated by Prescott (1986). In a similar manner, the Augmented Dicky-Fuller and Phillips-Perron tests are conducted to avoid spurious relationships among the variables. The null hypothesis for the Augmented Dickey-Fuller and Phillips-Perron tests state that a unit root exists, meaning that the variable is non-stationary. A result reflecting significance at returns and first difference is the prerequisite in attaining the desired result of stationarity. Table 3 shows the results of each of the unit root tests, confirming the absence of a unit root for the developed country indices, their developing country trading partners' indices, and each developing country's M1 money supply, trade balance, interest rate, and exchange rate, with a very few exceptions. Each variable is shown to be stationary and significant at the highest level of ***p>0.001. Note that stationarity exists in returns and first

differences as expected. As a sample of the typical graphs confirming stationarity, Figures B1.4.1A and B through B1.4.5A and B in Appendix "B1" show the plotted relationship of the time series data with a constant and trend at levels for South Korea's variables and at first difference and returns without a constant and trend. Even though only South Korea's data is represented in the figures, the balance of the developing country variables can be presumed to have the same results based on staionarity.

VAR models require the use of lag length testing, which is a prerequisite for establishing an accurate and stable model. Lag length analysis is critical due to the time delay of information when dealing with macroeconomic and stock return data, especially since stock return information is usually not instantaneous (BilsonBrailsford and Hooper, 2001). Hence, a contemporaneous measurement of data at time *t* would assume a contemporaneous relationship between the variables and returns, which would not be an appropriate or logical estimation. Akaike Information Criterion (AIC), Hannan-Quin Criterion (HQC), and the Schwarz Information Criterion (SIC) represent the multivariate information criteria testing options for optimal lag orders. For this study, the Akaike information criteria (AIC) is used for each model in identifying the optimal number of lags for each developed and developing country during each of the testing period 6-vector models. For monthly frequency data, the AIC tends to produce the most accurate structural and semi-structural impulse response estimates for realistic sample sizes (Ivanov and Kilian, 2005). The results of the unrestricted vector autoregressive AIC estimated time series lags, for each model, is shown in Appendix "A1" Table A1.4.1. The number of lags for each test vary as a function of exchange rate period, country, and data.

Table 3: Unit Root Tests (Augmented Dicky Fuller and Phillips-Perron)

	ADF			Phillips-Perron		
Variables	Levels	Fist Diff	Returns	Levels	Fist Diff	Returns
Panel A-Developed Countries						
AUSE	-1.613		-5.485***	-1.372		-14.756***
USSE	-0.954		-5.174***	-0.858		-13.561***
CNSE	-1.877		-6.263***	-1.112		-15.313***
NZSE	-2.147		-5.381***	-1.471		-15.241***
ISSE	-0.796		-5.241***	-0.853		12.542***
JPSE	-3.068*		-6.487***	-4.532***		16.050***
Panel B-South Korea						
KOSE	-2.456		-4.721***	-1.055		-10.943***
KOER	-1.578	-5.510***		-1.703	-14.247***	
KOIR	2.676	-5.951***		-2.334	-16.132***	
KOM1	0.144	-5.501***		3.838	-14.599***	
KOTB	-3.435	-11.574***		-4.759	-27.344***	
Panel C-Thailand						
THSE	-1.613		-5.485***	-14.254		-14.524***
THER	-2.264	-6.819***		22362	-35.004***	
THIR	-1.445	-3.564***		-1.716	-2.290**	
THM1	1.077	-8.858***		1.101	-27.980***	
THTB	-5.177***	-9.495***		-7.162***	-34.803***	
Panel D-Indonesia						
IDSE	-1.613		-3.457***	0.297		-9.729***
IDER	-0.960	-8.649***		-1.351	-16.682***	
IDIR	-2.898*	-5.405***		-1.990	-11.096***	
IDM1	4.706	-8.896***		4.852	-20.421***	
IDTB	-2.462	-9.206***		-4.811	-33.499***	
Panel E-China						
CHSE	-1.856		-4.851***	-0.779		-14.070***
CHER	-0.318	-4.885***		-2.272	-15.230***	
CHIR	-4.075**	-7.248***		-3.825**	-18.864***	
CHM1	3.769	-5.893***		3.74	-17.000***	
CHTB	-1.438	-10.207***		-5.522***	-24.463***	
Panel F-Mexico						
MXSE	0.061		-3.443***	0.432		-11.660***
MXIR	-0.624	-8.592***		-0.638	-18.443***	
MXIR	-3.225	-10.660***		-3.206**	-20.169***	
MXM1	7.117	-8.546***		6.327	-18.797***	
MXTB	-3.995**	-10.038***		-6.597***	-29.259***	
Panel G-Brazil						
BRSE	-1.497		-5.390***	-0.858		-13.095***
BRER	-1.099	-5.899***		-0.896	-15.772***	
BRIR	-3.981**	-8.059***		-5.239***	-15.557***	
BRM1	0.322	-9.608***		0.291	-21.021***	
BRTB	-3.222*	-10.258***		-6.226	-28.672***	

This table illustrates the results for the Dickey-Fuller and Phillips-Perron unit root tests. The first panel represents the indices and returns for the developed countries. The subsequent panels show the indices, indices returns, and exchange rate, interest rate, M1 money supply and trade balance in levels and in first difference. Levels t-stat (ADF): 1% =-3.458, 5% =-2.879, 10% =-2.570; Levels t-stat (PP): 1% =-3.461, 5% =-2.880, 10% =-2.570

1.4.3. Vector Autoregression

The vector autoregression (VAR) model is an effective method of describing the dynamic interaction among economic variables (Koray and Lastrapes, 1989). A VAR model uses floating

approximation to the reduced form of the unknown true economic structure of a model (Sims, 1980). This model established by Sims satisfies the large scale economic models of time based data with very few restrictions (Lastrapes and Koray, 1990; McMillin, 1991). Approximate lag lengths are used in this assessment, which is relevant due to time delays in the production of information concerning macroeconomic variables in models (Ortiz and Arjona, 2001). This is particularly true on the subject of stock returns. Perron (1989) and Rappoport and Reichlin (1989) apply unit root analysis to the Nelson-Plosser data set and to postwar quarterly real GNP time series data (Nelson and Plosser, 1982). They conclude that persistent shocks found by Nelson and Plosser may have been severely exaggerated as economists have failed to consider the fact that there may have been an important structural change in the trend. These findings have motivated tests of the unit root hypothesis against the trend-stationary alternative where the deterministic trend can have a structural break, which are handled exogenously. For this test, a standard reduced form VAR is used to investigate the potential interactions between the selected variables and domestic real stock returns. These VAR models can be viewed as floating approximation to the reduced form of the true economic structure (Sims, 1980).

By identifying the optimum number of lags, and confirming model stationarity, the VAR with the appropriate Cholesky decomposition order is employed to capture the interdependencies of the time series data. Thereby implying that the correlation between error terms is non-existent as illustrated in reduced form VAR equation (11).

$$y_t = m + \rho_1 y_{t-1} + \rho_2 y_{t-2} + ... + \rho_p y_{t-p} + \varepsilon_t \qquad (11)$$

Where, $\rho_1 = \rho_2 = ... = \rho_p = 0$. Therefore, $y(L)_t = m + \varepsilon_t$; Resulting in the vector of y_t as noise.

At first glance, VAR's appear to be straight forward multivariate generalizations of univariate autoregressive models. However, they turn out to be one of the key empirical tools in modern macroeconomics (Del Negro and Schorfheide, 2011). This methodology represents a simple alternative to the traditional multiple equation models and are particularly used for forecasting through reduced form VARs.

This study includes a six-series vector autoregressive model to investigate the interactions between the various developed countries and their corresponding trading partners during two distinctive exchange rate periods. The results indicate the role that the two opposing exchange rate regimes potentially play in developing country growth proxied by the domestic equity market indices, with the consideration of developed country trading partners. The data is analyzed in its entirety and grouped per developed country and developing trading partners during each exchange rate regime. Sims (1980) finds that most economists would argue that many macroeconomic variables are interrelated and that models involving a large number of variables may cause incomplete results since data cannot discriminate between competing theories. It is however feasible to estimate large scale macroeconomic models as unrestricted reduced forms of VAR by treating all variables as endogenous, where the number of parameters is explicitly a function of data sample size. Equation (12) and equation (13) include variables for both the small and large open economies. The large economy is represented by the developed trading partner equity market. The bilateral exchange rate is also a function of both the developed and developing countries. Identifying additional constraints beyond lag lengths or dampening effects to justify these large models is an existing issue that promotes continued discussion. Constant parameter VARs result in a valid foundation for modeling and testing hypotheses. A variable priority and exogeneity structure facilitate model evaluation resulting in

an efficient model development strategy (Clements and Mizon, 1991). The conventional orthogonalization process, where the vectors are shown to be non-overlapping and independent, requires forcing a causal ordering of these elements (Spencer, 1989). For the results to be considered as ubiquitous, they must be robust despite the sensitivity to causality, which is a function of country, time, and events. The 4 vector VAR models as identified by Spencer (1989), centers on the effects of money shocks on real output, prices, and interest rates. The various data sets are in levels, linear trends, and at first difference. He suggests that it is important to correctly capture the relationship and causality between the focal variables of money and output, considering that it is likely that contemporaneous correlations will increase as data becomes more temporally aggregated. He examines time series data in monthly, quarterly, semiannual, and annual frequencies from 1948 to 1978, the same period as tested by Sims, and tests the effects that variable order, data trend, lags, and data frequencies have on results. The results suggest a variety of elements. When money supply appears before output, the output forecast error variance explained by money innovation is greater than in the opposed variable order. When output precedes money, the results vary from 5 to 20 percent. On the other hand, when money supply precedes output, the results vary from 15 to 40 percent. However, only four variables are considered in this test with only money supply and output being of interest. The Cholesky decomposition order of independent variables for variance decomposition testing includes assigning variable order from exogenous to endogenous as identified by economic theory. Robustness testing regarding the quantity and interdependence of the model variables and the Cholesky variance decomposition order is outlined in the "Robustness Testing" section 1.4.7. of this Chapter.

This study includes several of the variables noted in the Mundell-Fleming Theory (Mundell, 1963a). During a fixed exchange rate period, the exchange rate variable becomes exogenous to the domestic entity (Obstfeld and Stockman, 1985). Due to this fixed exchange rate regime system, interest rate parity is forced, resulting in the equalization of interest rates between the participating countries (Suranovic, 2010). Since the exchange rate cannot be changed, excess demand for foreign currency by the private FOREX will automatically be relieved by the FED intervention, resulting in a reduction of money supply, causing the equilibrium to be adjusted to the original level, and equalizing interest rates. Consequently, M1 money supply then affects the trade balance. In the matter of monetary expansion during a floating exchange rate regime, we can expect the following sequence of events; an increase in M1 money supply and output, a depreciation of currency due to the cash outflow resulting from a reduction in interest rates, and an increase in trade volume. The opposite effect can be expected during monetary contraction. These variables, either individually or as a whole, influence developing market stock returns. However, the sequence of events based on this model do not reflect the level of influence each variable imposes on developing country real stock returns. The Cholesky order of variables should be arranged by the expected degree of response to fundamental innovations. Since fiscal policy is more effective in fixed exchange rate regimes, and monetary policy is more effective in floating exchange rate regimes, two models are established. Since, one principal attribute of the generalized impulse response function is that the responses are invariant to any reordering of the VAR variables (Pesaran and Shin, 1998), we use this function based on 2 lags to identify the Cholesky order for each of the exchange rate regimes to aid in identifying the Cholesky order sequence. The developing market trading partner with the most observations, represented by Australia/South Korea, is analyzed with its

corresponding developed country for each monetary regime. The results of this analysis are reflected in the order of variables as shown in equations (12) and (13). Table A1.4.2 and A1.4.3 in Appendix "A1" shows the Cholesky order of variables based on the outcome of the impulse response test for each exchange rate regime.

1.4.4. Fixed and Floating Exchange Rate Regime Models

Fiscal and monetary policy have different effects on economies based on the exchange rate regimes. Fiscal policy is less effective under floating exchange rate regimes than under fixed rate regimes and monetary policy is more affective during floating regimes following Mundell asset market behavior governing exchange rate movement (Marston, 1985). A country's choice of regimes is therefore based on the regime which will result in minimizing the effects of disturbances on output. It is therefore necessary to present two distinctive models for each exchange rate regime.

During a fixed exchange rate period, with foreign exchange rate pegging, the variable becomes exogenous to the domestic trading partner (Obstfeld and Stockman, 1985). It is therefore the most exogenous variable, second to the developed country equity market real stock returns. Due to this fixed exchange rate regime system, interest rate parity is required resulting in the equalization of interest rates between the participating countries (Suranovic, 2010). Therefore, it becomes the third exogenous variable. Since the exchange rate cannot be changed, excess demand for the foreign currency, by the private FOREX will automatically be relieved by the FED intervention, resulting in a reduction of money supply, causing the equilibrium to be adjusted to the original level, since interest rates are equalized. Consequently, the money supply affects the trade balance. However, the preliminary impulse response functions results indicate

that trade balance has a much greater influence on stock returns than M1 money supply in a fixed regime, resulting in making M1 money supply the fourth variable of exogeneity with trade balance becoming the fifth variable of the Cholesky order sequence. The real stock returns of the developing market as expected, have the greatest impact on the market itself and maintain the sixth position of the Cholesky order sequence. The order of variables is based on the data and variables obtained for this test are country specific, and a function of time and events. The 6-vector VAR model for testing during a fixed exchange regime period is defined as follows:

$$Z_f \equiv \left[RSR_{t-1}^{DM}, \Delta ER_{t-1}^{EM}, \Delta IR_{t-1}^{EM}, \Delta M1_{t-1}^{EM}, \Delta TB_{t-1}^{EM}, RSR_{t-1}^{EM} \right] \qquad (12)$$

Where $Z_{f,}$ represents the fixed exchange rate regime period of study. The developed equity market variable is observed as real stock returns RSR_{t-1}^{DM}. The following variable for the developing market is the change in bi-lateral exchange rate ΔER_{t-1}^{EM}, change in interest rate ΔIR_{t-1}^{EM}, change in domestic M1 money supply $\Delta M1_{t-1}^{EM}$, change in trade balance ΔTB_{t-1}^{EM}, followed by the developing equity market variable of real stock returns, RSR_{t-1}^{EM}. Several macroeconomic VAR methodology publications follow a similar sequence for some of the variables as illustrated by Mollick (2002), Abugri (2008) and Diamandis and Drakos (2011) who used a vector error correction model.

The floating exchange rate model differs from the fixed model based on the differential characteristics of each exchange rate regime. During a floating exchange rate system, the economic process is permitted to function without a high level of governmental intervention by allowance of currency valuation by the forex market based on supply and demand, as compared to its function during a fixed regime. The developed equity market real stock returns remain the

most exogenous variable since a small country cannot influence the returns of a developed country, even though several of the IRF results indicate a causal effect on domestic returns. M1 money supply is the second exogenous variable, followed by trade balance, interest rate, bi-lateral exchange rate, and developing country real stock returns in expected degree of influence of developing country real stock returns during floating regimes. Numerous publications using PVAR or VAR methodologies confirm that the interest rate variable is more exogenous than exchange rate, such as Mollick (2002) , Dimitrova (2005), and Akram (2009). As addressed for the fixed exchange rate model, the order of variables is based on the variable data obtained which is country specific, and a function of time and events. The 6-vector VAR model for testing analysis during a floating exchange regime period is defined as follows:

$$Z_{nf} \equiv [RSR_{t-1}^{DM}, \Delta M1_{t-1}^{EM}, \Delta TB_{t-1}^{EM} \Delta IR_{t-1}^{EM}, \Delta ER_{t-1}^{EM}, RSR_{t-1}^{EM}] \qquad (13)$$

Where Z_{nf} represents the non-fixed, or floating period of study. The developed equity market variable is observed as real stock returns RSR_{t-1}^{DM}. The following variable for the developing market is the change in domestic M1 money supply $\Delta M1_{t-1}^{EM}$, change in trade balance ΔTB_{t-1}^{EM}, change in interest rate ΔIR_{t-1}^{EM}, change in bi-lateral exchange rate ΔER_{t-1}^{EM}, followed by the developing equity market variable of real stock returns, RSR_{t-1}^{EM}. Abugri (2008) finds that interest rates are more exogenous than exchange rates in effecting developing market returns during the impulse response function initial shock and six months later, after equilibrium is reached. M1 money supply is the most exogenous variables since it is a dependent variable to cashflows (Mundell, 1963a). Nelson and Kang (1982) suggest that VAR time series data is better presented in difference stationary processes. In Equation (14) for example, fundamental innovations to the stationary variable 2, do not influence stationary variable 1, but stationary variable 2 responds to

shocks of stationary variable 1, but not stationary variable 3. The significance of the Cholesky order is illustrated in the VAR matrix for fixed exchange rate regimes as shown in equation (14). The matrix equation for a floating exchange rate regime is shown in equation (15).

$$RSR_f^{EM} \equiv \begin{matrix} RSR^{DM} \\ \Delta ER^{EM} \\ \Delta IR^{EM} \\ \Delta M1^{EM} \\ \Delta TB^{EM} \\ \Delta RSR^{EM} \end{matrix} = \begin{bmatrix} a_{12} & 0 & 0 & 0 & 0 & 0 \\ a_{21} & a_{22} & 0 & 0 & 0 & 0 \\ a_{31} & a_{32} & a_{33} & 0 & 0 & 0 \\ a_{41} & a_{42} & a_{43} & a_{44} & 0 & 0 \\ a_{51} & a_{52} & a_{53} & a_{54} & a_{55} & 0 \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & a_{66} \end{bmatrix} \begin{pmatrix} \varepsilon_{1t}^{RSR^{DMshock}} \\ \varepsilon_{2t}^{\Delta ER^{EMshock}} \\ \varepsilon_{3t}^{\Delta IR^{EMshock}} \\ \varepsilon_{4t}^{\Delta M1^{EMshock}} \\ \varepsilon_{5t}^{\Delta TB^{EMshock}} \\ \varepsilon_{6t}^{\Delta RSR^{EMshock}} \end{pmatrix} \tag{14}$$

Where RSR_f^{EM} is the real stock returns for the emerging markets during a fixed exchange rate regime.

$$RSR_{nf}^{EM} \equiv \begin{pmatrix} RSR^{DM} \\ \Delta M1^{EM} \\ \Delta TB^{EM} \\ \Delta IR^{EM} \\ \Delta ER^{EM} \\ \Delta RSR^{EM} \end{pmatrix} = \begin{bmatrix} a_{12} & 0 & 0 & 0 & 0 & 0 \\ a_{21} & a_{22} & 0 & 0 & 0 & 0 \\ a_{31} & a_{32} & a_{33} & 0 & 0 & 0 \\ a_{41} & a_{42} & a_{43} & a_{44} & 0 & 0 \\ a_{51} & a_{52} & a_{53} & a_{54} & a_{55} & 0 \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & a_{66} \end{bmatrix} \begin{pmatrix} \varepsilon_{1t}^{RSR^{DMshock}} \\ \varepsilon_{2t}^{\Delta M1^{EMshock}} \\ \varepsilon_{3t}^{\Delta TB^{EMshock}} \\ \varepsilon_{4t}^{\Delta IR^{EMshock}} \\ \varepsilon_{5t}^{\Delta ER^{EMshock}} \\ \varepsilon_{6t}^{\Delta RSR^{EMshock}} \end{pmatrix} \tag{15}$$

Where RSR_{nf}^{EM} is the real stock returns for the emerging markets during a non-fixed or floating exchange rate regime.

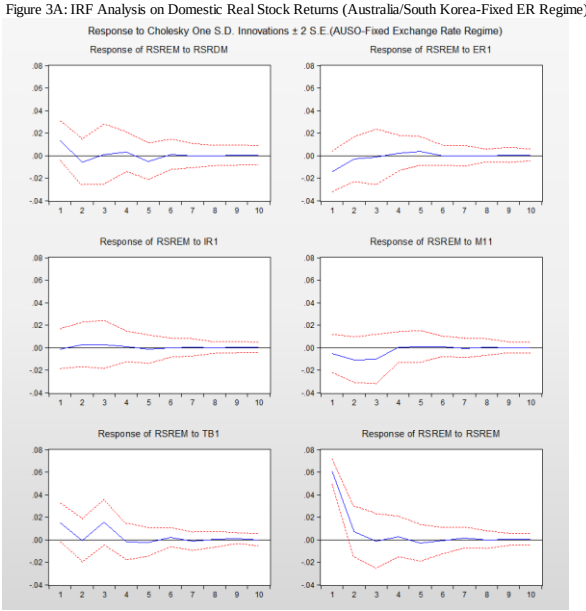
Originally, the data was formatted for a nested structure of panel VAR for a cross-sectional group analysis, even though the VAR methodology is the most widely used in macroeconomic studies. The PVAR analysis of the macroeconomic model proved to be an

ineffective analytic tool as outlined in the "Problem in Using Panel VAR Models" section 1.4.8. of this Chapter.

1.4.5. Impulse Response Function

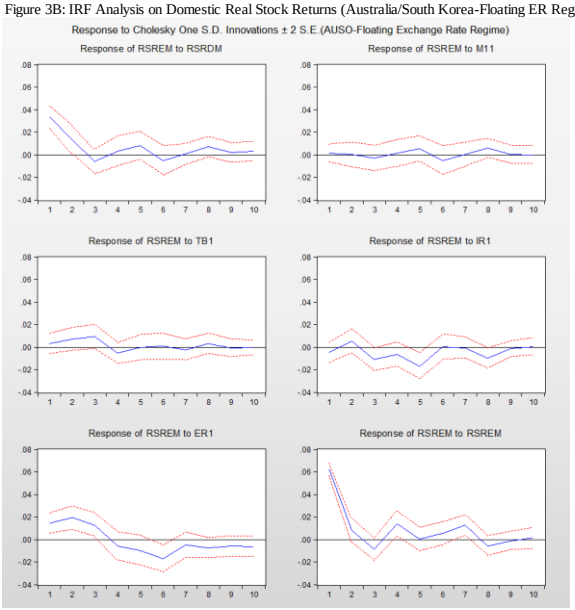
In the following IRF analysis, the innovation immediate responses are observed at period-1, with a continual observation through equilibrium period-10. A focus is applied to the responses near or greater than a 2 percent standard deviation unit which is equivalent to the standard error of the IRF test. These graphs are outlined in Figures 3A-3B, through 18A-18B. The "A" suffix represents the innovation results during a fixed exchange rate regime, while the "B" suffix denotes the results for the floating exchange rate regime. The IRF results for the developed country of Australia and the developing country of South Korea are shown in Figure 3A-3B.

Figure 3A: IRF Analysis on Domestic Real Stock Returns (Australia/South Korea-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Australia and emerging county of South Korea exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 3B: IRF Analysis on Domestic Real Stock Returns (Australia/South Korea-Floating ER Regime

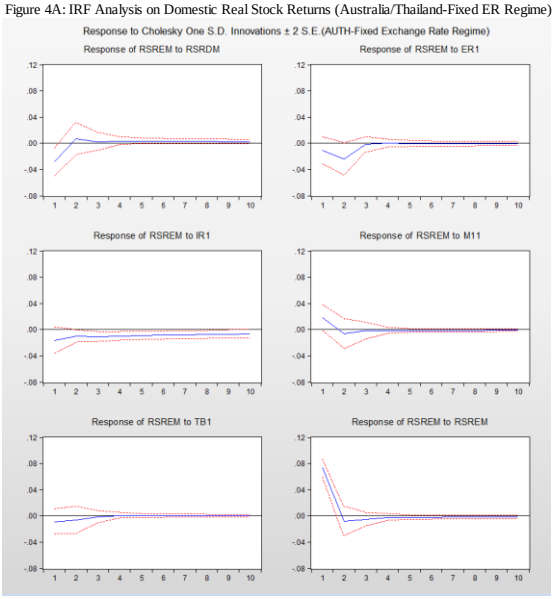


These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Australia and emerging county of South Korea exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

During a fixed exchange rate period for Australia/South Korea, the developed equity market innovation initially has a positive 1.7 percent standard deviation unit effect on domestic real stock returns, which returns to the zero-effect equilibrium baseline at period 2.5. During a floating exchange rate regime, the market innovation has twice the impact at an initial 3.75 percent effect which declines to the zero-effect equilibrium baseline at period 3. The exchange rate during a fixed regime initially has a negative 1.7 percent effect on domestic returns before returning to the zero-effect baseline at period 2. The exchange rate during a floating regime is more volatile with an initial positive effect of 1 percent, before dropping to a negative effect of 1.7 percent at period 5 and remaining slightly below the baseline through period 10. The interest rate is flat during the fixed exchange rate period having no effect on domestic returns but is very volatile during the floating regime, having an initial negligible negative impact on returns, and reaching a negative peak of a 2 percent effect on domestic returns at period 5, before returning to the zero-effect equilibrium baseline at period 9. M1 money supply is not significant during the fixed or floating regimes.

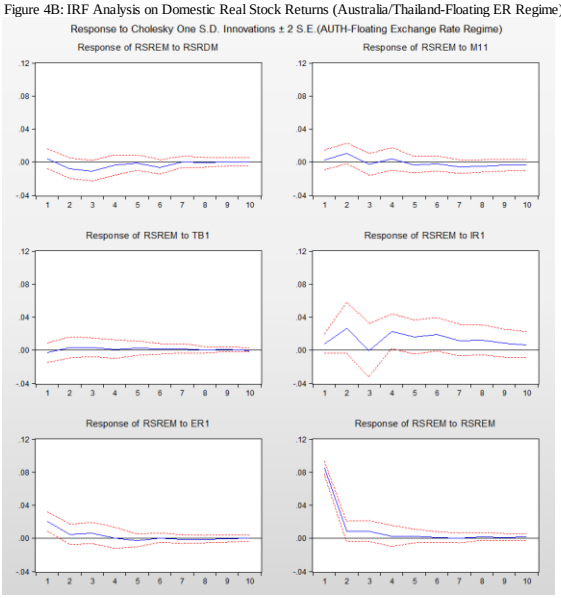
The IRF results for the developed country of Australia and the developing country of Thailand are shown in Figure 4A-4B.

Figure 4A: IRF Analysis on Domestic Real Stock Returns (Australia/Thailand-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Australia and emerging county of Thailand exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 4B: IRF Analysis on Domestic Real Stock Returns (Australia/Thailand-Floating ER Regime)

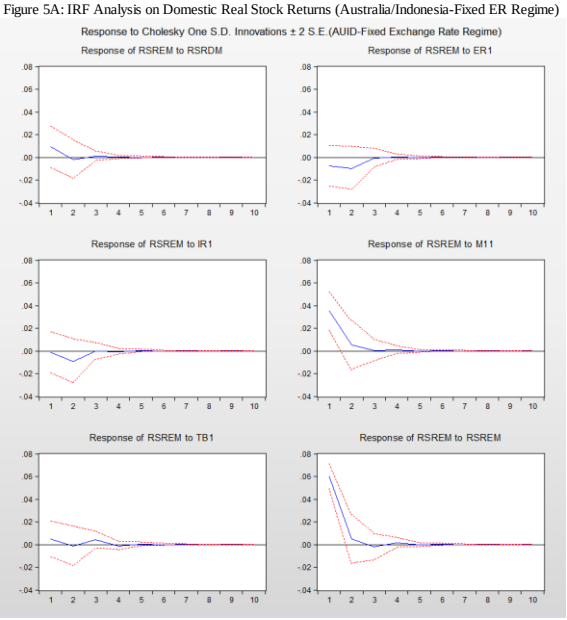


These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Australia and emerging county of Thailand exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

Immediately after the innovation to the developed country of Australia real stock returns during a fixed regime, the domestic returns of Thailand experience a negative 2 percent standard deviation unit response, which quickly diminishes by period 2 as it reaches the zero-effect equilibrium baseline. During a floating exchange rate regime, the developed country innovation effect is insignificant. Initially during a fixed regime, the exchange rate has a negative 1 percent effect on domestic returns, and attains a negative 2 percent influence at period 2, before reaching the zero-affect equilibrium baseline at period 3. During a floating period, the exchange rate has a positive 2 percent effect initially, which quickly reaches the zero-effect equilibrium baseline by period 2. Interest rates effect domestic returns during the floating regime only. Even though the initial innovation moderately effect returns at positive 0.97 percent, it immediately increases to a positive 3 percent effect at period 2, and quickly dissipates to the zero-affect baseline in period 3, before incurring a positive effect again and peaking at a 2 percent effect at period 4, before gradually declining to near the zero-affect baseline by period 10.

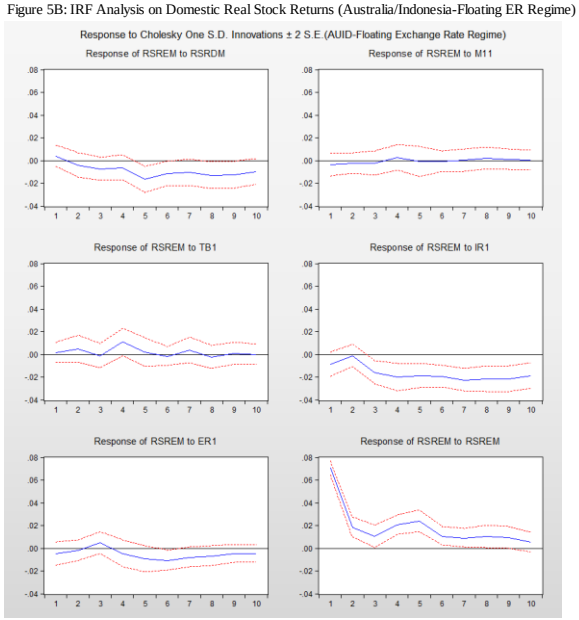
The IRF results for the developed country of Australia and the developing country of Indonesia are shown in Figure 5A-5B.

Figure 5A: IRF Analysis on Domestic Real Stock Returns (Australia/Indonesia-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Australia and emerging county of Indonesia exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 5B: IRF Analysis on Domestic Real Stock Returns (Australia/Indonesia-Floating ER Regime)

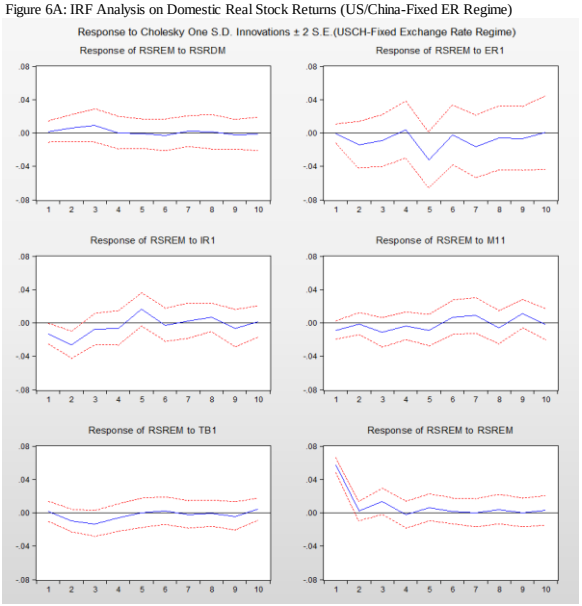


These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Australia and emerging county of Indonesia exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

During a fixed exchange rate regime, only M1 money supply innovations effect the domestic returns of Indonesia near or greater than a 2 percent standard deviation unit. A positive 4 percent standard deviation unit effect is observed initially, which dissipates to the zero-affect equilibrium baseline by period 3. During a floating exchange rate regime, M1 money supply has no effect on domestic returns throughout the entire range of 10 periods. No other variable during each of the exchange rate regimes affect domestic returns.

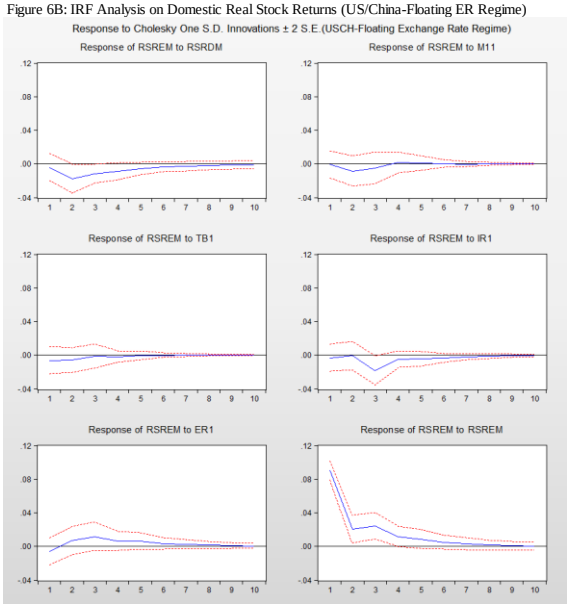
The IRF results for the developed country of the US and the developing country of China are shown in Figure 6A-6B.

Figure 6A: IRF Analysis on Domestic Real Stock Returns (US/China-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of the US and emerging county of China exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 6B: IRF Analysis on Domestic Real Stock Returns (US/China-Floating ER Regime)

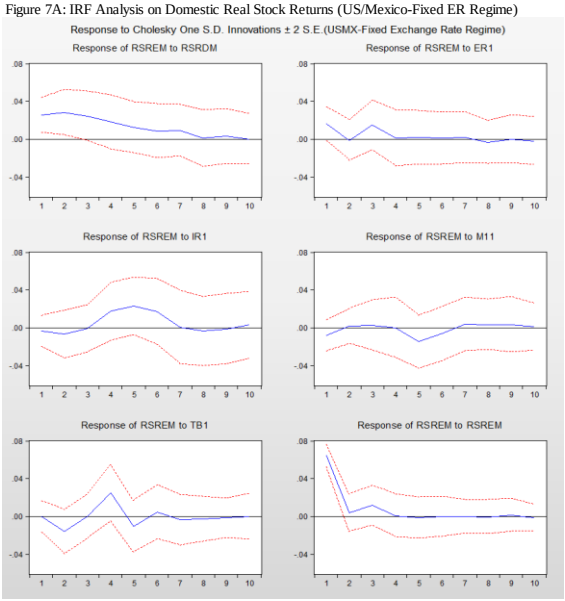


These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of the US and emerging county of China exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

During a fixed exchange rate regime, only domestic exchange rate and interest rate innovations effect the domestic returns of China. Initially the exchange rate has no effect on returns, but immediately declines to a negative 1.5 percent standard deviation unit effect at period 2, before returning to the zero-effect baseline at period 4, followed by a drop again to a negative 3.5 percent effect peak at period 5. The effect immediately returns to the zero-affect baseline in period 6 and proceeds erratically before reaching equilibrium at the zero-effect baseline in period 10. During a floating exchange rate regime, the exchange rate has no significant effect on domestic returns. During a fixed regime, initially interest rate has a negative 1 percent effect on domestic returns, before dropping to a negative 2 percent effect at period 2. The effect line crosses the zero-affect baseline at period 4, then continues and reaches a positive 1.7 percent effect peak at period 5, before reversing effect to the zero-effect equilibrium baseline at period 9. During a floating regime, initially interest rate has no effect on domestic returns, but begins its negative slope at period 2 and reaches a negative 2 percent effect peak at period 3. The

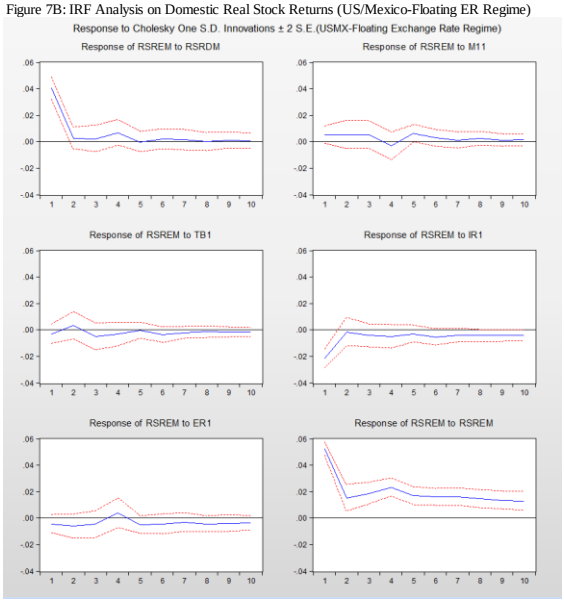
effect gradually increases and reaches the zero-effect equilibrium baseline at period 8. Figure 7A-7B show the IRF results for US/Mexico.

Figure 7A: IRF Analysis on Domestic Real Stock Returns (US/Mexico-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of the US and emerging county of Mexico exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 7B: IRF Analysis on Domestic Real Stock Returns (US/Mexico-Floating ER Regime)

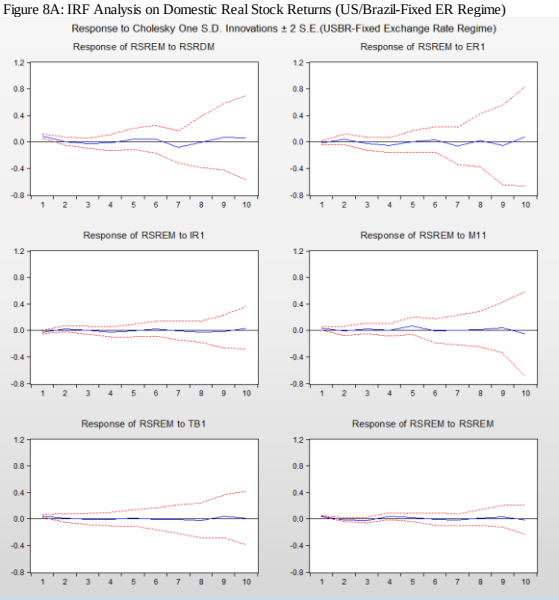


These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of the US and emerging county of Mexico exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

Initially, during a fixed exchange rate regime, the developed country of the US equity market innovation has a 2 percent standard deviation unit influence on domestic real stock returns for Mexico. A negative effect slope ensues through period 8, where it reaches equilibrium at the zero-effect baseline. During a floating exchange rate regime, the developed country of the US initially has a 4 percent influence on Mexico domestic returns before immediately sloping to the zero-effect baseline on period 2. After a few minor deviations from the zero-effect baseline, equilibrium is reached on period 7. During a fixed regime, the domestic exchange rate initially has a 2 percent effect on domestic returns before reaching the no effect baseline on period 2. The positive slope then ensues before returning to a positive peak of a 2 percent effect on period 3. On period 4, the effect reaches the zero-effect equilibrium baseline where it remains through period 10. The exchange rate during a floating regime, has a minimum continual negative effect on domestic returns throughout the 10-month period, with very little deviation. Initially during

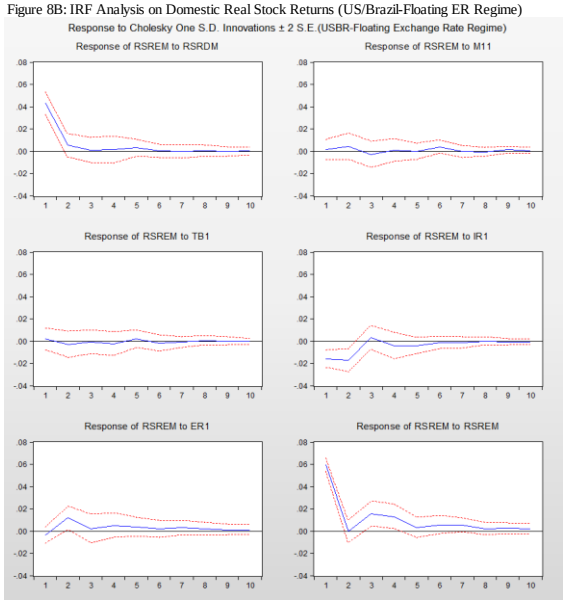
the fixed period, interest rate has a negligible negative affect on domestic returns, before crossing the zero-effect baseline in period 3 and proceeding to have a positive 3 percent effect on domestic returns by period 5. A gradual negative slope ensues until reaching the zero-effect equilibrium baseline at period 5. Interest rate during a floating regime, initially has a negative 2 percent effect on returns, which quickly dissipates to the zero-effect equilibrium baseline by period 2. During a fixed regime, trade balance initially has no effect on domestic returns, but immediately drops to a negative 1 percent effect before sloping upward to a positive 2 percent influence at period 4. This effect is followed by a negative slope, before eventually stabilizing at the zero-effect baseline on period 5.5 where it reaches equilibrium. Trade balance has no effect on domestic returns during a floating regime. Figures 8A-8B represent the IRF results of US/Brazil.

Figure 8A: IRF Analysis on Domestic Real Stock Returns (US/Brazil-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of the US and emerging county of Brazil exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 8B: IRF Analysis on Domestic Real Stock Returns (US/Brazil-Floating ER Regime)

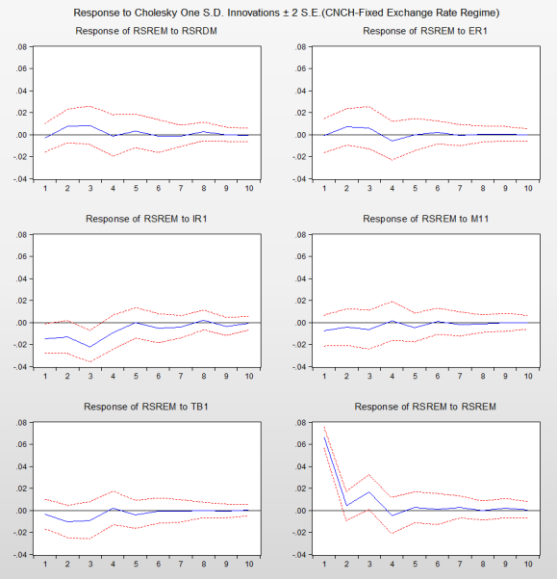


These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of the US and emerging county of Brazil exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

During the fixed exchange rate period, none of the model variable innovations have effect on domestic returns for Brazil. During a floating exchange rate period, the developed country of the US, initially has a 4 percent standard deviation unit effect on Brazil domestic returns, before

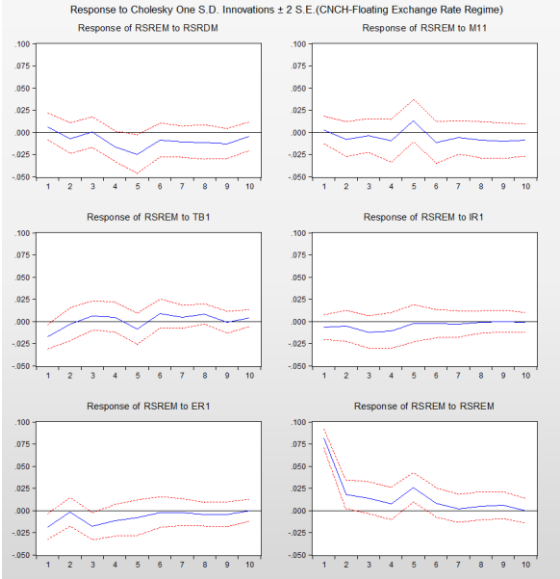
ensuing a negative slope and reaching the zero-effect equilibrium baseline at period 3. Interest rate during a fixed regime, initially has a negative 2 percent effect on domestic returns which dissipates by period 3, when it reaches the zero-affect equilibrium baseline. During a floating regime, interest rate initially has a negative 1.7 percent effect on domestic returns which continues through period 2, when a positive slope ensues before reaching the zero-effect equilibrium baseline at period 3. Figure 9A-9B represent the IRF results for Canada/China.

Figure 9A: IRF Analysis on Domestic Real Stock Returns (Canada/China-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Canada and emerging county of China exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

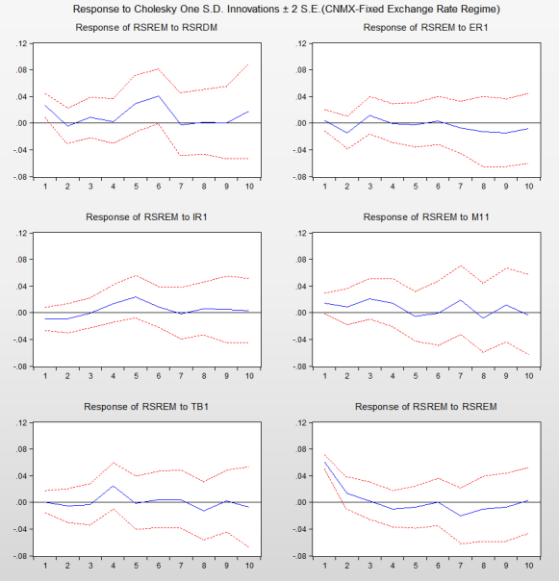
Figure 9B: IRF Analysis on Domestic Real Stock Returns (Canada/China-Floating ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Canada and emerging county of China exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

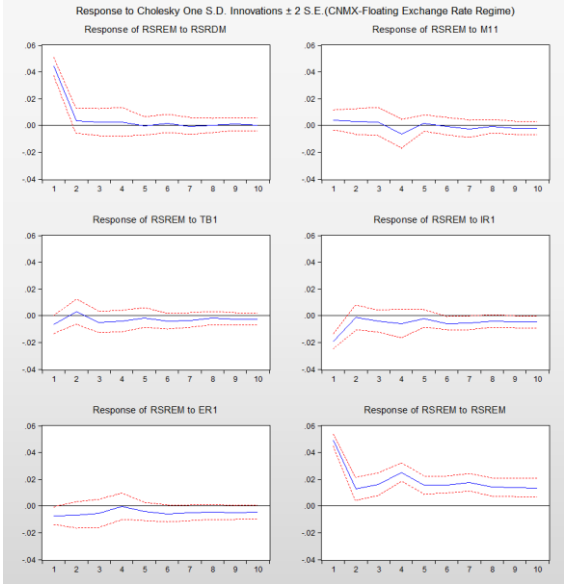
During a fixed exchange rate regime, the domestic interest rate innovation of China initially has a negative 1.7 percent standard deviation unit effect on domestic returns. This negative effect continues through period 3, before a positive slope is observed which continues to the zero-effect equilibrium baseline at period 5. During a floating regime, the interest rate effect on equity market returns is insignificant. No other variables during a fixed or floating regime have a considerable effect on domestic returns. Figures 10A-10B illustrate the results of the IRF for Canada/Mexico.

Figure 10A: IRF Analysis on Domestic Real Stock Returns (Canada/Mexico-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Canada and emerging county of Mexico exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 10B: IRF Analysis on Domestic Real Stock Returns (Canada/Mexico-Floating ER Regime)

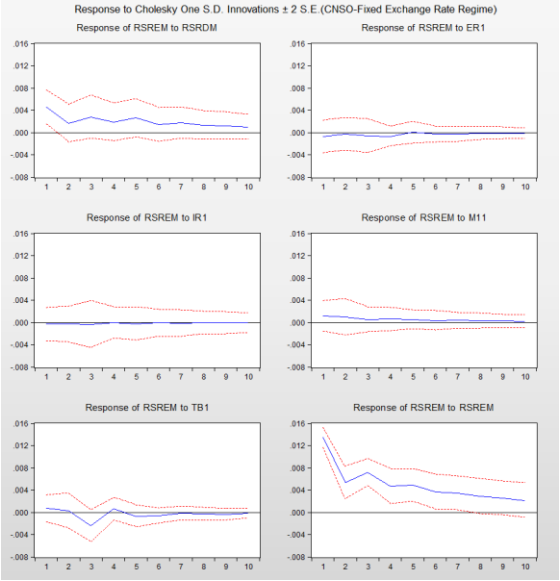


These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Canada and emerging county of Mexico exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

Initially, during a fixed exchange rate regime, the innovations to the developed country equity market of Canada have a 3 percent standard deviation unit effect on the domestic returns for Mexico, which drop to the zero-affect base line by period 2 and again on period 4, before ensuing a positive slope to a peak of a 4 percent effect at period 6. A negative slope ensues until the zero-effect baseline equilibrium is reached at period 7. During a floating exchange rate regime, initially the developed country equity market has a 4.25 percent effect on returns before returning to the zero-effect equilibrium baseline at period 2. Interest rate, during a fixed regime, initially has no effect on domestic returns but crosses the zero-effect baseline on period 3 and peaks at a 2 percent effect at period 5, before returning to the zero-affect equilibrium baseline at period 7. Interest rates during a floating regime, initially have a negative 2 percent effect, which dissipates by period 2 when it reaches the zero-effect equilibrium baseline. During a fixed regime, trade balance initially has no effect on domestic returns, however a positive effect of 2 percent is observed for periods 3 through 5 before reaching the zero-effect baseline at period 7.

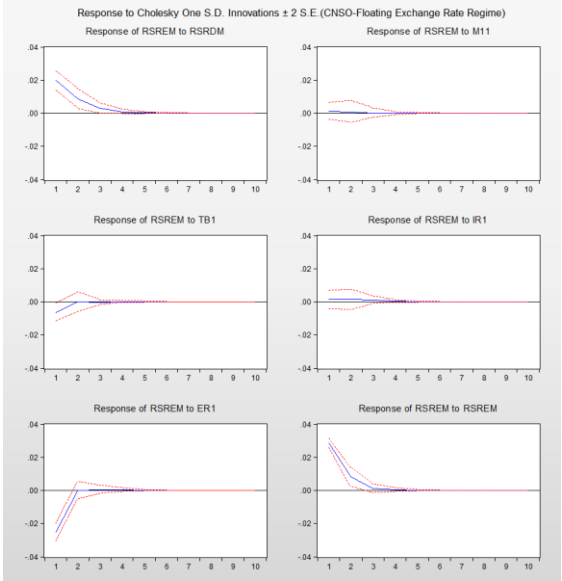
During a floating regime, trade balance has no effect on returns. Figures 11A-11B illustrate the IRF results for Canada/South Korea.

Figure 11A: IRF Analysis on Domestic Real Stock Returns (Canada/South Korea-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Canada and emerging county of South Korea exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

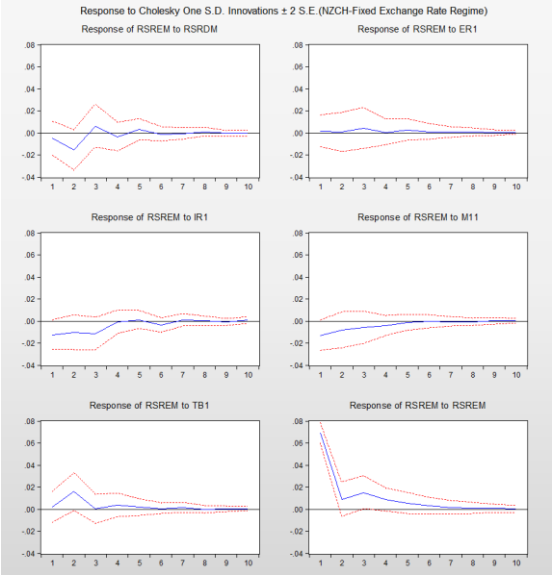
Figure 11B: IRF Analysis on Domestic Real Stock Returns (Canada/South Korea-Floating ER Regime



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Canada and emerging county of South Korea exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

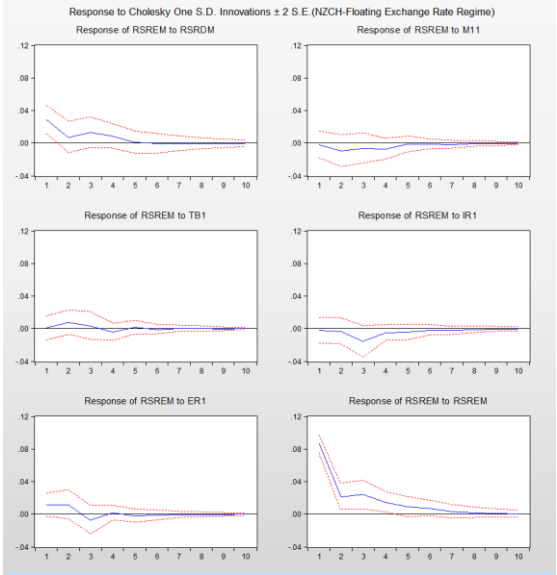
During the fixed exchange rate period, none of the model variable innovations have effect on domestic returns for South Korea. During a floating exchange rate regime, the innovations to the developed country equity market of Canada have a 2 percent standard deviation unit effect on South Korea returns. This effect dissipates at period 4 when it reaches the zero-effect equilibrium baseline. The exchange rate has a negative 2.5 percent effect on returns initially and returns to the zero-effect baseline equilibrium at period 2. Figure 12A-12B show the IRF results of New Zealand/China.

Figure 12A: IRF Analysis on Domestic Real Stock Returns (New Zealand/China-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of New Zealand and emerging county of China exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

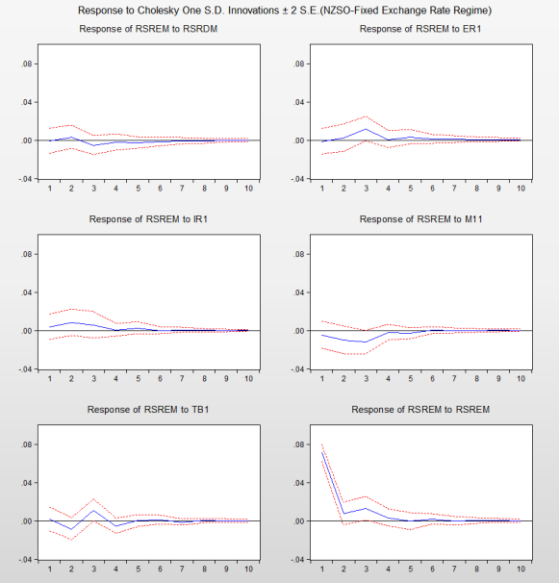
Figure 12B: IRF Analysis on Domestic Real Stock Returns (New Zealand/China-Floating ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of New Zealand and emerging county of China exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

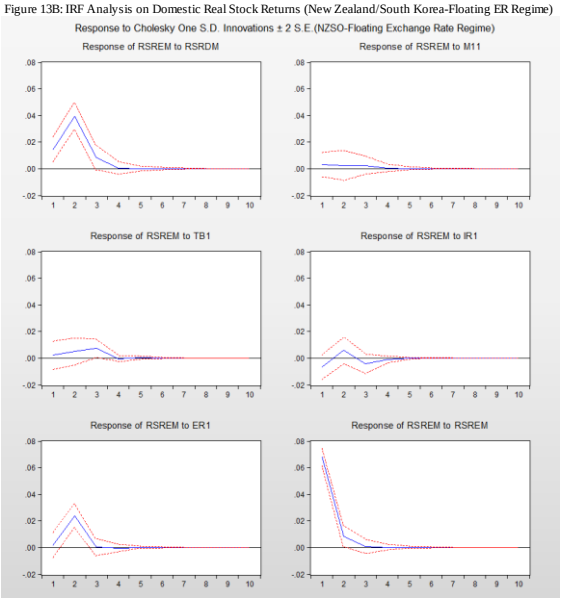
During a fixed exchange rate regime, only the domestic trade balance innovation effects the domestic returns of China. Initially, no effect is observed. A positive slope ensues immediately and reaches a positive peak of 1.7 percent standard deviation unit effect at period 2. An immediate decline in effect follows reaching the zero-effect equilibrium baseline at period 3. During a floating exchange rate regime, trade balance has no effect on domestic returns. During a floating regime, the developed country equity market initially has a 3.5 percent effect on domestic returns, before ensuing a negative slope and reaching the zero-effect equilibrium baseline at period 5.5. No other variable innovations effect the domestic returns of China. Figure 13A-13B depict the IRF results for New Zealand/South Korea.

Figure 13A: IRF on Domestic Real Stock Returns (New Zealand/South Korea-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of New Zealand and emerging county of South Korea exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

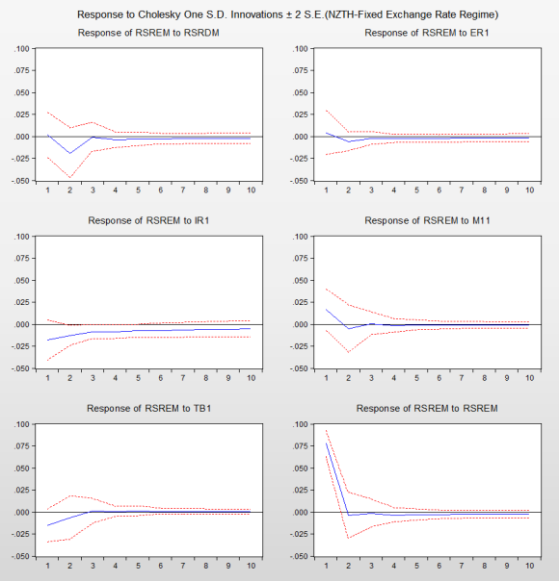
Figure 13B: IRF Analysis on Domestic Real Stock Returns (New Zealand/South Korea-Floating ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of New Zealand and emerging county of South Korea exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

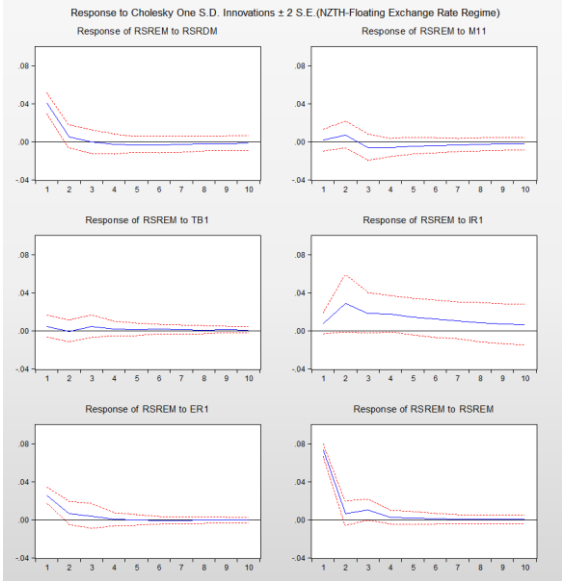
During a fixed exchange rate regime, none of the model variable innovations effect the domestic returns of South Korea. During a floating exchange rate regime, initially, the New Zealand real stock returns have a 1.7 percent standard deviation unit effect on South Korea returns. The effect continues to grow to a 4 percent effect in period 3, before a negative slope ensues, reaching the zero-effect equilibrium baseline in period 4. Exchange rate has no effect on domestic returns initially, however at period 2 a 2.25 percent effect is observed, which dissipates and reaches the zero-effect equilibrium baseline at period 3. Figure 14A-14B show the IRF results for New Zealand/Thailand.

Figure 14A: IRF on Domestic Real Stock Returns (New Zealand/Thailand-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of New Zealand and emerging county of Thailand exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 14B: IRF on Domestic Real Stock Returns (New Zealand/Thailand-Floating ER Regime)

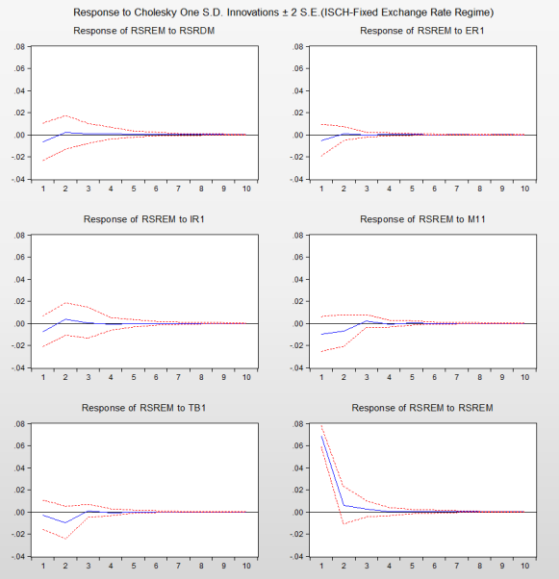


These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of New Zealand and emerging county of Thailand exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

Initially, the New Zealand real stock return innovations have no effect on the domestic returns for Thailand. A negative slope ensues and reaches a negative peak at a 1.7 percent standard deviation effect at period 2, then regresses to the zero-effect equilibrium baseline at period 3. During a floating exchange rate regime, the New Zealand equity market initially effects domestic returns at 4 percent before returning to the zero-effect equilibrium baseline at period 3. The Thailand interest rate, during a fixed exchange rate period, has a negative effect on domestic returns of 2 percent initially and gradually lessens throughout the 10 periods. It never actually reaches the zero-effect baseline but remains at a near zero negative permanent effect. Interest rates during a floating regime, have a positive effect on returns initially at just under 1 percent, but increase to 2 percent at period 2. The effect gradually dissipates to the zero-effect equilibrium baseline by period 10. During a fixed regime, M1 money supply initially has a positive 2 percent effect on domestic returns. This effect dissipates to the zero-effect equilibrium baseline at period 2. During a floating regime, M1 money supply does not affect returns. Trade balance, during a fixed regime, initially has a negative effect on returns at a negative 2 percent.

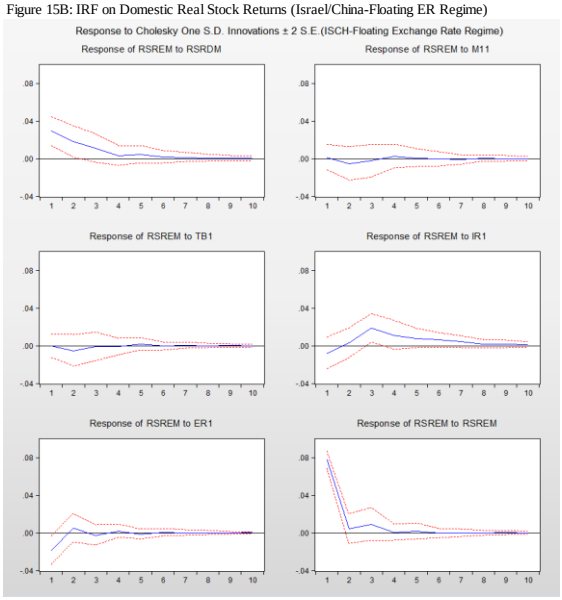
This effect gradually increases until the zero-effect equilibrium baseline is reached on period 3. The trade balance during a floating regime has no effect on domestic returns. The Thailand exchange rate has no relevance to domestic returns during a fixed regime, but during a floating regime, has a positive 3 percent effect on domestic returns initially, and returns to the zero-effect equilibrium baseline by period 2. Figures 15A-15B illustrate the IRF results of Israel/China.

Figure 15A: IRF on Domestic Real Stock Returns (Israel/China-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Israel and emerging county of China exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

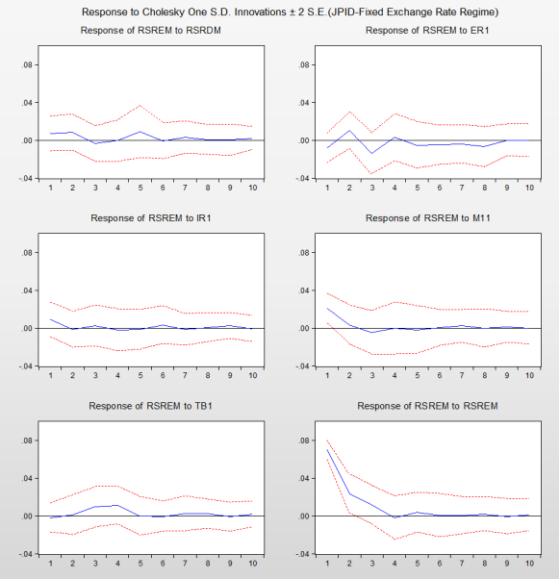
Figure 15B: IRF on Domestic Real Stock Returns (Israel/China-Floating ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Israel and emerging county of China exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

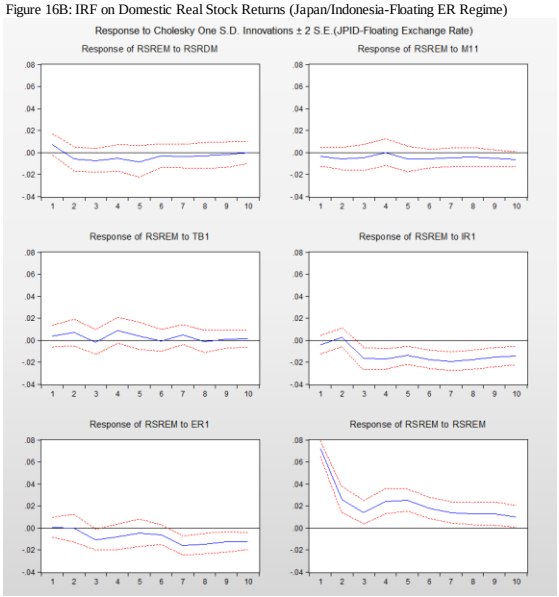
During a fixed exchange rate regime, none of the variable innovations have near or over a 2 percent standard deviation unit effect on the domestic equity market returns of China. During a floating exchange rate regime, the Israel equity market initially has a 3 percent effect on China returns, which slowly dissipates to the zero-effect equilibrium baseline at period 4. Exchange rate has a negative 2 percent effect on China domestic returns, initially, but declines to the zero-effect equilibrium baseline at period 2. Figure 16A-16B show the IRF results for Japan/Indonesia.

Figure 16A: IRF on Domestic Real Stock Returns (Japan/Indonesia-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Japan and emerging county of Indonesia exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

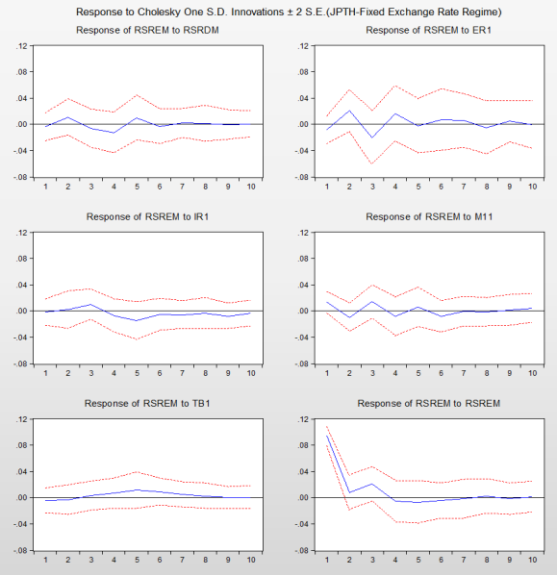
Figure 16B: IRF on Domestic Real Stock Returns (Japan/Indonesia-Floating ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Japan and emerging county of Indonesia exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

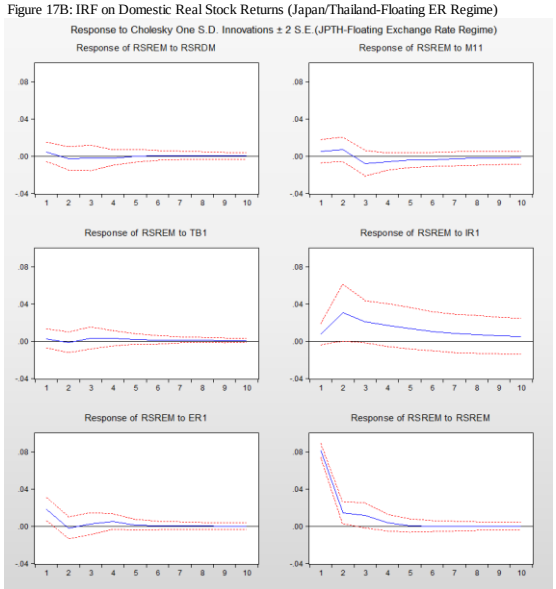
During a fixed exchange rate regime, domestic M1 money supply innovations have a 2 percent standard deviation unit effect on Indonesia returns which dissipate by period 2.5 at the zero-effect equilibrium baseline. M1 money supply during a floating exchange rate regime does not influence domestic returns. During a fixed exchange rate regime, the exchange rate variable has no significance in effecting domestic equity returns but is very volatile. The exchange rate, during a floating regime, initially has no effect on domestic returns. A negative slope immediately ensues to a negative 1.7 percent effect at period 2. The volatility continues until a negative 2 percent effect is reached at period 7. A gradual inclined ensues and stabilizes at period 7 where it reaches equilibrium at a 1 percent effect. Figure 17A-17B show the IRF results for Japan/Thailand.

Figure 17A: IRF on Domestic Real Stock Returns (Japan/Thailand-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Japan and emerging county of Thailand exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

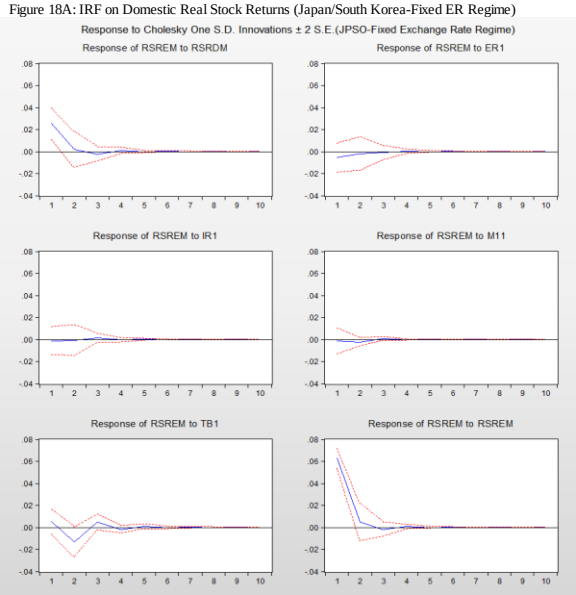
Figure 17B: IRF on Domestic Real Stock Returns (Japan/Thailand-Floating ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Japan and emerging county of Thailand exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

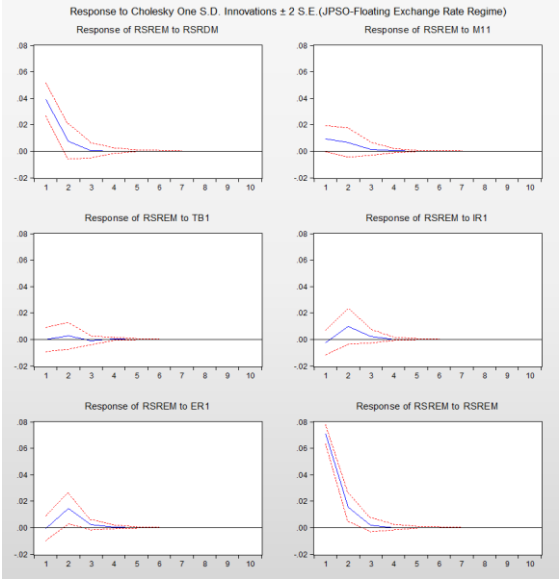
Exchange rate innovations, during a fixed exchange rate regime are erratic and have no initial significant influence on domestic returns. A 2 percent standard deviation unit effect is observed at period 3, which dissipates at period 4 and continues to cross the zero-effect baseline three more times before reaching the zero-effect equilibrium baseline at period 7. During a floating exchange rate regime, domestic exchange rate is shown to have a positive effect on returns initially at 2 percent. A sharp decline ensues and reaches the zero-effect equilibrium baseline at period 2. During a fixed regime, interest rate has no effect on domestic returns. During a floating regime, interest rate initially has a positive near zero effect on domestic returns. Immediately, a positive slope ensues and reaches a positive peak at 3 percent at period 2, before gradually declining to the near zero-baseline equilibrium at period 10. No other variables are found to significantly influence domestic returns. Figure 18A-18B illustrate the IRF results as they pertain to Japan/South Korea.

Figure 18A: IRF on Domestic Real Stock Returns (Japan/South Korea-Fixed ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Japan and emerging county of South Korea exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a fixed exchange rate regime.

Figure 18B: IRF on Domestic Real Stock Returns (Japan/South Korea-Floating ER Regime)



These graphs show the response of domestic real stock returns to shocks to the equity market of the developed country of Japan and emerging county of South Korea exchange rate, interest rate, M1 money supply, trade balance, and the domestic equity market itself, during a floating exchange rate regime.

During a fixed exchange rate regime, the developed country of Japan's equity market innovations have a 2.7 percent effect on domestic returns for South Korea. This effect is immediately dissipated by period 2 when it reaches the zero-effect equilibrium baseline. The domestic market returns for Japan during a floating exchange rate regime initially have a 4 percent effect on domestic returns, before returning to the zero-affect equilibrium baseline at period 3. No other variables during a fixed or floating regime effect domestic returns.

In summary, more IRF factors initially effect domestic returns during a floating exchange rate regime than during a fixed regime. Developed country equity market real stock return innovations effect domestic returns six times during the sixteen fixed exchange rate regime tests, as compared to ten times out of the sixteen floating exchange rate regime analysis. The average influence on domestic returns is a 2.2 percent and 3.4 percent standard deviation unit effect for the fixed and floating exchange rate periods, respectively. More influence is recognized during the floating rate periods. The second factor influencing returns in IRF testing is the bi-lateral exchange rate, which effects domestic returns three times during a fixed regime, compared to

nine times during a floating regime. Exchange rate innovations effect domestic returns at an average of 1.9 percent and 2.3 percent for fixed and floating exchange rate regimes, respectively. The bi-lateral exchange rate has more influence on domestic returns during the floating regimes. The third factor influencing returns is the interest rate which includes four and six observations for fixed and floating regimes, respectively. During a fixed exchange rate, the four observations are represented by an average of 1.85 percent effect compared to the six floating observations averaging a 2.2 percent effect. Trade balance and M1 money supply are the only variables that effect domestic equity returns during the fixed regime. They include 3 and 4 observations, respectively. The trade balance effect average is 2 percent while the M1 money supply effect average is 2.6 percent. The developed country equity markets and bi-lateral exchange rates innovations are the only variables of consequence initially influencing domestic returns and have a greater effect during floating exchange rate regimes.

Evidence in aggregate review on the permanent variable innovation at period-10 effect on returns are minimal. As expected, only the innovations during a floating exchange rate regime are applicable since most macroeconomic variables of this study remain fixed during a fixed exchange rate regime. On five observations, exchange rate innovations permanently effect domestic returns with an average of negative 0.43 percent standard deviation unit effect. They occur in Australia/South Korea, Australia/Indonesia, Canada/Mexico, US/Mexico, and Japan/Indonesia. On three observations, the interest rate innovation maintains a permanent negative 0.68 percent average effect on domestic returns for Australia/Indonesia, Canada/Mexico, and Japan/Indonesia. The M1 money supply innovation for Canada/China maintains a permanent negative 1 percent standard deviation unit effect on domestic returns. The

Australia/Indonesia equity market innovation is responsible for a permanent negative 1 percent standard deviation unit effect on domestic returns.

1.4.6. Empirical Results and Variance Decomposition

Table 4 shows the variance decomposition of real stock returns (RSR) for each developed country and their developing country trading partners during each exchange rate regime. The results of the decomposition as shown are based on the immediate variable effect at period-1, the intermediate effect at period-5, and the equilibrium permanent effect at period-10, which is the primary focus period of this variance decomposition analysis. Numerous publications show that such regressions possess a modest but statistically reliable explanatory power[7] (Campbell, 1991). The primary indicators as shown in the table are country specific and a function of time and events. The variance decomposition aggregate findings, as illustrated in Table A1.4.4 in Appendix "A1", are based on the frequency associated with variables as leading indicators in affecting domestic returns. The findings suggest that during a fixed exchange rate regime, the primary indicator of the developed country equity market has a strong influence on the domestic equity market returns throughout periods 1, 5, and 10, with an average influence between 23.0 and 26.3 percent. However, the secondary and tertiary variables change throughout this 10-month period. At month 1, the primary indicator is the developed country real stock returns with an average influence of 23.0 percent for the 6-primary indicator observations. The secondary indicator is the bi-lateral exchange rate, which weakly effects domestic returns at 6.7 percent for its 6-primary indicator observations. The tertiary indicator is interest rate which also weakly effects domestic returns at 4.2 percent in the 3-primary indicator observations. During period 5,

[7] A partial reference list includes Campbell (1987), Cutler et al. (1989a), Fama and French (1988b, 1989), and Keim and Stambaugh (1986).

the developed country real stock returns effect domestic returns very strongly at 23.5 percent for the 6-primary indicator observations.

Table 4: Variance Decomposition-Fixed/Floating exchange rate regimes (Periods 1, 5, and 10)

Variables	AUSO MODELS	AUTH MODELS	AUID MODELS	USCH MODELS	USMX MODELS	USBR MODELS	CNCH MODELS	CNMX MODELS	CNSO MODELS	NZCH MODELS	NZSO MODELS	NZTH MODELS	ISCH MODELS	JPID MODELS	JPTH MODELS	JPSO MODELS
	TRUE						Panel 1-Period 1									
Sub Panel A-Fixed Exchange Rate Regime																
RSR^{DM}	4.0518(2)	11.5022(1)	1.6335(1)	1.5605(4)	23.6199(3)	51.7926(4)	0.2372(3)	27.2879(2)	10.0069(2)	0.4905(2)	0.0127(2)	0.0331(1)	0.8007(1)	0.8344(4)	0.1699(4)	13.8365(1)
ΔER	4.7936	1.6935	1.1854	1.0157	4.4502	0.0793	0.0171	0.2222	0.2601	0.0456	0.0311	0.2476	0.5618	1.1955	0.8013	0.6712
ΔIR	0.0312	3.8004	0.0309	3.1196	0.8429	1.6329	4.5772	0.2452	0.0439	3.0498	0.2809	4.7916	1.1543	1.4606	0.0380	0.0394
ΔM1	0.7090	4.5455	24.5318	1.5259	1.0708	0.3170	1.2200	0.6522	0.6514	3.2830	0.4328	3.8260	1.9812	7.8539	1.9603	0.0397
ΔTB	5.2485	1.0798	0.4527	0.2365	4.0192	2.2367	0.3119	0.4197	0.2255	0.0647	0.0675	3.3404	0.1838	0.0684	0.2389	0.6392
RSR^{EM}	85.1659	77.3787	72.1656	92.5419	65.9970	43.9414	93.6366	71.1728	88.8122	93.0664	99.1750	87.7613	95.3183	88.5872	96.7917	84.7740
Sub Panel B-Floating Exchange Rate Regime																
RSR^{DM}	21.1956(5)	0.1938(3)	0.2685(4)	0.0004(2)	33.3733(3)	32.5895(3)	0.5436(4)	40.105(3)	20.8967(1)	9.7947(2)	4.3456(1)	21.281(2)	11.5992(2)	0.9174(4)	0.2826(2)	23.1599(1)
ΔM1	0.0283	0.0773	0.2390	0.0048	0.5686	0.0323	0.0906	0.3422	0.0831	0.0525	0.2021	0.0309	0.0235	0.2867	0.3867	1.3225
ΔTB	0.1964	0.1261	0.0557	0.8344	0.1809	0.0519	4.2123	0.9126	2.0535	0.0079	0.0963	0.2731	0.0030	0.2286	0.1041	0.0004
ΔIR	0.4404	0.8163	1.5554	0.5989	9.5003	4.6060	0.6092	7.6332	0.1006	0.0635	0.8994	0.7471	0.8602	0.3714	0.7723	0.0792
ΔER	4.0055	5.2117	0.4843	0.5969	0.3902	0.2353	4.6397	1.1370	33.4201	1.5726	0.0809	8.2828	4.7643	0.0026	4.6864	0.0019
RSR^{EM}	74.1338	93.5748	97.3970	97.9645	55.9866	62.4851	89.9045	49.8701	43.4461	88.5088	94.3758	69.3851	82.7499	98.1932	93.7679	75.4402
							Panel 2-Period 5									
Sub Panel A-Fixed Exchange Rate Regime																
RSR^{DM}	4.9428	10.6204	1.6388	5.0724	26.9620	51.5822	2.3127	27.0808	11.3831	5.0796	0.9347	5.0054	0.8919	2.9936	3.6189	13.3335
ΔER	4.7798	8.6745	2.9015	11.0388	5.4943	0.9886	1.9156	0.9154	0.4085	0.4444	2.5883	0.8863	0.5520	5.8506	9.7255	0.7439
ΔIR	0.3619	7.9331	1.5958	5.1214	9.5457	3.0602	15.2841	3.3707	0.0996	6.1437	1.9619	9.0673	1.4192	1.3619	3.0982	0.0953
ΔM1	5.1837	4.4617	23.8328	2.3316	3.0193	0.3648	2.3044	2.2110	0.8516	4.4348	4.6605	3.7927	2.9329	6.7386	4.7911	0.1601
ΔTB	9.6212	1.4065	0.8289	4.9254	10.1445	2.3667	3.6478	4.6380	2.0396	4.2492	3.7252	3.5077	2.0621	3.1013	1.7491	4.6850
RSR^{EM}	75.1106	66.9037	69.2021	71.5104	44.8341	41.6375	74.5356	61.7842	85.2176	79.6482	86.1294	77.7406	92.1418	79.9540	77.0173	80.9822
Sub Panel B-Floating Exchange Rate Regime																
RSR^{DM}	19.4866	2.1360	4.9045	1.3573	25.3623	28.1206	8.9907	30.5833	23.4184	10.3357	25.2504	17.1966	15.3978	2.8201	0.3944	21.7461
ΔM1	0.5892	1.5275	0.3865	0.9707	2.0245	0.4595	3.2313	1.1590	0.1150	1.7513	0.2843	1.5852	0.5050	1.2323	2.1463	1.7875
ΔTB	2.4375	0.3653	1.7679	1.5180	0.8636	0.3500	4.1854	1.5134	1.9005	0.8384	1.1217	0.4374	0.4010	1.7407	0.3359	0.0981
ΔIR	6.9543	15.5890	13.3526	5.0851	7.7893	9.0808	3.1091	6.6896	0.2578	2.9133	1.3592	17.5995	7.1493	9.1907	19.7032	1.5234
ΔER	12.1071	4.7827	1.9978	3.1126	1.7959	2.9144	8.1016	2.3586	30.8827	3.0393	7.7968	7.0914	4.5307	2.4492	3.8592	3.0221
RSR^{EM}	58.4253	75.5994	77.5907	87.9564	62.1644	59.0747	72.3820	57.6961	43.4256	81.1220	64.1876	56.0897	72.0162	82.5671	73.5610	71.8228
							Panel 3-Period 10									
Sub Panel A-Fixed Exchange Rate Regime																
RSR^{DM}	4.9540	10.6530	1.6388	5.1607	27.0634	51.5824	2.4666	27.2311	12.1035	5.0954	1.0037	5.2070	0.8922	3.1080	3.6086	13.3335
ΔER	4.7714	8.3464	2.9014	11.2574	5.3340	0.9886	1.9578	0.9294	0.4056	0.4716	2.6152	1.0736	0.5520	7.0156	10.3092	0.7439
ΔIR	0.3701	10.8535	1.5959	5.2602	11.9834	3.0602	16.0669	3.3568	0.0985	6.3788	1.9613	11.1664	1.4200	1.6375	4.1341	0.0954
ΔM1	5.1982	4.3645	23.8329	2.3110	3.6329	0.3648	2.3649	2.4178	0.8377	4.4326	4.6551	3.7201	2.9330	6.6779	5.3255	0.1601
ΔTB	9.7360	1.3582	0.8295	5.0933	9.9360	2.3671	3.6180	4.6286	1.9474	4.2569	3.7737	3.4026	2.0621	3.2479	2.4741	4.6868
RSR^{EM}	74.9703	64.4244	69.2014	70.9174	42.0504	41.6369	73.5258	61.4364	84.6072	79.3647	85.9910	75.4303	92.1407	78.3132	74.1484	80.9803
Sub Panel B-Floating Exchange Rate Regime																
RSR^{DM}	18.1322	2.3162	9.1409	1.3421	21.3121	21.3121	12.2224	25.0470	23.4184	10.2613	25.2504	16.6352	15.3318	2.3375	0.3879	21.7461
ΔM1	1.3229	2.2385	0.3114	0.9607	1.9260	1.9260	6.4388	1.1603	0.1150	1.7975	0.2844	2.0140	0.5230	2.1054	2.4747	1.7875
ΔTB	2.0437	0.3955	1.4429	1.4944	1.0402	1.0402	5.1977	1.8470	1.9005	0.8431	1.1217	0.4576	0.4007	1.4687	0.3624	0.0981
ΔIR	7.2237	21.3499	27.6786	5.3623	7.7222	7.7222	2.9328	7.0624	0.2579	2.9812	1.3592	20.8111	7.8284	18.7087	21.8626	1.5234
ΔER	15.2108	4.4111	3.6887	3.6123	2.4873	2.4873	7.6211	3.5376	30.8827	3.0429	7.7968	6.7582	4.4958	8.5892	3.7368	3.0221
RSR^{EM}	56.0668	69.2888	57.7375	87.2282	65.5122	65.5122	65.5873	61.3457	43.4256	81.0740	64.1875	53.3240	71.4203	66.7905	71.1756	71.8228

This table includes the results of the variance decomposition analysis for the developed country and its emerging trading partners. This country pair analysis includes Australia/South Korea, Thailand, Indonesia; US/China, Mexico, Brazil; Canada/China, Mexico, South Korea; New Zealand/China, South Korea, Thailand; Israel/China; Japan/Indonesia, Thailand, South Korea for period 1, 5, and equilibrium at 10. The number in parenthesis identifies the typical number of lags for each model.

At equilibrium period 10, the developed country real stock returns influence returns at 26.3 percent for the 5-primary indicator observations, followed by interest rate at a moderate 11.1 percent for the 4-primary indicator observations during a fixed regime. M1 money supply is the tertiary variable with a moderate effect of 10.5 percent for the 3-primary indicator observations.

During the floating exchange rate regime period, the developed country equity market strongly influences domestic returns at period 1, 5, and 10, with an influence between 19.0 to 20.6 percent. During period 1, the develop country equity market significantly effects domestic returns at 19.8 percent for the 10-primary indicator observations. The secondary indicator for this period is the bi-lateral exchange rate having a moderate influence on returns of 12.0 percent for the 4-primary indicator observations. The trade balance is the tertiary indicator with a weak effect of 6.3 percent for the single primary indicator observation. In period 5, the develop equity market has a 20.6 percent influence on domestic returns as the primary indicator for the 9-primary indicator observations. The secondary indicator changed to M1 money supply, with a moderate influence of 13.4 percent on domestic returns for the 6-primary indicator observations followed by the tertiary indicator of trade balance, which influence domestic returns 30.9 percent for the single primary indicator observation. During equilibrium period 10, the sequence of influential indicators change again. The final stabilized indicators at period 10, the focal period, include the primary indicator of the developed country equity market with a strong effect on domestic returns at an average of 19.0 for the 9-primary indicator observations. Interest rate is the secondary indicator with an average effect of 19.3 percent for the 6-primary observations. The exchange rate, has a very strong influence of 30.9 percent, but only for a single primary observation, resulting in it becoming the tertiary variable. During each exchange rate regime, and during each period of decomposition, the results indicate that the primary and secondary

indicators remain the same. However, during a floating exchange rate regime, the tests reflect that the indicators influence returns more often. The average influence is less due to the market itself playing a greater role and having a greater influence on domestic returns during a floating rate regime than during a fixed exchange rate period. In 64.3 percent of the tests, at equilibrium period 10, the domestic real stock returns variable plays a 69 percent greater role in influencing the domestic equity market during a floating regime as compared to a fixed regime.

1.4.7. Robustness Testing

The first robustness test addresses the concern regarding an excessive number of variables in the model which may be interrelated and therefore causing incomplete results (Sims, 1980). Robustness test 1, illustrated in Tables A1.4.5 through A1.4.10 in Appendix "A1", show the variance decomposition results for each exchange rate regime model, when eliminating the M1 money supply variable, the trade balance variable, and the removal of both variables, at equilibrium period-10. Table A1.4.5 for example shows the results for Australia and its developing trading partners. Column one shows the original results of the variance decomposition of the models. Column two represents the results of the test with the removal of the M1 money supply variable. Column three shows the results without the trade balance variable, and column four illustrates the model results with the removal of both the M1 money supply and trade balance variables. During a fixed and floating exchange rate regime, the results show that when either M1 money supply or the trade balance is the primary indicator and removed from the model, the influence values are distributed to the other variables as expected. When the primary indicator is not removed, it remains the primary indicator and is not affected by the reduction in the quantity of variables in the models. This holds true for 31 of the 32 tests.

Whenever the primary indicator is not M1 money supply or trade balance, the models retain their original primary indicator in 96.9 percent of the cases. Only in the case of US/China during a floating regime, does the primary indicator change with removal of the trade balance variable only. When both M1 money supply and the trade balance variables are removed, the primary indicator remains as originally tested. The overall results indicate that the number of variables in the six-vector autoregressive model, with monthly frequency data as reflected in this study, provide a stable and accurate model.

The second robustness test evaluates the Cholesky order of variables for each model. Spencer (1989) finds that it is important to correctly capture the relationship and causality by applying the correct exogeneity variable sequence to the vector autoregressive model. Robustness test 2, illustrated in Tables A1.4.11 through A1.4.16 in Appendix "A1", show the testing as performed for each developed country and their developing country trading partner during each exchange rate regime. In this evaluation, the fixed exchange rate model as shown in equation (12) is used on the floating exchange rate data, and the floating exchange rate model as shown in equation (13) is used on the fixed rate data. The results are then compared to identify the differences due to the change in Cholesky variable order. Column one represents the original model results. Column two and three represent the results due to reversing the models. The variance decomposition results show that the primary indicator did not change due to the order of variables in 100 percent of the observations. The average change in the primary indicator values is 1.4 percent, suggesting that the primary indicator in the Cholesky order is not affected by the order of the variables. The secondary indicators did not change in 93.8 percent of the observations. The secondary variable remained unchanged in 30 of the 32 tests. The average change in the secondary indicator values is 3.3 percent. The first variance occurs in US/China

during a floating regime. The established model identifies the interest rate as the secondary indicator at 3.8 percent, as compared to the robustness test results of 2.6 percent representing the tertiary variable. For Canada/Mexico, using the fixed rate model during a floating period, the trade balance changed from a 6.8 percent effect as a secondary variable, to a 3.5 percent effect as a tertiary variable. The results show that the sequence of variables for both fixed and floating exchange rate regimes, as they pertain to the monthly frequency data models (12) and (13), does not affect the variance decomposition results. These findings prove the stability and accuracy of the models.

1.4.8. Problem in Using Panel VAR Models

The initial testing criteria involved the use of panel data in analyzing the effect of developed country equity markets on developing trading partner equity markets with the consideration of domestic macroeconomic variables. The PVAR analysis of the macroeconomic model proved to be an ineffective analytic tool. The aggregate dataset descriptive statistics, as shown in Table 1, reflect an array of variations which may be a source of the unsuccessful methodology. For 90 percent of the data, during both regimes, the standard deviation is greater than the mean for data in levels, first difference, and returns. During a fixed exchange rate regime, the standard deviation for domestic real stock returns is 890 percent higher than the mean. During a floating exchange rate regime, the standard deviation for domestic real stock returns is 762 percent higher than the mean. Other variables of concern are trade balance and trade differentials which are 162000 and 9300 percent greater during a fixed and floating regime, respectively. This breakdown suggests that the data is over dispersed and is biased by the extreme outliers, leading to inaccurate results. The use of PVARSOC, PVAR, PVARIRF, and

PVARFEVD, developed consistent zero-effect results for both regimes (Abrigo and Love, 2015). The PVARSOC command for ascertaining the optimal number of lags for each bi-lateral model test failed to record AIC, BIC, or SBIC results. The output was limited to the coefficient of determination (CD), with an ascending value for increases in lags. These results are not accurate, since an increase in the number of lags normally result in descending CD values. The PVAR impulse response function results show that variable innovations for each monetary regime have no effect on domestic returns. The variance decomposition results showed all variables as immaterial, with the developing country real stock returns being influenced by the equity market itself by an average of 98 percent, while other variables were insignificant with less than a 2 percent aggregate effect on developing country real stock returns. The cause for ineffective panel data testing can be attributed to macroeconomic variables being country specific. Panel data, or cross-sectional time series data analysis, requires that testing is conducted over various cross-sectional units. Even though the use of panel data and literature have increased since 1986 (Hsiao, 2014), challenges to attain accurate results remain. When conducting this type of test, interdependence and cross-sectional heterogeneity among the variables for various countries with various applications of economic policy can become an issue effecting results. There may be low or high interdependence among the exogenous disturbances to two or more countries, which by being poorly correlated, may result in an offset in impact to variables of interest. If they are highly correlated, however, they will reinforce one another, and the diversifying effect may be diminished or lost. Unfortunately, the same tendencies which increase structural interdependent may also increase the correlations among the exogenous innovations to which economies are subjected. These results of country collaboration can

therefore amplify group results and lead to inaccurate results in this study. A basic vector autoregressive bi-lateral model is therefore utilized in this dissertation.

1.5. Conclusion

Even though no serious theory has been proposed as a complete explanation for the behavior of exchange rates, we provide an empirical study on the influence levels of macroeconomic factors under opposing exchange rate regimes and acknowledge their restricted impact on capital market assets. Economic theory provides the distinctions between fixed and floating exchange rate regimes but does not discriminate as to when a soft peg becomes a managed float. It is often difficult to distinguish between the two. For this reason, this paper is based on fixed and non-fixed flexible regimes, the latter being referred to as a "floating" exchange rate regime for the purpose of this paper which includes the variety of non-fixed regimes as outline by Reinhart and Rogoff (2004). With a focus on period-10 variance decomposition equilibrium results, this assessment suggests that exchange rate regimes play an important role in establishing developing country economic growth in support of Levy-Yeyati and Sturzenegger (2003). Trade balance as an integral variable in monetary policy is expected to have a low degree of influence on developing returns based on the Mundell-Fleming Theory. In support of this theory, the trade balance between countries is not found to have a meaningful effect on domestic returns as hypothesized on Hypothesis #1. During both a fixed and floating exchange rate regime, the developed country equity market strongly influences domestic returns as the primary indicator and plays an 80.64 percent greater role during floating exchange rate regimes in accordance with Hypothesis #2. The developed country equity market is the primary variable in 31.25 percent of the tests during the fixed exchange rate period and 56.25 percent of the tests during the floating exchange rate period, resulting in having a greater influence on domestic returns during the latter regime. The developing market annual stock returns proved to be greater than those for developed countries in both exchange rate regimes. The developing

markets' average annual returns are 26.58 percent and 29.94 percent for the fixed and floating exchange rate regimes, respectively. These results reflect 12.64 percent greater annual returns for the developing countries during the floating regime. The developed country average annual returns during the developing country fixed exchange rate period is 8.16 percent, and 5.20 percent during the floating regime period. Resulting in 225.74 percent greater returns for the developing countries than the developed countries during the fixed exchange rate regime period, and a 475.77 percent greater return during the developing countries floating exchange rate regime period. This evidence contradicts Hypothesis #3, which states that based on literature regarding the volatility and instability associated with exchange rates and interest rates during and after a floating rate adoption, stock returns are expected to be lower. In measuring the volatility up to one year prior to the adoption, as compared to the volatility one-year prior through two years after the adoption, the average volatility for the developing countries increased 72.78 percent. However, during the same period, the developed countries experienced an increased volatility of 59.61 percent. Even though the volatility is greater during the floating regime period, the stock market growth proves that volatility does not hinder investor participation, possibly due to the departure from a fixed exchange rate regime to a managed monetary policy regime, which may be perceived as positive economic development achievement, as the countries move toward a market-oriented economy. For developing countries, interest rates play a moderate and moderately-strong secondary role during fixed and floating exchange rate regimes, effecting domestic returns 11.1 percent and 19.3 percent, respectively. As a secondary variable, these results validate Abugri (2008) who suggests that domestic macroeconomic variables cannot be used to determine equity market returns. The lack of interest robustness on developing capital markets may be due to "the Fisher effect", that

suggests that expected nominal interest rates on financial assets move with expected inflation, at a one-to-one ratio, resulting in a nullification of robustness with inflation adjusted returns (Fisher, 1930). The findings of this analysis have important implications for policy makers and decision-making investors. However, it is important to note that to obtain asset market price efficiency, prices must appropriately reflect all available information at any given time, therefore making it impossible to make extraordinary profits by this exploitation.

These results support literatures that suggest that external and exogenous equity markets, such as the US and global equity markets, have the most influence on developing country real stock returns. This analysis suggests that the influence intensifies with the adoption of a floating exchange rate regime. Literature suggests that interest rate is the driving force in influencing returns for the developed markets in accordance with the Mundell-Fleming Theory of monetary policy during floating or managed exchange rate regimes. The process of becoming a developed country is based on the improvement on social and economic factors as outline by the HDI which include life expectancy at birth, adult literacy rate, education enrollment, and GDP per capita. Other factors related to improving country development include market stability, transparency, accountability, efficiency, a stable currency, and an improvement in capital inflows. Since my evidence suggests that an increase in real stock returns is better related to developing country floating exchange rate regimes, which is a function of increased investor participation and improved market stability, an "Attraction to Adopt a Float" should be the developing countries' objective, leading to economic growth and sustained development, on course to becoming a developed country.

CHAPTER II

"THE GREAT RECESSION INFLUENCE ON TRADING INDICATORS"

2.1. Introduction

This paper focuses on identifying the differences in the effect that developed trading equity markets have on developing country real stock returns with the consideration of domestic macroeconomic innovations prior and post the "great recession", during each country's floating exchange rate regime, herein addressed as the pre- and post-crisis period. The regularity and intensity of economic crises, which spread the difficulties from one country to another via "contagion", are of growing concern. Sullivan (2001) finds that during floating exchange rate periods, exchange rates and other macroeconomic variables reduce the impact of these economic shocks, and are a function of the size of the shock and on the responses of endogenous monetary policy (Aizenman and Pasricha, 2012). CaramazzaRicci and Salgado (2004) find that the propagation of the effects of the Mexican crisis of 1994-1995, the Asian crisis of 1997, and the Russian crisis of 1998, are through financial linkages. They also conclude that the role of a common creditor is not significant in spreading crises. Obstfeld and Rogoff (1995a) suggest that stock market returns are extensively correlated with macroeconomic factors such as CPI, PPI, monetary aggregate, balance of trade, unemployment, and housing starts. External equity markets such as the US stock market affects economies foreign exchange, and local stock markets (Moore and Wang, 2014). Granger Huangb and Yang (2000) find that in the study of

Asian countries during the 1997 crisis, some cases support the theory of exchange rate and stock return bivariate causality. This paper expands on the effect that developed country equity markets and developing country macroeconomic indicators have on domestic returns during the pre- and post- "great recession" periods.

The great recession, originated in the US and effected the world from December 2007 through June 2009 (Statistics, 2012). It was the most severe recession since the Great Depression of the 1930s. Both crisis' represent a gross domestic product (GDP) and employment decline of approximately 6 percent, with a median family income drop of 8 percent (Danziger, 2013). These economic crisis event was compounded by the wealth disparity that followed (Farber, 2011). This recession lasted longer and became more severe, with its effect compounded by a zero lower boundary interest rate, preventing the full effectiveness of monetary policy as a US stabilization tool (Ireland, 2011).

Developing markets make an important contribution to global economics (Sullivan, 2013). Per the IMF in 2014, the developing markets are responsible for 57 percent of the global economy and account for 85 percent of the world's population. By 2030, these markets are expected to grow by 70 percent. Portfolio flows to developing markets continue to rise since early 1980, a trend which continues even after numerous financial crisis (IFC, 2000). For this study, the developed trading partner countries include Australia, US, Canada, New Zealand, Israel, and Japan. These countries represent the highest ranked Human Development Index (HDI) countries that fit our parameters of trade. European Union countries and others are excluded from this study as outlined in Chapter I, section 1.3.1. The developing trading partners, during a floating exchange rate regime, include South Korea, Thailand, Indonesia, China, Mexico, and Brazil, victims of the great recession contagion. It is important to be clear that the

focus of this paper is not on the origins of the global financial crisis or on the contagion timing and geographic linkage, but on the changes in the leading indicators effecting developing country equity market returns during the pre-crisis and post-crisis periods. Ng and Wright (2013) conduct an analysis of the volatility of crisis shocks from 1960 through 2011. They find that since 1984, US economic shock volatility has steadily declined due to improvements in inventory control, supply chain management, and better fiscal and monetary policy. For this reason, these periods of study encompass data during floating exchange rate regimes only. The "great recession" interrupted this decline in volatility. The prior recessions linked to financial origins were mild and brief compared to the latest recession. Long term studies on many countries find that recoveries from recessions with financial market origins are systematically different with slower recovery periods (Ng and Wright, 2013). Dominguez and Shapiro (2013) focus on post-crisis recovery and find that European shocks, which occurred at different time intervals after the great recession, are responsible for the slower recovery.

2.2. Related Literature and Hypotheses

2.2.1 The Great Recession

The "great recession" includes the period from June 2007 through December 2009 and is referred to as the most severe recession in history due to its intensity and prolonged multifaceted contagion effect. The devastating consequences in the housing industry, financial institutions, equity markets, and unemployment, accompanied by a slow recovery, makes this tag name appropriate. In comparison with past recessions, the increase in long term unemployment is greater and affects a larger fraction of the total employment market with the loss of over 7.5 million jobs (GruskyWestern and Wimer, 2011). By 2010, over 40 percent of the unemployed had been looking for employment for over six months, despite the February 2009 stimulus package approval of $787 billion, termed the "American Recovery and Reinvestment Act". During the short period of the great recession, macroeconomic factors were affected. The US wealth for example dropped 28.8 percent (McKernan, Ratcliffe, Steuerle et al., 2014). Output was reduced substantially following the banking crisis with no rebound to the pre-crisis trend. However growth is found to eventually return to this pre-crisis rate when considering the substantial cross-country variation in outcomes (Abiad, Balakrishnan, Koeva et al., 2009). BlanchardDas and Faruqee (2010) examined the crisis on emerging countries under the imperfect capital mobility model. Evidence suggests that trade and financial shocks effect emerging country development, and surprisingly, neither reserves or exchange rate regimes play a significant role. (Reinhart and Rogoff, 2009) find that the asset market collapses were deep and prolonged. Crowe, Ostry, Kim et al. (2009) suggests that the great recession primarily effected emerging countries through the sudden stop of capital inflows resulting from the collapsed in domestic export demand. Tsangarides (2012) examines the role of exchange rate

regimes during and after the crisis. He finds that growth performance, during-crisis, for fixed countries did not differ during floating exchange rate regimes. However, for the recovery period post-crisis of 2010 through 2011 for fixed exchange rate countries, managed worse with a slower recovery, suggesting an asymmetric effect of the regime post-crisis. He also finds that proxies for trade and financial channels are important determinants of growth during the crisis, while only the trade channel is important post-crisis. Danziger (2013) notes that the consequences of the crisis lasted 18 months more than any recession. Even though officially over, the economy has yet to fully recover, especially with the inability to correctly note the unemployment rate with some employees finding new temporary jobs while others are laid off. Frankel and Saravelos (2012) uses six variables in explaining the great recession which include GDP, industrial production, currency depreciation, equity market performance, reserve losses and participation in an IMF program. They suggest that the leading indicator is the level of reserves in accordance with pre-2008 literature. Dominguez and Shapiro (2013) focus on the recovery of the crisis as well, with an emphasis on whether the slow recovery was anticipated, and the factors that contributed to unexpected results during the recovery process. They attribute barriers to a faster recovery process based on European shocks which occurred at different time intervals after the great recession. Some analysts notably forecasted a very slow recovery (Reinhart and Rogoff, 2009), while others suggest a fairly rapid economic rebound based on the substantial monetary stimulus (Romer and Bernstein, 2009). In this paper I identify the changes and influence levels of the primary indicators affecting domestic returns and growth for both the pre-crisis and post-crisis periods.

2.2.2. Exchange Rates and Monetary Policy

International finance is based on the use of capital mobility in establishing monetary stabilization policies as led by Mundell (1963a) and Fleming (1962). The Mundell-Fleming model for open economies depicts an equation for relationships between an economy's nominal exchange rate, interest rate, output, capital mobility, and trade based on fiscal and monetary policy (Mundell, 1963b). The "Keynesian" model of fixed wages with money supply being fully controlled by authorities, subsequently managing interest and exchange rates is a qualification to this model (Kagel and Roth, 2016). Mundell further constrains the model with the assumption that perfect capital mobility exists between domestic and foreign countries. Mundell proposes that monetary policy during a fixed exchange rate regime is ineffective due to this capital account flow offset and that fiscal policy is ineffective during a floating exchange rate regime due to the counter reaction of exchange rate adjustments in the trade account to fiscal policy. Fleming's theory however is dissimilar to Mundell's theory and suggests that capital mobility is imperfect with each policy retaining some effectiveness under both regimes. For this analysis and sample data, only periods of floating exchange rate regimes are considered due to the freedom they are allowed through monetary policy in effecting macroeconomic factors, exchange rates, and trade in an effort to optimize or stabilize currency and maintain a low level of inflation.

A precise understanding of exchange rates and perception of the law of "one price" becomes instrumental in maintaining domestic economic stability, under the premise of a global economy as noted on Section 1.2.1. of Chapter I. This topic is expanded through the use of the three stages of PPP (Froot and Rogoff, 1995; Lothian and Taylor, 1996; Rogoff, 1996; Xu, 2003;

Akram, 2006). The relationships and effects of exchange rates by monetary policy, as proposed by Fleming (1962d) and Mundell (1963), are also outlined in Section 1.2.1.

Using vector autoregression methodology on time series data on the US, UK, Germany and Japan, Branson (1981) finds that money supply, relative prices, and the current account balance explain movements in nominal exchange rates. Trade balance doesn't impact the capital account balance, but the two are interrelated. A countries current account, which includes the balance of trade variable, should be equal to the sum of its capital account and financial accounts. Flexibility in exchange rates becomes more critical when one considers the international effects of monetary policy.

Contrary to the belief of a limited series of exchange rate regimes by the IMF in 2001, Fischer (2001) suggests that numerous pegged and floating arrangements are used by countries in fear of losing control of monetary policy. The numerous forms of floating regimes are explained in section 1.2.1. of Chapter I.

It is important to note that the effect of monetary policies differ for each of the regimes. Monetary policy is ineffective under a fixed exchange rate regime, and fiscal policy is ineffective during a floating rate regime (Mundell, 1963a). Fleming agrees that monetary policy is more effective during a floating regime, however, believes that it is not totally ineffective during a fixed exchange rate period (Fleming, 1962). During a floating exchange rate regime, this paper evaluates the effect of each model variable, during a pre- and post-crisis period, on domestic developing trading partner returns. Due to the flexibility of monetary policy during this exchange rate regime, the analysis is being conducted during a period where each country has the highest level of economic control through monetary policy in its attempt to maintain economic stability.

2.2.3. Floating Exchange Rate Regimes and Emerging Markets

Sullivan (2001) suggests that countries participating in floating exchange rate regimes can reduce the effects of macroeconomic shocks. Some researchers find that countries that participate in floating regimes are in a better position to insulate their economies from foreign monetary disturbances as compared to those under a fixed exchange rate policy. Exchange rates limit unexpected economic bumps and protect the country. In accordance with the Mundell-Fleming Theory, monetary expansion under a floating rate regime leads to an increase in output, a decrease in interest rate, and an increase in exchange rate, where the purchase of domestic bonds eventually leads to a deprecation of the domestic currency.

The fast development of emerging stock markets has attracted the attention of policy makers as well as researchers. Recent study centers on the advantages for investors of holding a diversified portfolio and the benefits of countries removing barriers to international capital flows (Demirgüç-Kunt and Levine, 1996). Financial systems have the ability to influence savings rates, investment decision, technological innovation, and subsequently long-run growth (Levine, 2005). An extensive view of literature exists showing robustly that exchange rate regimes affect macroeconomic performance in growth (Levy-Yeyati and Sturzenegger, 2003). AssefaEsqueda and Mollick (2017) find that annual stock returns for developing countries are 16.9 percent as compared to 4.8 percent for developed countries in their 15-year study from 1999 through 2013. Based on multiple regressions, Bouraoui and Phisuthtiwatcharavong (2015) find that during a focus on the emerging country of Thailand from 2004 through 2013, nominal exchange rates are mostly effected by trade and international reserves and not effected by monetary policy. However, the range of study incorporates a single period, which includes the most volatile period during the recession. AndersonBordo and Duca (2017) explored the effect of M2

aggregate money supply on growth on 28 emerging countries and find that money supply, commodity price declines, and a weakness in investments all contributed to the slow recovery during the post-great recession period.

2.2.4. Macroeconomic Variables

Due to their ability to simultaneously effect a country's cash flows and investment opportunities, the study of macroeconomic variables is important. As an external variable, find that global economic activity is associated with higher developing market equity returns. GrahamPeltomäki and Piljak (2016) find that increases in global economic activity is associated with higher emerging market equity returns. Flannery and Protopapadakis (2002) find that stock market returns are significantly correlated with various macroeconomic factors which include CPI, PPI, monetary aggregate, balance of trade, employment, and other domestic variables during a period from 1980 to 1996. Using VAR methodology, Calvo and Reinhart (2002) , find that exchange rates and interest rates have positive correlations on developing equity markets. Realizing the value of identifying economic growth through equity market returns, this paper examines the effect of the developed equity market and various domestic macroeconomic variables have on developing trading country real stock returns for the periods of both pre- and post-crisis. The variables include real stock returns for the developed country, domestic M1 money supply, trade balance, interest rate, exchange rate, and the developing country real stock returns.

2.2.5. Trade

Trade is essential to global prosperity. It stimulates economic growth by positively affecting employment levels, raising living standards, and providing consumers with affordable goods and services. An increase in openness to international trade is associated with higher life expectancy and lower rates of infant mortality (Owen and Wu, 2007). These characteristics are modeled in the HDI matrix for determining a country's level of development, therefore playing an integral role in advancing a country's social and economic development ranking. Not unlike other variables addressed in the "Related Literature" section 2.2., the trade balance variable is a function of monetary policy and has been included in my model. Other supportive literature on the value and correlations of trade is outlined in section 1.2.5. of Chapter I. Increases in exportation lead to an increase in productivity and economic growth (Lopez, 2005).

2.2.6. Hypotheses

The purpose of this paper is to identify a probable change in the flow channel and linkage effecting developing country returns, when comparing the pre-crisis and post-crisis periods of the "great recession". The high level of economic volatility prompted by the most severe recession in history, forces the issue of researching a change in developing country fundamentals knowing the current and future contribution value in global economics. Bekaert and Harvey (1997) contend that a higher level of developing country openness increases the correlation among foreign and domestic equity markets. This study is conducted during floating exchange rate regimes for both the developed and developing trading partners allowing countries a high level of monetary policy flexibility since fixed regimes exert a negative impact on economic growth during all types of financial crisis (BohlMichaelis and Siklos, 2016). Primary indicators explaining developing country returns are a function of monetary policy. AssefaEsqueda and

Mollick (2017) suggests that interest rate is the primary indicator explaining the negative effect on developed country equity markets. Chue and Cook (2008) using OLS and GMM-IV estimations to identify the relationships between trade weighted exchange rates and world stock returns on domestic emerging market returns, find that exchange rates have a greater significant negative relationship. Harvey (1995) concurs with this theory that predictability of emerging market returns is influenced by local information. However, in a study of four Latin American countries, Abugri (2008) finds that the exogenous factors of global equity markets are consistently significant in explaining returns in emerging markets. It is important for investors to understand any change in emerging country fundamentals to take advantage of arbitrage opportunities (Aitken, 1998). In accordance with Abugri (2008), and Moore and Wang (2014) the driving force affecting emerging country domestic equity markets include external factors such as the US stock returns. Diamandis and Drakos (2011) examined short and long run dynamics on emerging market stock returns of Latin American countries and the US equity markets. They find that from 1980 through 2009, the domestic stock returns and foreign markets are positively related with the US equity markets acting as a channel for this linkage. Hypothesis #1, supported by above, is as follows:

H1: During the pre-crisis period, the developed trading partner equity market is the primary indicator explaining developing country equity market returns.

The contagion worldwide spillover of the great recession can be attributed to US stock price dynamics, excess liquid creation, and trade channel mechanics (Bagliano and Morana, 2012). Tsangarides (2012) suggests that financial and trade channels are important determinants to performance during the "great recession" crisis, while only trade appears to be important during recovery. The crisis was more pronounced for those developing countries with weaker

economic fundamentals and greater financial and trade linkages (SalmanChivakul and Llaudes, 2010). The findings by BlanchardDas and Faruqee (2010) coincide with Tsangarides (2012) regarding the expansion of global economic damage through both trade and financial shock channels. Berkmen, Gelos, Rennhack et al. (2012) suggest that countries with financial vulnerabilities experience larger economic declines and that the financial channel is more important in emerging countries while trade channels seem more to matter for developed countries. The supported hypothesis for Hypothesis #2 is as follows:

H2: During the post-crisis period, the developed country trading partner equity market is the primary indicator explaining developing country equity market real stock returns.

Even though Tsangarides (2012) suggests that trade is the most important channel in promoting post-recession growth, I concur with CynamonFazzari and Setterfield (2013) who suggest that the trade US deficit has a severe impact on corr3espoinding trade partners and is the primary reason for a sluggish output and employment recovery which have an effect on the equity trading partners. The post-crisis period of study by Tsangarides (2012) includes data from 2010 and 2011, consisting of a total of 24 observations, while my study includes 78 observations. In opposition to Tsangarides (2012), my Hypothesis #3 is as follows:

H3: During the post-crisis period, trade balance does not play an important role in influencing developing country market real stock returns.

2.3. Data Selection and Variables

2.3.1. Developed Country Selection/Human Development Index

This paper focuses on the effect that developed country equity markets and corresponding developing trading partner macroeconomic variables, have on developing country returns during the pre- and post-great recession periods of floating exchange rate regimes. The selection of the developed countries is based on the "Very High Human Development" rated countries as outlined annually by the Human Development Index (HDI), which was established by the United Nations in 1980. Countries fall into four human development categories which include very high, high, medium, and low human development. The HDI rating system, ranks social and economic development to evaluate growth. This rating system is based on a matrix of a countries' characteristics that include life expectancy at birth, the adult literacy rate, education enrollment and GDP/capita (Anand and Sen, 1994).

The countries of Australia, US, Canada, New Zealand, Israel, and Japan are considered the developed countries for this analysis. Forty three of the forty-nine developed countries as outlined by the HDI are excluded due to the reasoning as outlined in section 1.3.1. of Chapter I. These countries are ranked from 2nd to 18th by the HDI.

In the 1970s, it became evident that the international economic environment was transforming into a more global setting (Frenkel and Rapetti, 2010). Emerging markets make an important contribution to global economics and account for 57 percent of the global economy and 85 percent of the world population, per the IMF in 2014. This market is expected to grow to 70 percent of the global economy by 2030. Leidermand (2015) suggests that a decline in world market growth, including developing countries, is related to a decline in trade. For this study, the

equity market returns for both the developed and developing markets are based on the composite indices as shown in Appendix "A2" Table A2.3.1.

Each index denotes the most comprehensive equity index for each country. In Australia, the top 200 stocks listed on the Australian Securities Exchange are included in the S&P/ASX 200 index. The US equity market is represented by the Standard and Poor's 500 index (S&P 500), which represents the market capitalization of 500 large firms listed on the NYSE and NASDAQ. The S&P 500 is widely used in stock value and economic growth measures for the US. The S&P/TSX composite index is the feature index for the Toronto Stock Market in Canada. The New Zealand Stock Exchange index, consisting of the country's 50 largest stock, is exemplified by the NZX50. The TA100, also known as the Tel Aviv 100, consists of the 100 most highly capitalized companies as listed on the Tel Aviv Stock Exchange in Israel. The Japanese equity market NIKKEI 225 index includes the top 225 blue-chip Japanese stocks for the Tokyo stock Exchange. The Nikkei 225 index is the Japanese equivalent of the Dow Jones index in the US and originated in 1950.

2.3.2. Developing Country Trading Partners

Appendix "A2" Table A2.3.1 denotes the equity markets and composite indices for the developing countries. South Korea and Thailand are represented by the KOSPI and SET indices, respectively. The South Korean Composite Stock Price Index was introduced in 1983, in its trading capital of Seoul. The Thailand SET index represents a composite of all the stocks and common shares that are traded in the Stock Exchange of Thailand, located in Bangkok. The JAKARTA composite index represents all stocks listed in the Indonesia Stock Exchange located in Jakarta, Indonesia. The China SE180 index represents the top 180 companies that trade on the

Shanghai Stock Exchange. The Mexican Bolsa De Valores is the only stock exchange in Mexico located in the capital, Mexico City. The composite index is represented by the Mexican Bolsa. The Brazilian benchmark stock market indicator is the Bovespa Index, which represents 381 companies traded in Brazil's BM&F Bovespa Bolsa de Valores in Sau Paulo, the industrial capital of Brazil. Recently in 2017, the BM&F/BOVESPA merged with CETIP, creating the new B3 stock exchange. The data for this study however, is unaffected by this change since the post-crisis range ends on December 31, 2015.

Canada, the US, and Japan adopted a floating exchange rate regime soon after the collapse of the Bretton Woods system in 1971, while others waited approximately 10 years. The nominal returns for the developed countries cover the entire range of study for each emerging country. The nominal returns for the emerging countries were derived from each corresponding equity stock index and categorized as pertaining to a pre- or post-crisis period, during a floating exchange rate regime.

The market equity data, in terms of returns, are converted to real returns using their corresponding inflation rates. Where inflation data is unavailable, CPI is used to calculate inflation as follows:

$$Inf_t^{country} = \left(cpi_t^{country} - cpi_{t-12}^{country} \right) / cpi_{t-12}^{country} \quad (1)$$

Where $Inf_t^{country}$ is the current inflation rate at time *t*, $cpi_t^{country}$ is the monthly consumer price index variable at time *t*, and $cpi_{t-12}^{country}$ is the consumer price index at time *t* minus 12 months (McMahon, 2017). CPI and inflation variables are acquired from DataStream and Statistics Canada (Canada, 2016).

This paper focuses on a time series study of the reaction of developing countries real stock returns, during each "great recession" crisis period, to developed country returns and

domestic economic drivers, including trade. Investigations show that bi-directional causality exists between foreign direct investment, economic development, and trade (LiuBurridge and Sinclair, 2002). The variance decomposition methodology for the pre-crisis and post-crisis periods identifies the direction of causality and magnitude between the developed country equity market and its trading partner's stock returns, with the consideration of various macroeconomic factors. All stock market variable data is attained from DataStream.

2.3.3 Selection of Variables

The effects of the developed countries on their emerging trading partner countries with consideration of their bi-lateral exchange rate and various domestic macroeconomic variables are examined for the pre-crisis and post-crisis "great recession" periods, during floating exchange rate regimes. The test data includes real stock returns for the developed and emerging countries, and M1 money supply, trade balance, 90-day interest rates, and bi-lateral exchange rates for the developing countries, under monthly horizons. The real rate of return, or inflation adjusted return variable, shall be used as the proxy for economic growth for each testing period. The equation for such returns is as follows:

$$RSR_{it}^{Market} = [[1+((stockprice_{t}^{Market} - stockprice_{t-1}^{Market}) / stockprice_{t-1}^{Market})] / [1+(CPI_{t}^{Market} - CPI_{t-12}^{Market}) / CPI_{t-12}^{Market})]] - 1 \qquad (2)$$

M1 money supply, interest rates, and the consumer price index values (CPI), except for Thailand M1 money supply, are acquired from DataStream. Data for Thailand M1 money supply is acquired from the Monetary Aggregates and Components and Indicator section of the Bank of Thailand[8]. Bi-lateral exchange rate data for the US and its corresponding trading partners, China,

[8] Bank of Thailand Statistics; For more information, see https://www.bot.or.th/English/Statistics/Pages/default.aspx.

Mexico, and Brazil are acquired from DataStream. The bilateral exchange rates between Australia and South Korea, Thailand, and Indonesia are estimated using cross rates[9] between the US and Australia, and the US and each emerging country. The same process is utilized for the exchange rates between Canada, New Zealand, Israel, and Japan and its trading partners as illustrated in Appendix "A2" Table A2.3.1. The Canadian and US exchange rate is acquired from FXtop (FXtop, 2017), which includes a greater vertical range of data as needed.

Vector autoregression and variance decomposition methodologies are utilized to attain the effects that each variable has on the developing market real stock returns. The results will identify the level of influence that developed countries and trading partner macroeconomic variables have on domestic emerging market real stock returns during the pre- and post-crisis periods throughout floating exchange rate regimes. Testing on the crisis period of December 2007 through June 2009[10] is excluded from this analysis due to the short duration of 19 observations. The low number of observations during this period will result in incomplete results due to time series production of information delays effecting returns (Ortiz and Arjona, 2001).

Table A2.3.2 of Appendix "A2" shows the developed/developing market testing periods and number of observations associated with the pre- and post-crisis periods for Australia, US, Canada, New Zealand, Israel, Japan, and each of their corresponding emerging country trading partners during a floating exchange rate regime. The post-crisis period, which is the same for all tests, consist of the range between July 2009 and December 2015, resulting in 78 observations.

[9] Clark (2002); Both forward and spot exchange rates between two currencies can be calculated against the US dollar. For more information, please see https://books.google.com/books?id=UztXu_p46CYC&pg=PA255&dq=CLARK+2002+INTERNATIONAL+FINANCE+THE+USE+OF+CROSS+RATES&hl=en&sa=X&ved=0ahUKEwj3ye-xuofYAhVI5oMKHQNwDy8Q6AEIKjAA#v=onepage&q=cross%20rates&f=false .

[10] Bureau of Labor Statistics 2012; The Recession of 2007-2009. For more information please see https://www.bls.gov/spotlight/

Note that several developed countries trade with the same emerging countries. The constraint of imposing a pre-crisis floating exchange rate regime for all developing countries is a key element in this paper since all countries have the ability of utilizing independent monetary policy. However, due to this constraint, the pre-crisis number of observations is unbalanced and country specific.

Australia, ranked the 2nd most developed country by the HDI, elected to float their currency on January 1983. However, the S&P/ASX200 was initiated on June 1992. In the early 1980's the IMF classified the South Korea regime as a managed float, and in the early 1990s, South Korea participated in a "market average exchange rate" designed to limit exorbitant movement of the rate, which is a form of a pegged rate system. Since late 1997, various types of floating exchange rate managed systems have been adopted (Takatoshi and Drueger, 1999) . The pre-crisis period is therefore represented as December 1997 through November 2007, resulting in 120 observations.

Since July 1997, Thailand has participated in a managed floating exchange rate regime, which replaced a basket-peg regime which was in operation since 1984[11]. Since implementing a floating regime, the exchange rate has been closely related to the fluctuation in economic fundamentals. In May of 2000, an inflationary targeting regime was utilized (Nakornthab, 2009). Thailand is in line to become a participant in the global value chain due to its economic and social transformation efforts over the past 50 years, which have placed it among the middle-income countries. On August 2012, the IMF credited the Bank of Thailand's inflation-targeting framework with mitigating the economic impact from the three major shocks which occurred between 2008 and 2011 (Fernquest, 2012). These shocks included the housing crisis, the

[11] Bureau of Thailand 2005; Foreign Exchange Policy and Intervention in Thailand; BIS Paper No. 24.

Japanese earthquake and tsunami, and the Thai flood crisis. The inflationary targeting framework resulted in the maintenance of desired inflation over the medium term. Successful implementation of such a system requires a strong financial system, and the absence of over indebtedness to the US. By continued development in high value economic segments, the creation of high quality jobs and the financial sector, Thailand will reach economic relevance (Bank, 2015). These activities include an enhancement of research and development in the technological sector along with an increase in worker skill levels in industrial capacity relevance which must be preceded by establishing advanced logistic infrastructure. In accordance with manufacturing development goals, Thailand is the 12th largest automobile producer in the world and a leading producer of hard disk drives, ranking 14th in a transporter of high value goods. In terms of finance however, Thailand falls short in improving finance for technological growth in micro to medium sized enterprises. A concerted effort in reducing unemployment can lead to a "very high human index" ranking, and future IMA consideration in becoming a developed country. Due to trade balance data constraints, the testing range for Thailand's floating exchange rate regime is from July 1997 through November 2007, resulting in 125 observations.

During the 1960s, Indonesia's budget deficit was financed by only long-term concessionary loans from the International Governmental Group. Despite continued devaluation prior to the Asian Financial Crisis of 1997, Indonesia continued to strictly manage and peg their exchange rate post the Bretton Woods change in 1971 (Rusydi, 2006) . In August 1997, the bank of Indonesia lost control of the foreign component of the monetary base and began targeting soft inflation with use of the Taylor rule (Nasution, 2015). This model is linked to changes in employment, financial markets, CPI inflation and capacity utilization. Due to a growth collapse, followed by asset deflation, a liquidity crunch, bankruptcies and the collapse of investment, the

unemployment rate rose from 4.9 percent to 6.4 percent between 1996 and 1999. In August 1997, the Bank of Indonesia decided to freely float the rupiah on the market (Rusydi, 2006). The range of Indonesia's floating pre-crisis period begins on September 1997 and continues through November 2007, resulting in 123 pre-crisis observations.

Shortly after the dissolution of the Bretton Woods system, on September 1973 the US adopted a floating exchange rate monetary system. China's floating exchange monetary regime based on market supply and demand known as the "yuan reform", was adopted on July 2005 (Zhao, 2010). Therefore, the pre-crisis period is from July 2005 through November 2007, resulting in 29 observations. None of the Latin American countries let their currencies float under a conventional managed float system, despite a public statement regarding exchange rate regime choices system (Chang, 2007). Carstens and Werner (2000) suggest that a floating exchange rate regime became the only viable option for Mexico during the 1994-1995 currency crisis, which resulted in seriously damaging the "Banco de Mexico" due to high inflation. The Mexico exchange rate has been floating freely since late 1994, when it moved away from the pegged exchange rate system to a floating regime, which consequently resulted in a higher level of economic volatility (Blejer, Ize, Leone et al., 2000). The stabilization effort was successful due to the participation of the IMF and US who provided government loans. The pre-crisis period includes the range from December 1994 through November 2007, resulting in 156 observations. Brazil adopted a floating exchange rate policy on January 1999 (Minella, de Freitas, Goldfajn , and Muinhos, 2003). Policy was put in place to attempt to tackle the construction of credibility and the high level of exchange rate volatility after the floating exchange rate adoption. The pre-crisis period ranges from January 1999 through November 2007, resulting in 107 observations.

The data for Canada is limited to July 1992, based on the founding of the S&P/ASX 200 price index. China, however, adopted a floating monetary policy regime in July 2005, resulting in 29 observations for the pre-crisis period of July 2005 through November 2007. The pre-crisis periods for Mexico and South Korea result in 156 and 120 observations, respectively.

New Zealand adopted a floating currency on March of 1985 (Blundell-Wignall and Gregory, 1990). Based on the floating exchange rate adoption date for each of its trading partners, the pre-crisis observations for China is 29. The pre-crisis observations for South Korea and Thailand, are 120 and 125, respectively.

Israel as of January 1993, is a freely convertible floating currency determined by the market (Williamson, 1996). Constrained by China's index data, the pre-crisis period results in 29 observations.

After the Euro and US dollar, the Japanese yen is the third most traded currency in the foreign exchange market and is widely used as a reserve currency. In September 1973, soon after the collapse of the Bretton Woods System, it adopted the floating exchange rate monetary policy (Handfield, 2010). From 1973 to 1985, the yen appreciated and spiked in 1985 after the Plaza Accord was introduced. The pre-crisis floating period for Indonesia from September 1997 through November 2007 results in 123 observations. The floating exchange rate crisis period for Thailand is from July 1997 through November 2007, resulting in 125 observations. The pre-crisis floating exchange rate pre-crisis period for South Korea is from December 1997 to November 2007, consisting of 120 observations.

Panel A in Table 1 shows the descriptive statistics for all countries, pre-crisis, during their individual floating exchange rate regimes through November 2007. Panel B shows the statistics for all countries during the post-crisis period consisting of the period from July 2009

through December 2015. Appendix "A2" Tables A2.3.1 through Tables 2.3.6 show the descriptive statistics for the pre- and post-crisis periods for the developed and developing trading partner countries of Australia/South Korea, Australia/Thailand, Australia/Indonesia, US/China, US/Mexico, US/Brazil, Canada/China, Canada/Mexico, Canada/South Korea, New Zealand/China, New Zealand/South Korea, New Zealand/Thailand, Israel/China, Japan/Indonesia, Japan/Thailand, and Japan/South Korea. Panel A and B shows the total number of monthly observations, mean, standard deviation, minimum, and maximum for developed country stock index, and the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and composite stock index for the pre-crisis and post-crisis periods.

Table 1: Descriptive Statistics-Pre & Post-Crisis (All Countries)

Statistics	SE^{DM}	M1	TB	IR	ER	SEEM
Panel A-All Countries (Pre-Crisis)						
N	1636	1636	1636	1636	1636	1636
Mean	5965.89	1.13E+08	1002.24	9.10	606.31	3886.25
Std. Dev.	5447.62	2.71E+08	1288.50	9.61	1539.11	7588.43
Min	448.92	9.77E+03	-1763.89	0.67	0.21	214.53
Max	20726.99	1.22E+09	5659.37	74.75	8447.01	64050.00
Panel B-All Countries (Post-Crisis)						
N	1248	1248	1248	1248	1248	1248
Mean	6213.39	2.70E+08	1350.30	4.15	797.34	10328.73
Std. Dev.	5516.02	7.34E+08	2441.50	2.88	2309.08	17342.28
Min	697.19	1.96E+04	-5906.41	0.75	0.27	624.00
Max	20569.87	3.35E+09	10235.37	16.49	11153.34	71560.88

Each panel reports the aggregate (all country) descriptive statistics, in levels, of the developed country stock exchange, the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate and developing country stock exchange. Panel A shows the data statistics for the pre-crisis floating exchange rate period to November 2007. Panel B shows the post-crisis data statistics from July 2009 through December 2015.

Table 1, Panel A shows the pre-crisis data and discloses a developing equity market indices standard deviation of 95 percent with a minimum to maximum fluctuation of 4526 percent. Several other variables show large discrepancies in range. The developing equity market indices standard deviation of M1 money supply denotes a standard deviation of 139 percent

compared to the mean, with a minimum to maximum fluctuation of 1.3×10^7 percent. The exchange rate mean is 606.3 while the standard deviation is 1539.1, resulting in a volatility of 253.8 percent and a minimum to maximum difference more than 4.0×10^6 percent. The standard deviation for the interest rate is 5.6 percent of the mean, and the minimum to maximum difference is 11056.7 percent. Panel B shows the aggregate data for all countries during the post-crisis period. The standard deviation analysis for this period is similar than that for the pre-crisis period. M1 money supply shows a standard deviation of 171.9 percent compared to the mean, with a minimum to maximum difference of 1.7×10^6 percent. The developing countries indices standard deviation is 67.9 percent of the mean with a minimum to maximum fluctuation of 11367.9 percent. The exchange rate mean is 797.3 while the standard deviation is 2309.1, resulting in a volatility of 189.7 percent. The standard deviation for the interest rate is 44.0 percent of the mean, and the minimum to maximum difference is 2098.7 percent. Other variables show similar results. These findings indicate a probable issue in conducting panel data analysis due to the high level of data deviation.

The descriptive statistics for of each developed and corresponding developing country are shown in Appendix "A2" Tables A2.3.3 through Tables 2.3.8. A summary analysis of the stock indices shows that monthly stock returns for the developed countries during their corresponding pre- and post-crisis periods did not differ. In 100 percent of the tests, the developing country equity markets performed better than the developed countries. The developed country indices during the pre-crisis period, experienced an annual average return of 8.3 percent and 10.8 percent during the post-crisis period. The developing countries were affected more by the crisis in terms of returns. The indices average annual returns for the developing countries during the floating pre-crisis period, average 68.5 percent. For the post-crisis period, the annual returns dropped to

8.2 percent, 2.6 percent below that for the developed countries. Even though the developing countries experienced an 88.0 percent decrease in annual returns, post-crisis domestic returns continue to escalate as a function of time (DidierHevia and Schmukler, 2012). With the consideration of an expected slower recovery, these statistics suggest that regardless of crisis, returns for developing countries are more favorable than developed countries. AssefaEsqueda and Mollick (2017), during their study of 21 developed and 19 developing countries between 1999 and 2013, find that annual stock returns for the developed and developing countries are 4.8 percent and 16.9 percent, respectively. The results of this paper however, may be unique due to the heterogenous characteristic of each developed and developing country.

Table 2: Correlation Matrix; All Countries (Panel Data)

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-South Korea (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	-0.1418	1.0000				
	0.0000					
TB	-0.3080	-0.0994	1.0000			
	0.0000	0.0002				
IR	0.1250	0.2059	0.0469	1.0000		
	0.0000	0.0000	0.0810			
ER	-0.2430	-0.1508	0.1187	0.0959	1.0000	
	0.0000	0.0000	0.0000	0.0004		
SEEM	-0.1888	0.1061	0.0332	0.1148	-0.2724	1.0000
	0.0000	0.0001	0.2172	0.0000	0.0000	
Panel B-South Korea (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.0366	1.0000				
	0.0387					
TB	0.0558	-0.2853	1.0000			
	0.0016	0.0000				
IR	-0.0917	-0.0140	-0.0832	1.0000		
	0.0000	0.4300	0.0000			
ER	-0.0794	-0.1209	0.1195	0.0797	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	-0.1261	0.5917	-0.1121	0.1268	-0.1227	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	

*This table shows the aggregate correlation values between the stock indices of the developed countrys' equity markets and the emerging countrys' M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

In preparation of panel data analysis, Table 2 shows the correlation matrix for the developed country equity market index, the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and equity market index for the pre- and post-crisis period. For this paper, the correlation analysis focuses on only the “very strong” and “strong” correlation values of 0.60 to 1.00. Of the pre-crisis 1636 observations as shown in Panel A, no observations have a “very strong” or “strong” correlation with the developing country indices. During this

period, M1 money supply possesses the highest correlated value of 0.48, which represents only a moderate correlation and is too low to be considered for this analysis. In Panel B, the post-crisis data represents 1248 observations. M1 money supply is strongly correlated with domestic indices at a value of 0.62 and interest rate is only moderately correlated at 0.53. These are the only variables of consequence illustrated on aggregate correlation Table 2. Most of the correlation values are under 0.29, representing a weak variable correlation. The lack of meaningful correlations suggests a possible concern with the use of panel data testing. Tables A2.3.9 through A2.3.14 in Appendix "A2" show the bi-country correlation matrix between the developed countries and each of their trading partners. These correlations include Australia/South Korea, Australia/Thailand, Australia/Indonesia, US/China, US/Mexico, US/Brail, Canada/China, Canada/Mexico, Canada/South Korea, New Zealand/China, New Zealand/South Korea, New Zealand/Thailand, Israel/China, Japan/Indonesia, Japan/Thailand, and Japan/South Korea. The summary of the correlation analysis, as shown in Appendix "A2" Table A2.3.15, shows the highest correlated values for each bi-country correlation. Only the "very strong" and "strongly" correlated values between 0.60 and 1.00 with significance levels of $p>0.05^{**}$ are considered in the evaluation. During the pre-crisis period, 15 out of the 16 tests, resulted in "very strong" correlations and only 1 is "strongly" correlated. The results for this pre-crisis period shows that 9 of the 16, or in 56.3 percent, the results indicate that M1 money supply is "very strongly" correlated with the domestic developing trading partner equity index. The second most frequent correlations occur in 5 of the 16 tests, or in 33.3 percent of the evaluations, stating that the developed country equity market is "very strongly" correlated with the domestic index. The exchange rate is the third frequency correlation with only one "very strong" and one "strong" correlation with the domestic index. During the post-crisis period,

fewer correlations exist. Only 10 of 16 possible correlations result in “very strong” or “strong” correlations. M1 money supply is correlated the most, similar to the pre-crisis period, with domestic returns in 7 observations, or 43.8 percent, of which 6 are” very strongly” correlated. The developed country equity market is moderately correlated with domestic returns in only 3 out of 16 observations, or in 18.8 percent of the evaluations, with only one being “very strongly” correlated.

These results show that M1 money supply is the primary variable correlated with domestic indices during both the pre-crisis and post-crisis periods, however the correlation is “very strong” for 100 percent of the pre-crisis observations, compared to 85.7 percent for the post-crisis period. While 16 of 16 observations during the pre-crisis period were at least “strong” correlations, only 10 of 16 observations were noted during the post-crisis period, implying that the domestic returns during a post-crisis period were less sensitive to macroeconomic variables for developing countries. This fact can be attributed to cross country heterogeneity to shocks being related to country specific idiosyncratic determinants (Fratzscher, 2012).

2.4. Methodology and Empirical Results

2.4.1. Methodology

In dealing with interdependent variables, the applied methodology in any form of research is important. The interdependence among these variables introduce bias and lead to a search of methodologies which can reduce this causality. Until recently, the past decade, interdependence between variables has been ignored by researchers (Jahn and Stephan, 2015). The methodologies and techniques employed in this study are designed to correct for simultaneous equation bias and are consistently used as effective tools in macroeconomic analysis. With the use of a bilateral model of small with a high level of openness, interdependences and causality is reduced. Vector autoregression (VAR), impulse response functions (IRF), and variance decompositions (VD) methodologies are often utilized to observe the effects of each model variable on the variable of interest. In this paper, the results identify the level of influence that developed countries have on each of its trading partners during pre- and post-crisis recession periods, while considering domestic macroeconomic factors. Since the focus of this study is based on them short-term effect at equilibrium period 10, the IRF testing methodology is not included in this Chapter.

Variance decomposition tests measure the percentage contribution of each variable to the k-step-ahead forecast error variance of the dependent variable, therefore providing the instrument for determining the relevance of innovations in explaining the independent variables effect on other variables (Koray and Lastrapes, 1989). Section 1.4.1 of Chapter I expands the rationalization of the use of VAR testing.

2.4.2. Unit Root and Lag Length Tests

A stationarity test on time series data is necessary to confirm the absence of a unit root on the model variables. Unit root testing is the starting point for most empirical time series studies (Wolters and Hassler, 2006). Nelson and Plosser interpreted the unit root behavior of many variables as evidence that real (supply) shocks were a major source of economic fluctuations, a view emphasized by the Real Business Cycle approach advocated by Prescott (1986). Traditional econometrics assumes variables as stationary with a constant mean and time-independent autocorrelations, therefore leading to the application of transforming the data to integration of order one, by taking the 1st difference (Wolters and Hassler, 2006). The Augmented Dicky-Fuller and Phillips-Perron tests are conducted to avoid spurious relationships among the variables, in a similar manner. The Augmented Dickey-Fuller and Phillips-Perron tests null hypothesis state that a unit root, non-stationary variable exists. A result reflecting significance at returns and first difference is the prerequisite in attaining the desired result of stationarity. The unit root test in Table 3 shows that stationarity exists in returns and first differences as expected. Panel A shows the test results for the developed country indices in levels and returns. Panel B through G show the indices variable for the developing trading partner countries in levels and returns, and M1 money supply, trade balance, interest rate, and bilateral exchange rate, at levels and 1st difference. Each model variable at first difference and returns are shown to be stationary and significant at the highest level of ***p>0.001.

Table 3: Unit Root Tests (Augmented Dicky Fuller-ADF, Phillips Perron-PP)

	ADF			Phillips-Perron		
Variables	Levels[1]	Fist Diff[1]	Returns	Levels	First Diff	Returns
Panel A-All developed cuntry stock exchange index						
Australia	-1.464		-12.379***	-1.563		-12.611***
US	-0.099		-11.575***	-0.861		-14.152***
Canada	-1.475		-13.150***	-2.645*		-9.426***
New Zealand	-0.403		-7.656***	-0.748		-13.019***
Israel	-1.742		-9.555***	-1.867		9.826***
Japan	-1.816		-13.098***	-1.872		12.782***
Panel B - Mexico						
SE	-1.789		12.961***	-0.023		-9.054***
M1	-3.271**	16.799***		4.982***	-16.963***	
TB	1.540	-14.598***		-7.026***	-26.463***	
IR	-2.145	11.876***		-2.516	-11.691***	
ER	-2.053	-14.843***		-2.092	14.867***	
Panel C - Thailand						
SE	-1.464		-12.379***	-0.748		-15.189***
M1	-0.214	-18.646***		1.187	-28.656***	
TB	-9.083***	-23.514***		-7.236***	-25.675***	
IR	-1.674	-3.821***		-1.855	-4.141***	
ER	-3.134**	-13.497***		-3.031	-16.607***	
Panel D - Indonesia						
SE	0.004		-7.101***	-0.164		-6.937***
M1	1.666	-17.200***		2.890**	-17.852***	
TB	-5.122***	-25.492***		-4.610	-28.017***	
IR	-1.324	-6.434***		-2.013	-6.469***	
ER	-2.239	-12.123***		-3.421	-14.036***	
Panel E - Brazil						
SE	-1.515		-12.973***	-1.583		-13.198***
M1	-0.405	-18.000***		0.001	-19.193***	
TB	-6.561***	-23.518***		-6.567***	-25.900***	
IR	-3.337**	-13.410***		-3.310**	-13.389***	
ER	-1.122	-14.316***		-1.365	-14.356***	
Panel F - China						
SE	-0.147		-9.506***	-2.353		-8.134***
M1	0.566	-13.114***		0.933	-13.442***	
TB	-4.742***	-15.475***		-4.635***	-17.774***	
IR	-2.703*	-12.919***		-2.543	-13.113***	
ER	-3.806***	-8.302***		-0.710	-11.765***	
Panel G - South Korea						
SE	-1.575		-12.074***	-1.144	-12.058***	-13.095***
M1	2.999**	-12.740***		2.541	-12.917***	
TB	-5.839***	-20.092***		-5.518***	-23.990***	
IR	-2.423	-13.765***		-2.446	-13.818***	
ER	-1.717	-12.615***		-1.809	-12.505***	

Augemented Dickey Fuller/Phillips Peron Test: H_0=A unit root exists; model is not stationary

[1]Levels/1st Diff t-stat (ADF/PP): 1% -3.469, 5% -2.882, 10% -2.572

This table shows that in returns and 1st differnce, all model variables are stationary at the highest significance p>0.001.

Once the VAR model variables have been confirmed as being stationary, further testing requires that the optimal model lag length be established. The lag length selection process is critical when dealing with stock return information which is usually not instantaneous (BilsonBrailsford and Hooper, 2001). Time delay evaluation in the production of information concerning macroeconomic factors in the time-series models is an important factor (Ortiz and Arjona, 2001). Hence, a contemporaneous measurement of data at time *t* would assumes a contemporaneous relationship between the variables and returns, which is not a reasonable assessment. Akaike Information Criterion (AIC), Hannan-Quin Criterion (HQC), and the Schwarz Information Criterion (SIC) represent the multivariate information criteria testing options for optimal lag orders. For this study, the Akaike information criteria (AIC) is used for recognizing the optimal number of lags for each developed and developing country during each of the testing 6-vector model periods. For monthly frequency data, the AIC tends to produce the most accurate structural and semi-structural estimates for realistic sample sizes and also includes a correction measure for smaller sample sizes (Ivanov and Kilian, 2005). Table A2.4.1 in Appendix "A2" shows the results of the AIC vector autoregressive structural series lags as estimated for the VAR model as shown in Equation (3) in section 2.4.4. The number of lag lengths vary as a function of testing period and developed and developing country.

2.4.3. Vector Autoregression

Vector autoregression (VAR) models are effective in explaining the dynamic interaction among economic variables (Koray and Lastrapes, 1989). This time based stochastic model, developed by Sims (1972) requires few restrictions (Lastrapes and Koray, 1990; McMillin,

1991). Section 1.4.3. of Chapter I depicts the value, pre-requisites, and literature supporting the use and effectiveness of this methodology.

As identified by economic theory, the Cholesky decomposition order of independent variables for variance decomposition testing includes assigning variable order from exogenous to endogenous. Robustness testing regarding the quantity of variables and their interdependence in the Cholesky variance decomposition order of my model is outlined in the "Robustness Testing" section 2.4.6. of this Chapter.

2.4.4. Vector Autoregressive Model

This study includes several of the macroeconomic variables as included the Mundell-Fleming Theory. In the matter of monetary expansion during a floating exchange rate regime, we can expect the following sequence of events; an increase in M1 money supply and output, a depreciation of currency due to the cash outflow resulting from a reduction in interest rates, and an increase in trade volume. During monetary contraction, the opposite effect can be expected. The developing market real stock returns are influenced by these variables, either individually or as a whole. The Cholesky order in VAR testing is based on the influence that each variable imposes on the domestic equity market, which is not necessarily associated with the sequence of open market economic behavior as outlined by Mundell-Fleming. The order of variables in equation (3) is based on literature. In the model, the developed and developing market returns are the most exogenous and endogenous variables, respectively, in the model. Interest rate is more exogenous than exchange rate as expressed by Mollick (2002), Dimitrova (2005), and Akram (2009). In a study on trade balances and real exchange rates, Monacelli and Perotti (2006) suggest that trade balance is more exogenous than exchange rate. Sims (1980) Cholesky order of variables places M1 money supply as more exogenous than industrial production and the

wholesale price index. Even though monetary expansion leads to an increase in M1 money supply, which increases output and should have an immediate effect in industrial production, he establishes this variable as being exogenous. The removal of this variable is tested for robustness later in this chapter.

This study includes a six-series vector autoregressive model to investigate the interactions between several developed countries and their trading partners during the pre-crisis and post-crisis periods. The variables include the developed countries real stock returns, the domestic country's changes in M1 money supply, changes in trade balance, changes in interest rate, changes in bilateral exchange rate, and real domestic stock returns during a floating exchange rate regime for each testing period. The testing model is defined as follows:

$$Z_{pre-,post-} \equiv [RSR_{t-1}^{DM}, \Delta M1_{t-1}^{EM}, \Delta TB_{t-1}^{EM}, \Delta IR_{t-1}^{EM}, \Delta ExRate_{t-1}^{EM}, RSR_{z,t-1}^{EM}] \quad (3)$$

$Z_{pre-,post-}$ represents the pre-crisis, and post-crisis periods of study. The developed market variable consists of real stock returns, $RSR_{z,t-1}^{DM}$. The emerging market variables include $\Delta M1_{t-1}^{EM}$, the change in M1 money supply, ΔTB_{t-1}^{EM},the change in trade balance, ΔIR_{t-1}^{EM}, the change in the domestic 3 month treasury-bill interest rate, $\Delta ExRate_{z,t-1}^{EM}$, the change in exchange rates, and $RSR_{z,t-1}^{EM}$, the real stock returns for the emerging market. The Cholesky variable sequence is from exogenous to endogenous. The effects of variable order is minimized through the use of monthly horizons, first difference and returns data, and the use of lag lengths. Spencer (1989) suggest that data under these constraints offer the most stable results. The vector model matrix is represented as follows:

$$RSR^{EM}_{pre-,post-} \equiv \begin{pmatrix} RSR^{DM}_{t-1} \\ \Delta M1^{EM}_{t-1} \\ \Delta TB^{EM}_{t-1} \\ \Delta IR^{EM}_{t-1} \\ \Delta ER^{EM/DM}_{t-1} \\ RSR^{EM}_{t-1} \end{pmatrix} = \begin{bmatrix} a_{11} & 0 & 0 & 0 & 0 & 0 \\ a_{21} & a_{22} & 0 & 0 & 0 & 0 \\ a_{31} & a_{32} & a_{33} & 0 & 0 & 0 \\ a_{41} & a_{42} & a_{43} & a_{44} & 0 & 0 \\ a_{51} & a_{52} & a_{53} & a_{54} & a_{55} & 0 \\ a_{61} & a_{62} & a_{63} & a_{64} & a_{65} & a_{66} \end{bmatrix} \begin{pmatrix} \varepsilon_{1t}^{RSR^{DM}\,shock} \\ \varepsilon_{1t}^{\Delta M1^{EM}\,shock} \\ \varepsilon_{1t}^{\Delta TB^{EM}\,shock} \\ \varepsilon_{1t}^{\Delta IR^{EM}\,shock} \\ \varepsilon_{1t}^{\Delta ER^{EM}\,shock} \\ \varepsilon_{1t}^{RSR^{EM}\,shock} \end{pmatrix} \quad (4)$$

2.4.5. Empirical Results and Variance Decomposition

Prior to the variance decomposition tests, testing using Eigenvalues for further examining the stability conditions of each test is performed. Lütkepohl (2007) and Hamilton (1994) show that if the modulus of each eigenvalue of the model matrix acquired from the VAR estimates is less than one, the estimated VAR model is stable. These eigenvector values are a linear mapping measure of distortion induced by the transformation. Points outside the unit circle represent an instability of the model. The stationarity constraint requires that all roots lie within the unit circle between 1 and -1. The unit circle graph horizontal axis represents the real eigenvalues, while the vertical axis shows the imaginary values. Since all roots lie inside the unit circle, the model is stationary. Table A2.4.2 through A2.4.17 show the results of the model stability test, which indicates that each VAR test satisfies the stability conditions required for stable models. The results indicate that the model stationarity provide the inverse roots of the polynomial.

Table 4 shows the variance decomposition of domestic returns for the developed countries of Australia, US, Canada, New Zealand, Israel, and Japan, and their developing country trading partners for the periods prior, and post the great recession, during floating exchange rate regimes for period 10. The results vary as a function of developed country and developing partner country economics.

For the sake of discussion, we are ignoring the influence of the developing market stock returns on themselves, unless a trend is recognized. The results clearly indicate that the trade balance variable itself does not influence domestic returns. Only during the pre-crisis period for Israel/China was the trade account relevant. Table A2.4.18 in Appendix "A2" shows the variance decomposition summary for the 16 tests of each crisis period. The external variable of the developed market real stock returns has the most influence on domestic returns during both the pre- and post-crisis periods. However, it becomes more relevant during the post-crisis period by "very strongly" explaining domestic returns with a 26.3 percent effect as opposed to a "strong" effect of 24.7 percent during the pre-crisis period. During the pre-crisis period, the developed country real stock returns explained domestic returns in 6 out of 16 tests, or in 37.5 percent of the events. During the post-crisis period, the developed equity market affected domestic returns in 10 out of 16 tests, or in 62.6 percent of the instances. Suggesting that developed country real stock returns are 67 percent more relevant in explaining returns during the post-crisis period as compared to the pre-crisis period. During the pre-crisis period, exchange rate is the secondary indicator by "strongly" explaining domestic returns by having a "strong" effect of 23.64 percent in 25 percent of the tests. The tertiary variable is interest rate with a "moderate" effect of 20.33 percent in explaining domestic returns in 18.75 percent of the tests. During the post-crisis period, interest rate is the secondary indicator by having an average "weak" effect of 14.57 percent in explaining domestic returns in 18.75 percent of the tests. Exchange rate is the tertiary variable with a "very weak" effect of 9.20 percent in explaining returns in 12.5 percent of the tests. The results of an increase in external influence explaining domestic returns could be attributed to a reallocation of capital flows associated with the risk triggered by the "great recession".

Table 4: Variance Decomposition-Pre and Post Crisis (Period 10)

Variables	AUSO	AUTH	AUID	USCH	USMX	USBR	CNCH	CNMX	CNSO	NZCH	NZSO	NZTH	ISCH	JPID	JPTH	JPSO
Panel A-Pre-Crisis																
RSR^{DM}	20.0304	0.5711	7.0736	43.4738	17.8903	22.0765	9.3884	24.7773	8.2483	7.6063	13.1820	20.0921	14.0769	2.0630	0.9531	13.4121
ΔM1	0.8835	4.8034	2.8411	9.6061	4.9708	1.8906	6.9350	6.0030	0.9020	13.6391	2.5940	5.2352	2.9935	1.4638	5.9784	3.8301
ΔTB	4.6602	1.0888	3.2649	14.1600	12.4590	1.7003	13.7277	12.9016	4.7888	17.5135	5.4796	0.8105	23.5115	2.9599	0.8740	6.4341
ΔIR	4.0384	2.6206	29.3044	17.7024	10.7344	8.2960	10.8847	7.9999	4.1968	13.4754	11.3141	2.4345	18.1969	24.9678	2.4778	11.2508
ΔER	5.7617	1.1270	6.9035	3.5076	5.3059	5.7229	24.0528	5.8752	38.3179	15.4272	16.8206	4.6207	12.5660	12.0502	0.9740	15.3597
RSR^{EM}	64.6259	89.7891	50.6126	11.5500	48.6396	60.3137	35.0114	42.4429	43.5462	32.3385	50.6097	66.8070	28.6551	56.4952	88.7428	49.7131
Panel B-Post-Crisis																
RSR^{DM}	36.4430	3.2558	6.2551	1.5641	40.8414	36.3109	2.1588	31.7938	39.4781	16.7784	15.3698	9.7284	11.6234	13.6188	4.9729	21.0310
ΔM1	2.5484	1.7943	8.4365	6.6390	2.4656	1.1763	4.2777	1.6959	1.9544	6.4210	4.7196	3.2736	5.1115	8.2001	2.7414	4.9182
ΔTB	3.7893	6.1321	3.6263	6.4870	3.3477	0.6109	6.9679	2.6526	2.8422	3.3173	4.2991	5.1070	2.0076	4.3533	2.3346	2.6513
ΔIR	1.8676	6.6524	3.2012	1.7754	0.2416	9.8422	2.1553	0.6673	2.9350	1.2496	0.6597	15.0852	10.6047	4.1532	14.5293	0.9821
ΔER	3.8331	9.2212	4.2251	5.4739	4.5397	3.4763	11.2504	7.7534	12.0850	5.2863	12.3235	12.1577	9.1740	2.1996	1.8553	6.7481
RSR^{EM}	51.5187	72.9443	74.2558	78.0606	48.5640	48.5834	73.1898	55.4370	40.7053	66.9474	62.6283	54.6482	61.4788	67.4752	73.5664	63.6693

This table reflects the decomposition of the domesitc real stock returns for the variables as they pertain to the country bi-country analysis. The values reflect the percentage that can be explained by each variable on the developing country real stock returns.

2.4.6. Robustness Testing

Two robustness checks are conducted to confirm the validity of the variance decomposition model in terms of the quantity of variables and their interdependence, and the Cholesky order of the macroeconomic variables. An excessive number of VAR variables can lead to collinearity and interrelated relationships among the independent variables (Sims, 1980b) which can have an adverse effect on results. The results of variance decomposition Robustness Test 1 shown in Appendix "A2", Tables A2.4.19 through A2.4.24, reflect the variance decomposition bilateral results for each developed country and its corresponding trading partners during the pre- and post-crisis periods, with the removal of the M1 money supply variable, the trade balance variable, and both variables. Each variance decomposition result is based on the 10-month equilibrium decomposition value. During both the pre- and post-crisis periods, the results show that when either M1 money supply or trade balance is the primary indicator and removed from the model, the influence values are distributed to other variables as expected. However, these results were consistent in that the influence of M1 money supply shifted to domestic interest rate in all cases. These results are in accordance with the Mundell-Fleming theory of monetary expansion during a floating exchange rate regime. The increase in money supply is followed by an increase in production and a decrease in interest. When the primary variable is not M1 money supply or trade balance, the robustness testing shows that in 26 out of 27 tests, or in 96.3 percent of the tests, the primary indicator is not influenced by the reduction in model variables. Only in the case of Australia/Thailand during a post-crisis period, does the primary indicator shift from interest rate to exchange rate. The aggregate results of this robustness tests indicate that the monthly horizon six-vector variance autoregressive model in first difference and returns with lag consideration as shown in equation (3) is a valid testing

model with 96.3 percent accuracy, and a 3.7 percent error factor. Implying that the accuracy is ± 0.60 single variable error affecting domestic returns.

Robustness Test 2, addresses the Cholesky order of the vector autoregressive variables. Spencer (1989) suggests that it is important to capture the causality relationship by applying the correct exogeneity variable order to the VAR model. Tables A2.4.25 thru A2.4.30 in Appendix "A2" show the Robustness Test 2 variance decomposition results when reversing the macroeconomic variable sequence in each variance decomposition test. The bilateral tests are conducted for each developed and developing trading partner during both the pre- and post-crisis periods. The first column results represent the original model as shown in equation (3). The second data column shows the variance decomposition test with the reversal of the macroeconomic variable sequence. The alternate analysis is based on a change of the Cholesky order from RSR^{DM}, $\Delta M1$, ΔTB, ΔIR, ΔER, RSR^{EM} to RSR^{DM}, ΔER, ΔIR, ΔTB, $\Delta M1$, RSR^{EM}. The results indicate that in 29 of the 32 tests, or in 90.6 percent of the tests, the order of variables does not affect a change in the primary indicator. China is responsible for 2 of the 3 departures from the majority findings. The primary variable of US/China shifted from M1 money supply to trade balance, and the New Zealand/China primary variable shifted from trade balance to exchange rate. With the exclusion of China as a developing country, the alternative Cholesky order would result in a 97.0 percent accuracy level. Even though China is considered a developing country in this paper due to HDI rankings, it is similar to developed countries in terms of financial intermediation positively influencing domestic economic growth (ZhangWang and Wang, 2012) as well as being the world's second largest economy. Robustness Test #2 indicates a confidence level greater than 90 percent. An extension of this paper could exclude China as a developing country and possibly offer better robustness results. The results of this

robustness test indicate that the monthly horizon six-vector variance autoregressive model as shown in equation (3) is a valid testing model with a confidence level greater than 90 percent at 90.6 percent, resulting in ± 9.4 percent error, or a 1.5 variable error effecting returns. The results of this robustness test indicate that the monthly horizon six-vector variance autoregressive model as shown in equation (3) is a valid testing model, since the error factor is not sufficient to change the primary variable.

2.4.7. Problem in Using Panel VAR Models

The use of panel data analysis was considered for testing, but the unbalanced panel vector autoregression analysis model proved to be an ineffective tool. The data as shown on Table 1, the descriptive analysis for the pre- and post-crisis periods reflect a standard deviation in excess of 100 percent for most variables. The standard deviation of the mean for the M1 money supply and exchange rate is 240 percent and 254 percent, respectively. The trade balance standard deviation is 130 percent greater than the mean, and the real stock return is 200 percent greater than the mean. This breakdown suggests that the data is over dispersed and is biased by the extreme outliers, which leads to inaccurate results.

Abrigo and Love (2015) suggest the use of the considerably new VAR testing procedures designed for panel data. The recommended procedures failed to determine lag lengths as the pre-requisite for running VAR time series data. The output did not generate accurate structural lags. The output included only a coefficient of determination (CD), with an ascending value for increases in lag lengths. These results are inaccurate since an increase in the number of lags normally result in descending CD values. The variance decomposition results show all variables as insignificant, with the developing country real stock returns being influenced by the equity

market itself at a range of 98 to 99 percent, while other variables are insignificant by having less than a 2 percent effect on domestic returns. Ineffective panel data testing may be based on offsetting data results from the country specific variables.

Even though the use of panel data and literature have increased since 1986 (Hsiao, 2014), challenges to attain accurate results remain. When conducting panel data testing, interdependence and cross-sectional heterogeneity among the variables for various countries with a various number of observations, ranging from 29 to 156 for the pre-crisis period, and 78 for the post-crisis periods may affect panel data testing. An interdependence among exogenous innovations of two or more countries may have offset the results on the impact of the dependent variable. Highly correlated variables could also strengthen the effect resulting in diminishing the diversification effect. These results of country collaboration can therefore amplify group results and lead to inaccurate results in this study. Due to the inability to perform a panel data VAR as outlined by Abrigo and Love (2015) , vector autoregressive bi-lateral testing was performed for each developed and developing country trading partner.

2.5. Conclusion

Researchers have numerous proposals on the manifestation source of the great global contagion known as the "great recession". Rose and Spiegel (2012) explore the numerous linkages between the manifestation and several possible causes. In their study of sixty probable causes for the crisis, including financial policies, asset price appreciation in real estate and equity markets, international imbalances in foreign reserves, macroeconomic policies, and geographic characteristics, they are unable to link most of the cited causes across countries. The source of the crisis may be attributed to not simply a single source, but a combination of various policies prompted by events which may be country dependent. Despite the inability to pinpoint the exact source of the crisis, it is important to identify any changes in finance, trade, or macroeconomic linkages to equity markets post-crisis, especially for developing countries which are expected to grow and account for 70 percent of the global economy by 2030. Furthermore, it is important for investors to realize any change in developing country economic fundamentals to take advantage of investment opportunities. In this paper, we consider various equity markets and macroeconomic factors to empirically analyze their effect on developing country real stock returns pre- and post-crisis. A 6-vector autoregressive model is utilized in the decomposition of developing country real stock returns with the consideration of the developed country trading partner equity market, and various macroeconomic variables. It is important to preface this discussion by stating that favorable robustness tests were attained on the quantity and interdependence of the variables, as well as the Cholesky sequence of the VAR models. Moreover, further testing was conducted due to the low number of post-crisis observations of 78. The model stability testing for each model confirms that each VAR assessment satisfies the conditions required for VAR model stability and accuracy.

During the pre-crisis period, the developing countries experienced an average stock return of 68.52 percent, while during the same time, the developed countries experienced an annual average return of 9.94 percent. However, during the post-crisis period, the developing country average stock returns dropped to 8.16 percent, while that of the developed country rose to 10.80 percent. These results include Brazil's worst recession in history which occurred from 2015 through 2018 and adversely impacted their equity market. Throughout the post-crisis period, China also exhibited uncommon equity market annual returns of 0.006 percent, possibly due to a strongly managed market. With the removal of the results of the post-crisis results Brazil and China due to the post-recession anomalies, the annual returns for the developing countries increase to 11.84 percent.

The developing countries suffered a much greater percentage loss on domestic equity market returns as compared to the developed countries and have yet to recover. However, the developing market post-crisis returns are currently 9.62 percent higher than those for the developed countries, who have fully rebounded from the great recession (DidierHevia and Schmukler, 2012). These results indicate that returns for developing countries are more favorable than those for developed countries, with the exclusion of Brazil and China.

During the pre- and post-crisis period, the external variable of developed country real stock returns has the most influence in explaining the developing country real stock returns, in accordance with Hypothesis #1. During the pre-crisis period, the developed country equity market influences domestic returns in 37.50 percent of the tests with a "strong" influence of 24.72 percent, which grew to an even greater relationship post-crisis in 62.50 percent of the tests, with a "very strong" influence of 26.33 percent. During this post-crisis period, domestic returns became 67 percent more sensitive to the external developed country equity market. During the

pre-crisis period, the secondary indicator is represented by the exchange rate, explaining domestic returns in 25 percent of the tests, with a "strong" influence of 23.6 percent. During the post-crisis period, the secondary factor explaining domestic real stock returns is the interest rate as realized in 18.75 percent of the tests, having a "moderate" influence of 14.57 percent in explaining domestic real stock returns. In both the pre- and post-crisis period, the tertiary indicator is "very weak" and not noteworthy in this study. The trade account variable is the primary variable only in the case of Israel/China. In support of Hypothesis #2, and in opposition to Tsangarides (2012), the trade linkage to developing country equity market is not applicable, possibly since the study by Tsangarides includes the limited data of the highly volatile period of 24 month post-crisis, while my study includes 78 monthly observations from July 2009 through December 2015.

As a value to sophisticated investors, the empirical results suggest that external factors such as the developed trading partner country equity markets have a considerable influence in explaining developing country equity markets during both periods of study. The developed country trading partner equity market is 50 percent more influential than the secondary indicator, the exchange rate, for pre-crisis period, and 233 percent greater than interest rate during the post-crisis period. These results represent value in portfolio investment since the data suggests that even though the post-crisis developing country equity market dropped to 11.8 percent, returns continue to escalate for the developing countries. These results may be based on country heterogeneity to shocks as related to country specific determinants.

The results indicate that external factors, in accordance with Abugri (2008), AssefaEsqueda and Mollick (2017), Moore and Wang (2014), and Diamandis (2009) have a greater effect on developing country equity markets than domestic macroeconomic factors. Per

Abugri (2008), domestic macroeconomic variables cannot be used to determine domestic equity market return since global variables are much more effective. Factors such as the US equity markets, various global indices, and in this study, the developed country trading partners are more relevant and significant in explaining domestic returns.

CHAPTER III

”A COMPREHENSIVE FORECAST FOR DEVELOPING COUNTRIES”

3.0. Summary and Conclusion

Since the dissolution of the Bretton Woods monetary system in the early 1970s, developing country macroeconomic behavior and their correlation with domestic equity markets have been a primary topic of research. The term developing, also known as emerging, is applied to those countries that have yet to meet the developed country standards as outlined by the United Nation’s Human Development Index (HDI) and the International Monetary Fund (IMF). The HDI is used as a statistical tool in measuring a country’s overall achievement in social and economic elements based on health, education, standard of living, and economics. The IMF acts as an adviser to developing countries on economic and financial policy to promote stability, while sustaining growth and reducing exposure to crisis. The expedient development of structured equity markets in both developed and developing countries, with the developing countries accounting for 57 percent of the global economy, make this a major topic for comparison (Rousseau and Wachtel, 2000). The global representation of the emerging country sector continues to develop and is currently providing substantial contributions in global economics (Sullivan, 2013). Since the collapse of the Bretton Woods system of a fixed exchange rate regime, IMF members have been encouraged to choose any form of exchange regime arrangement best suited for the development of each individual country. Among the

major currencies, countries have chosen to allow their currency to fluctuate as a function of global markets and incur the short-run volatility and occasional medium currency swings. Some medium sized industrial countries have also chosen floating monetary regimes, while some European non-euro countries have selected pegged monetary policies. The tendency of developing countries have been moving toward increased exchange rate flexibility, drawn into the integrated world economy in terms of trade in goods and services, and financial transactions (Mussa, Masson, Swoboda et al., 2000). Chapter I of this dissertation addresses the comparison of fixed and floating exchange rate regimes in open economies, post removal of international capital flows barriers. The stochastic processes of the VAR models for each exchange rate regime empirically determine how developing country real stock returns are affected by its developed country trading partner equity markets, with the consideration of domestic macroeconomic variables. The relevance of this study is important due to the literature on high levels of exchange rate and interest rate volatility associated with a the adoption of a floating exchange rate regime, which consequently lead to fiscal credibility issues and the reluctance of developing countries to endure such an endeavor (Calvo and Reinhart, 2002). In addition to identifying changes in the driving force dynamics affecting domestic returns, the empirical results of this analysis recognize the magnitude of the inherent risk of a monetary policy change, in terms of domestic equity market volatility and real stock returns. This paper shows that during both a fixed and floating regime, the developed country equity markets strongly influence domestic returns as the primary indicator but playing an 80.64 percent greater role during the floating exchange rate regime. The average monthly stock returns for developing countries are 12.64 percent greater during floating regimes as compared to fixed regimes, which are approximately 600 percent higher than returns for developed countries. Calvo and Reinhart

(2002) ignore any reference to domestic stock returns in their study. Regarding the floating exchange rate adoption volatility period, the developing country experienced an average volatility increase of 72.78 percent, while during the same period, the developed countries experience an increased volatility of 59.61 percent. This paper supports the theory that even though a high level of volatility is experienced during an exchange rate regime change, domestic stock returns remain relatively stable, leading to my proposition that emerging countries should be "attracted to adopt a float" in lieu of having a "fear to float".

The continued development of emerging countries represents an increased contribution to the global economy. The effects, regularity, and intensity of financial economic crisis' such as the most current "great recession", which spread throughout the world by contagion is of growing concern. Global equity markets and domestic macroeconomic behavior explain changes in developing equity markets. Stabilization policies for countries under floating rate regimes become effective during these unanticipated disturbances (Marston, 1985).

Chapter II of this dissertation investigates the changes in variable drivers affecting real domestic returns during flexible exchange rate regimes, for the periods pre- and post-great recession. Since flexible exchange rates generally insulate or dampen domestic economies from foreign monetary disturbances (Flood and Marion, 1982), my analysis is performed during this floating exchange rate period. The range of study includes only floating regimes due to Mundell (1963a) suggestion that monetary policy optimization is only effective during a floating rate regime. It is important to realize the changes in driving factors and magnitudes of influence across markets to improve investor portfolio performance (Abugri, 2008). The results of this paper add value to both researchers and investors. The external variable of the developed country real stock returns has the most influence in explaining the developing country real stock

returns during both the pre- and post-crisis periods, with a greater influence during the post-crisis period. The real stock returns for the developed countries grew from 9.94 percent to 10.80 percent from the pre- to post-crisis periods, respectively. Indicating an absolute rebound to the crisis for the developed countries included in this analysis. For the developing countries, the annual returns dropped from 68.52 percent to 11.84 percent, with the exclusion of Brazil and China as noted in section 2.5.1. The substantial drop and slow rebound in growth is expected since developing countries recovery period is much slower than those for developed countries and may be affected by individual country heterogeneity to shocks as related to country specific determinants (Aizenman and Pasricha, 2012). This current recovery for the developing countries is expected to continue (Kharas, 2017). The volatility during financial crisis is highly associated with large permanent loses, especially for developing countries who could experience negative balance sheet consequences due to currency depreciation and the consequence of increased foreign denominated debt, accompanied by a reduction of private domestic demand (Hegarty and Beth Anne, 2017). The volatility for the developing countries increased 38.76 percent while that for the developed countries increased 8.77 percent from the pre-crisis to post-crisis periods. Developing countries inherently possess a higher level of volatility resulting in higher risk investment and rewards, which is apparent during the pre-crisis period. However, the volatility for the developing countries, post-crisis, is only 26.64 percent greater than the volatility for the developed countries. The decrease in volatility may be partially due to the reduction of foreign investment post-crisis, which leads to a reduction in stock market volatility (Jebran, Chen, Ullah et al., 2017).

According to Robert Mundell, monetary policy is only effective during floating exchange rate regimes. The pre- and post-crisis periods together constitute an average of 180 observations,

or 15.02 years of data, yet monetary policy as outlined by the Mundell-Fleming Theory is not a strong effective tool in economic stabilization as illustrated on my VAR results. The interest rate variable should have a greater influence in explaining domestic returns, however as a secondary driver, the influence has increased during the floating exchange rate period. The external factor and primary driver of the developed country equity market influences returns more during the post-crisis period compared to the pre-crisis period. The constraints associated with the Mundell-Fleming theory, such as full employment and perfect capital mobility, may be contributing factors is reducing the effects of monetary policy on developing country economies.

An extended study of this paper, adding finance research value, could include a focus on developing country capital mobility and its relative magnitude in explaining the influence of money supply and interest rates on domestic equity markets during a floating exchange rate regime. Capital controls, for example, effect equity market activity by controlling the transfer of capital into and out of each country. Loncan and Caldeira (2015) find that a study on capital flows for the country of Brazil for various business sectors, foreign capitals cause increases in domestic returns, especially in those sectors related to commodities, industry, and cyclical consumption with high betas, but decreased the returns of low beta portfolios. Investors are therefore risk-seekers and more willing to invest in the more volatile stock. Since a reallocation of capital flows appears to have risen since post-recession (Fratzscher, 2012), replacing the trade variable with a capital flow variable would be of interest since capital flow drivers are strongly correlated to macroeconomic fundamentals. Yeyati and Williams (2014) also suggest that capital flows across borders is a useful measure of macroeconomic exposure to global risk, thereby representing the linkage to domestic returns which is a function of global markets.

Another testing alternative would include the removal of the M1 money supply and the trade balance variables from the model equations in Chapter I and Chapter II, resulting in a smaller concise equation. Even though the Robustness Test results prove my equations to be stable, the removal of M1 money supply and trade balance variable is suggested. The trade variable can be removed even though this study is based on trade partners, since the equity markets are the developed country equity market is of more interest than the volume of developing country exportation. This change would result in a 4-varable basic VAR equation. The interest rate variable is expected to absorb a substantial portion of the influence on domestic equity returns based on my basic VAR analysis. The results in question would include the degree of change in influence on domestic equity real stock returns, which would either confirm or deny the developing countries' movement toward an equity market economy resulting in an increase in the effectiveness of the utilization of monetary policy as a stabilization tool.

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APPENDIX A1

TABLES

Table A1.3.1: Equity Markets and Composite Indices

Developed Market	Emerging Market	Equity Market	Trade Index
Australia		Australia Securities Exchange	S&P/ASX 200
	South Korea	Korea Stock Exchange	KOSPI
	Thailand	Stock Exchange of Thailand	SET
	Indonesia	Bursa Efek Stock Exchange	JAKARTA
United States		Standard and Poor's	S&P 500
	China	Shanghai Stock Exchange	SSE 180
	Mexico	Mexican Stock Exchange (BDV)	MEXBOL
	Brazil	Brazil Bovespa Exchange	IBOV
Canada		Canada Securites Exchange	S&P/TSX
	China	Shanghai Stock Exchange	SSE 180
	Mexico	Mexican Stock Exchange (BDV)	MEXBOL
	South Korea	Korea Stock Exchange	KOSPI
New Zealand		New Zealand Stock Exchange	NZX50
	China	Shanghai Stock Exchange	SSE 180
	South Korea	Korea Stock Exchange	KOSPI
	Thailand	Stock Exchange of Thailand	SET
Israel		Tel Aviv Stock Exchange	TA100
	China	Shanghai Stock Exchange	SSE 180
Japan		Tokyo Stock Exchange	NIKKEI 225
	Indonesia	Bursa Efek Stock Exchange	JAKARTA
	Thailand	Stock Exchange of Thailand	SET
	South Korea	Korea Stock Exchange	KOSPI

This table shows the equity market stock exchanges and their corresponding composite index. These indices are used for identifying the real stock returns for each developed country and their corresponding emerging trading partners.

Table A1.3.2: Developed/Emerging Market Testing Periods

Developed Market	Emerging Market	Start Fixed ER Period	End Fixed ER Period	Number of Observations	Start Foating ER Period	End Floating ER Period	Number of Observations
Australia					Jan-83	Dec-15	
	South Korea	Aug-92	Nov-97	64	Dec-97	Dec-15	217
	Thailand	Aug-92	Jun-97	59	Jul-97	Dec-15	222
	Indonesia	Aug-92	Aug-97	61	Sep-97	Dec-15	220
United States					Sep-73	Dec-15	
	China	Jan-97	Jun-05	102	Jul-05	Dec-15	126
	Mexico	Jan-89	Nov-94	71	Dec-94	Dec-15	253
	Brazil	Jun-95	Dec-98	43	Jan-99	Dec-15	204
Canada					Jan-71	Dec-15	
	China	Jan-97	Jun-05	102	Jul-05	Dec-15	126
	Mexico	Jan-89	Nov-94	71	Dec-94	Dec-15	253
	South Korea	Jan-89	Nov-97	107	Dec-97	Dec-15	217
New Zealand					Mar-85	Dec-15	
	China	Jan-97	Jun-05	102	Jul-05	Dec-15	126
	South Korea	Apr-86	Nov-97	140	Dec-97	Dec-15	217
	Thailand	Aug-92	Jun-97	59	Jul-97	Dec-15	222
Israel					Jan-93	Dec-15	
	China	Jan-97	Jun-05	102	Jul-05	Dec-15	126
Japan					Sep-73	Dec-15	
	Indonesia	Jan-90	Aug-97	92	Sep-97	Dec-15	220
	Thailand	Jan-89	Jun-97	102	Sep-97	Dec-15	220
	South Korea	Jan-89	Nov-97	107	Dec-97	Dec-15	217

This table shows the range of fixed and floating exchange rate testing periods for the developed countries and their corresponding trading partners. Note that several of the developed countries trade with the same emerging markets.

Table A1.3.3: Descriptive Statistics-Australia/South Korea

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	64	88951.170	19008.900	57623.300	125659.000
ΔM1	64	1058.409	1226.755	-2500.000	3414.900
TB	64	-756.226	876.222	-3475.868	643.475
ΔTB	64	14.541	823.696	-2406.903	1859.378
IR	64	5.156	0.541	5.000	7.000
ΔIR	64	-0.031	0.250	-2.000	0.000
ER	64	596.040	49.455	522.717	705.748
ΔER	64	1.530	13.978	-24.876	31.329
SE^{EM}	64	808.613	142.649	508.630	1108.430
RSR^{EM}	64	-0.046	0.064	-0.240	0.171
Panel B-Floating exchange rate regime					
SE^{DM}	217	4214.116	1059.929	2405.200	6828.700
RSR^{DM}	217	-0.023	0.042	-0.177	0.079
M1	217	337957.900	134211.200	101218.600	696785.600
ΔM1	217	2634.433	6579.429	-37006.800	19981.700
TB	217	2321.758	2215.144	-4043.455	10235.370
ΔTB	217	31.308	1671.883	-4572.187	6564.472
IR	217	2.200	0.982	0.750	5.000
ΔIR	217	-0.020	0.175	-2.000	0.500
ER	217	871.801	163.588	593.691	1212.464
ΔER	217	0.708	33.634	-198.037	149.806
SE^{EM}	217	1301.860	580.824	305.640	2228.960
RSR^{EM}	217	-0.018	0.084	-0.279	0.319

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.4: Descriptive Statistics-Australia/Thailand

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	59	334400.600	66459.340	225055.000	430283.000
ΔM1	59	2851.695	13310.510	-33893.000	41445.000
TB	59	-1723.721	1840.587	-6589.000	-224.480
ΔTB	59	84.201	753.810	-807.790	4876.910
IR	59	6.769	1.374	4.390	8.932
ΔIR	59	0.013	0.156	-0.246	0.152
ER	59	18.842	1.114	16.639	20.905
ΔER	59	0.009	0.460	-0.940	0.970
SE^{EM}	59	1129.132	269.949	527.280	1682.850
RSR^{EM}	59	-0.048	0.089	-0.206	0.254
Panel B-Floating exchange rate regime					
SE^{DM}	222	4177.850	1074.982	2405.200	6828.700
RSR^{DM}	222	-0.023	0.043	-0.177	0.079
M1	222	941301.100	394071.000	381672.000	1722916.000
ΔM1	222	5847.892	30267.550	-93713.000	107749.000
TB	222	186.193	1263.698	-5906.410	3535.900
ΔTB	222	6.061	1317.261	-5605.290	4326.590
IR	222	4.731	2.399	0.666	11.862
ΔIR	222	-0.029	0.340	-3.797	0.499
ER	222	27.566	3.193	19.442	35.452
ΔER	222	0.031	1.075	-5.904	4.611
SE^{EM}	222	762.869	394.994	214.530	1597.860
RSR^{EM}	222	-0.018	0.090	-0.328	0.299

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.5: Descriptive Statistics-Australia/Indonesia

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	61	45968.720	12400.400	27417.000	69950.000
ΔM1	61	626.787	1406.066	-4033.000	4710.000
TB	61	625.364	306.112	-189.000	1360.000
ΔTB	61	9.705	356.908	-831.000	883.000
IR	61	24.612	2.804	21.832	39.115
ΔIR	61	-0.275	1.214	-9.258	0.875
ER	61	1544.487	109.260	1332.224	1757.895
ΔER	61	1.900	34.625	-68.943	76.437
SE^{EM}	61	495.533	120.242	274.340	724.556
RSR^{EM}	61	-0.065	0.068	-0.356	0.065
Panel B-Floating exchange rate regime					
SE^{DM}	220	4191.634	1070.025	2405.200	6828.700
RSR^{DM}	220	-0.023	0.043	-0.177	0.079
M1	220	420533.200	291962.400	66258.000	1063039.000
ΔM1	220	4459.192	15329.660	-53792.400	58602.700
TB	220	1665.491	1229.242	-2329.128	4641.918
ΔTB	220	-4.974	818.048	-2631.520	2400.789
IR	220	12.091	8.939	5.610	54.670
ΔIR	220	-0.064	1.273	-7.300	7.680
ER	220	7283.069	2194.754	1590.959	11153.340
ΔER	220	38.502	362.952	-1815.736	3033.287
SE^{EM}	220	2083.915	1679.263	276.150	5518.675
RSR^{EM}	220	-0.073	0.109	-0.600	0.138

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.6: Descriptive Statistics-US/China

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	102	5715.742	2095.601	2962.900	9860.130
ΔM1	102	68.712	131.405	-426.400	358.370
TB	102	29.134	25.592	-79.410	110.760
ΔTB	102	0.875	20.704	-79.220	73.030
IR	102	4.045	2.733	1.500	11.560
ΔIR	102	-0.097	0.533	-1.927	1.761
ER	102	8.279	0.005	8.277	8.298
ΔER	102	0.000	0.002	-0.005	0.012
SE^{EM}	102	1500.574	300.030	964.740	2218.030
RSR^{EM}	102	0.010	0.076	-0.141	0.331
Panel B-Floating exchange rate regime					
SE^{DM}	126	1424.853	338.055	700.820	2117.390
RSR^{DM}	126	14.249	3.381	7.008	21.174
M1	126	23311.610	8605.829	9767.410	40095.340
ΔM1	126	239.962	591.543	-2239.050	1479.510
TB	126	227.372	165.531	-319.710	628.320
ΔTB	126	4.135	135.600	-590.220	372.010
IR	126	3.585	1.390	1.090	6.960
ΔIR	126	0.011	0.611	-1.706	2.810
ER	126	6.818	0.657	6.052	8.277
ΔER	126	-0.015	0.040	-0.172	0.155
SE^{EM}	126	2666.211	942.721	1083.030	5954.770
RSR^{EM}	126	0.016	0.099	-0.238	0.260

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.7: Descriptive Statistics-US/Mexico

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	71	8.44E+07	4.91E+07	1.91E+07	1.57E+08
ΔM1	71	1.88E+06	5.35E+06	-7.07E+06	2.80E+07
TB	71	-799.016	661.809	-1785.770	311.765
ΔTB	71	-17.901	215.132	-613.821	535.800
IR	71	24.023	12.793	9.450	56.680
ΔIR	71	-0.543	2.696	-12.270	6.060
ER	71	2.967	0.275	2.284	3.439
ΔER	71	0.016	0.029	-0.083	0.138
SE^{EM}	71	1287.663	772.522	208.050	2787.320
RSR^{EM}	71	-0.111	0.089	-0.337	0.043
Panel B-Floating exchange rate regime					
SE^{DM}	253	1222.666	367.425	448.920	2117.390
RSR^{DM}	253	-0.015	0.048	-0.177	0.164
M1	253	1.13E+09	8.07E+08	1.26E+08	3.35E+09
ΔM1	253	1.26E+07	4.38E+07	-1.05E+08	2.19E+08
TB	253	-434.029	658.132	-2855.968	1316.535
ΔTB	253	-0.495	536.285	-2834.330	2003.899
IR	253	12.016	11.844	2.670	74.750
ΔIR	253	-0.042	3.267	-15.580	27.850
ER	253	10.845	2.326	3.441	16.849
ΔER	253	0.052	0.361	-1.360	1.788
SE^{EM}	253	19446.390	15126.540	1517.960	45768.490
RSR^{EM}	253	-0.067	0.093	-0.382	0.106

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.8: Descriptive Statistics-US/Brazil

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	43	3.29E+04	9.98E+03	1.76E+04	5.07E+04
ΔM1	43	8.05E+02	2.36E+03	-5.01E+03	7.34E+03
TB	43	-441.946	584.767	-1845.279	1172.462
ΔTB	43	4.224	744.010	-2276.134	3017.741
IR	43	29.029	9.423	20.391	57.172
ΔIR	43	-0.654	4.451	-10.985	20.840
ER	43	1.055	0.080	0.907	1.201
ΔER	43	0.007	0.004	-0.010	0.016
SE^{EM}	43	7728.081	2779.960	3594.300	13002.000
RSR^{EM}	43	-0.074	0.122	-0.356	0.183
Panel B-Floating exchange rate regime					
SE^{DM}	204	1329.769	311.321	700.820	2117.390
RSR^{DM}	204	-0.018	0.050	-0.177	0.164
M1	204	1.75E+05	9.20E+04	4.41E+04	3.52E+05
ΔM1	204	1.39E+03	1.03E+04	-4.12E+04	4.36E+04
TB	204	1673.904	1792.441	-4066.518	6239.998
ΔTB	204	33.092	1535.970	-6706.105	5052.690
IR	204	15.669	4.805	9.180	37.780
ΔIR	204	-0.072	1.412	-10.280	7.910
ER	204	2.261	0.547	1.208	3.968
ΔER	204	0.013	0.136	-0.424	0.727
SE^{EM}	204	38898.510	20510.080	6784.000	71897.000
RSR^{EM}	204	-0.052	0.079	-0.284	0.272

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.9: Descriptive Statistics-Canada/China

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	102	5715.742	2095.601	2962.900	9860.130
ΔM1	102	68.712	131.405	-426.400	358.370
TB	102	29.134	25.592	-79.410	110.760
ΔTB	102	0.875	20.704	-79.220	73.030
IR	102	4.045	2.733	1.500	11.560
ΔIR	102	-0.097	0.533	-1.927	1.761
ER	102	5.761	0.439	5.175	6.980
ΔER	102	0.006	0.110	-0.293	0.220
SE^{EM}	102	1500.574	300.030	964.740	2218.030
RSR^{EM}	102	0.010	0.076	-0.141	0.331
Panel B-Floating exchange rate regime					
SE^{DM}	126	12638.450	1576.588	7687.510	15625.730
RSR^{DM}	126	-0.013	0.047	-0.185	0.159
M1	126	23311.610	8605.829	9767.410	40095.340
ΔM1	126	239.962	591.543	-2239.050	1479.510
TB	126	227.372	165.531	-319.710	628.320
ΔTB	126	4.135	135.600	-590.220	372.010
IR	126	3.585	1.390	1.090	6.960
ΔIR	126	0.011	0.611	-1.706	2.810
ER	126	6.299	0.688	4.759	7.846
ΔER	126	-0.015	0.176	-0.677	0.532
SE^{EM}	126	2666.211	942.721	1083.030	5954.770
RSR^{EM}	126	0.016	0.099	-0.238	0.260

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.10: Descriptive Statistics-Canada/Mexico

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	71	8.44E+07	4.91E+07	1.91E+07	1.57E+08
ΔM1	71	2.15E+06	5.73E+06	-7.07E+06	2.80E+07
TB	71	-799.016	661.809	-1785.770	311.765
ΔTB	71	-25.206	222.332	-613.821	535.800
IR	71	24.023	12.793	9.450	56.680
ΔIR	71	0.153	6.349	-12.270	47.918
ER	71	2.967	0.275	2.284	3.439
ΔER	71	-0.019	0.300	-2.501	0.138
SE^{EM}	71	1287.663	772.522	208.050	2787.320
RSR^{EM}	71	-0.111	0.089	-0.337	0.043
Panel B-Floating exchange rate regime					
SE^{DM}	253	9853.452	3203.313	4019.110	15625.730
RSR^{DM}	253	-0.013	0.047	-0.205	0.159
M1	253	1.13E+09	8.07E+08	1.26E+08	3.35E+09
ΔM1	253	1.26E+07	4.38E+07	-1.05E+08	2.19E+08
TB	253	-434.029	658.132	-2855.968	1316.535
ΔTB	253	-0.495	536.285	-2834.330	2003.899
IR	253	12.016	11.844	2.670	74.750
ΔIR	253	-0.042	3.267	-15.580	27.850
ER	253	10.845	2.326	3.441	16.849
ΔER	253	0.052	0.361	-1.360	1.788
SE^{EM}	253	19446.390	15126.540	1517.960	45768.490
RSR^{EM}	253	-0.067	0.093	-0.382	0.106

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.11: Descriptive Statistics-Canada/South Korea

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	107	69689.060	28348.820	27382.300	125659.000
ΔM1	107	-3.13E+07	3.24E+08	-3.35E+09	3414.900
TB	107	-635.164	806.756	-3475.868	886.696
ΔTB	107	13.189	845.772	-2831.061	2060.000
IR	107	5.991	1.137	5.000	8.000
ΔIR	107	0.017	0.519	-2.000	4.860
ER	107	596.355	47.890	358.530	685.670
ΔER	107	6.254	74.594	-217.529	562.852
SE^{EM}	107	0.001	0.000	0.001	0.002
RSR^{EM}	107	-0.060	0.020	-0.103	-0.019
Panel B-Floating exchange rate regime					
SE^{DM}	217	10616.220	2780.619	5437.980	15625.730
RSR^{DM}	217	-0.014	0.049	-0.205	0.159
M1	217	337957.900	134211.200	101218.600	696785.600
ΔM1	217	2634.433	6579.429	-37006.800	19981.700
TB	217	2321.758	2215.144	-4043.455	10235.370
ΔTB	217	31.308	1671.883	-4572.187	6564.472
IR	217	2.200	0.982	0.750	5.000
ΔIR	217	-0.020	0.175	-2.000	0.500
ER	217	935.767	130.231	738.362	1183.243
ΔER	217	0.831	36.513	-175.079	173.343
SE^{EM}	217	0.001	0.000	0.001	0.001
RSR^{EM}	217	-0.028	0.045	-0.351	0.104

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.12: Descriptive Statistics-New Zealand/China

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	102	5715.742	2095.601	2962.900	9860.130
ΔM1	102	68.712	131.405	-426.400	358.370
TB	102	1397.511	1352.354	-3475.868	3852.043
ΔTB	102	37.220	851.279	-3139.062	2088.497
IR	102	4.045	2.733	1.500	11.560
ΔIR	102	-0.097	0.533	-1.927	1.761
ER	102	4.545	0.814	3.296	6.071
ΔER	102	-0.001	0.137	-0.315	0.276
SE^{EM}	102	1500.574	300.030	964.740	2218.030
RSR^{EM}	102	0.010	0.076	-0.141	0.331
Panel B-Floating exchange rate regime					
SE^{DM}	126	932.660	165.674	642.940	1217.430
RSR^{DM}	126	-0.020	0.038	-0.144	0.068
M1	126	23311.610	8605.829	9767.410	40095.340
ΔM1	126	239.962	591.543	-2239.050	1479.510
TB	126	2782.627	2672.699	-4043.455	10235.370
ΔTB	126	35.703	2077.124	-4572.187	6564.472
IR	126	3.585	1.390	1.090	6.960
ΔIR	126	0.011	0.611	-1.706	2.810
ER	126	5.013	0.504	3.442	5.913
ΔER	126	-0.011	0.206	-0.614	0.460
SE^{EM}	126	2666.211	942.721	1083.030	5954.770
RSR^{EM}	126	0.016	0.099	-0.238	0.260

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.13: Descriptive Statistics-New Zealand/South Korea

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	140	58412.460	32118.230	15981.600	125659.000
ΔM1	140	607.273	2338.256	-24113.740	3414.900
TB	140	-350.228	886.378	-3475.868	1525.336
ΔTB	140	-48.527	962.243	-6971.340	2060.000
IR	140	6.214	1.124	5.000	8.000
ΔIR	140	0.015	0.323	-2.000	2.138
ER	140	470.713	58.908	381.962	621.395
ΔER	140	4.215	45.093	-43.472	512.357
SE^{EM}	140	709.936	206.169	200.150	1108.430
RSR^{EM}	140	-0.043	0.076	-0.240	0.171
Panel B-Floating exchange rate regime					
SE^{DM}	217	868.844	158.744	590.900	1217.430
RSR^{DM}	217	-0.018	0.040	-0.153	0.098
M1	217	337957.900	134211.200	101218.600	696785.600
ΔM1	217	2634.433	6579.429	-37006.800	19981.700
TB	217	2321.758	2215.144	-4043.455	10235.370
ΔTB	217	31.308	1671.883	-4572.187	6564.472
IR	217	2.200	0.982	0.750	5.000
ΔIR	217	-0.020	0.175	-2.000	0.500
ER	217	736.859	126.693	443.887	956.608
ΔER	217	0.910	44.331	-214.804	171.836
SE^{EM}	217	1301.860	580.824	305.640	2228.960
RSR^{EM}	217	-0.018	0.084	-0.279	0.319

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.14: Descriptive Statistics-New Zealand/Thailand

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	59	334400.600	66459.340	225055.000	430283.000
ΔM1	59	-5091.451	62676.710	-467568.600	41445.000
TB	59	-1723.721	1840.587	-6589.000	-224.480
ΔTB	59	-136.028	1900.525	-13316.000	4876.910
IR	59	10.750	0.000	10.750	10.750
ΔIR	59	0.169	1.302	0.000	10.000
ER	59	15.896	1.691	12.919	18.136
ΔER	59	-13.126	101.314	-778.143	0.638
SE^{EM}	59	1129.132	269.949	527.280	1682.850
RSR^{EM}	59	-0.048	0.089	-0.206	0.254
Panel B-Floating exchange rate regime					
SE^{DM}	222	868.607	157.055	590.900	1217.430
RSR^{DM}	222	-0.018	0.040	-0.153	0.098
M1	222	937679.300	390797.400	381672.000	1722916.000
ΔM1	222	5975.342	30217.840	-93713.000	107749.000
TB	222	195.408	1271.508	-5906.410	3535.900
ΔTB	222	11.691	1316.779	-5605.290	4326.590
IR	222	4.992	2.023	2.550	10.750
ΔIR	222	-0.037	0.366	-2.250	1.410
ER	222	23.412	3.143	16.648	30.216
ΔER	222	0.031	1.179	-6.219	4.073
SE^{EM}	222	762.869	394.994	214.530	1597.860
RSR^{EM}	222	-0.018	0.090	-0.328	0.299

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.15: Descriptive Statistics-Israel/China

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	102	5715.742	2095.601	2962.900	9860.130
ΔM1	102	68.712	131.405	-426.400	358.370
TB	102	29.134	25.592	-79.410	110.760
ΔTB	102	0.875	20.704	-79.220	73.030
IR	102	4.197	0.400	3.310	4.912
ΔIR	102	0.013	0.090	-0.157	0.434
ER	102	2.000	0.209	1.680	2.553
ΔER	102	-0.007	0.041	-0.211	0.065
SE^{EM}	102	1500.574	300.030	964.740	2218.030
RSR^{EM}	102	0.004	0.069	-0.126	0.320
Panel B-Floating exchange rate regime					
SE^{DM}	126	949.540	167.200	551.660	1348.640
RSR^{DM}	126	-0.012	0.062	-0.219	0.332
M1	126	23311.610	8605.829	9767.410	40095.340
ΔM1	126	239.962	591.543	-2239.050	1479.510
TB	126	227.372	165.531	-319.710	628.320
ΔTB	126	4.135	135.600	-590.220	372.010
IR	126	3.861	0.337	3.222	4.699
ΔIR	126	-0.005	0.098	-0.251	0.290
ER	126	1.765	0.112	1.560	2.126
ΔER	126	-0.002	0.047	-0.173	0.116
SE^{EM}	126	2666.211	942.721	1083.030	5954.770
RSR^{EM}	126	0.014	0.089	-0.245	0.275

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.16: Descriptive Statistics-Japan/Indonesia

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	92	38591.780	14531.930	18856.000	69950.000
ΔM1	92	490.446	1344.199	-4033.000	4710.000
TB	92	519.314	313.890	-189.000	1360.000
ΔTB	92	5.974	336.075	-831.000	883.000
IR	92	26.906	4.260	21.832	39.425
ΔIR	92	-0.107	1.462	-9.258	10.100
ER	92	18.490	3.903	11.394	26.750
ΔER	92	0.105	0.634	-2.131	3.022
SE^{EM}	92	462.493	131.208	226.684	724.556
RSR^{EM}	92	-0.071	0.077	-0.356	0.148
Panel B-Floating exchange rate regime					
SE^{DM}	220	13198.310	3444.933	7280.150	20726.990
RSR^{DM}	220	0.001	0.061	-0.253	0.149
M1	220	417596.000	288872.800	66258.000	1063039.000
ΔM1	220	4500.931	15295.280	-53792.400	58602.700
TB	220	1678.396	1224.882	-2329.128	4641.918
ΔTB	220	-6.051	818.140	-2631.520	2400.789
IR	220	12.088	8.941	5.610	54.670
ΔIR	220	-0.062	1.272	-7.300	7.680
ER	220	90.281	19.546	24.014	131.640
ΔER	220	0.409	6.095	-13.920	47.866
SE^{EM}	220	2073.661	1670.601	276.150	5518.675
RSR^{EM}	220	-0.073	0.110	-0.600	0.138

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.17: Descriptive Statistics-Japan/Thailand

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	104	276763.600	89573.410	152312.000	430283.000
ΔM1	104	-6029.479	89566.500	-903127.800	41445.000
TB	104	-4075.516	3433.267	-9952.000	-99.700
ΔTB	104	2.861	750.981	-3934.714	4876.910
IR	104	10.426	0.923	7.500	10.750
ΔIR	104	0.018	0.272	-1.372	2.240
ER	104	0.216	0.031	0.163	0.295
ΔER	104	-1.076	10.980	-111.976	0.059
SE^{EM}	104	953.286	302.809	433.680	1682.850
RSR^{EM}	104	-0.042	0.095	-0.292	0.254
Panel B-Floating exchange rate regime					
SE^{DM}	220	13198.310	3444.933	7280.150	20726.990
RSR^{DM}	220	0.001	0.061	-0.253	0.149
M1	220	942467.800	389304.100	381672.000	1722916.000
ΔM1	220	5884.282	30286.620	-93713.000	107749.000
TB	220	199.988	1276.229	-5906.410	3535.900
ΔTB	220	7.213	1321.907	-5605.290	4326.590
IR	220	4.939	1.956	2.550	10.750
ΔIR	220	-0.037	0.367	-2.250	1.410
ER	220	0.342	0.037	0.251	0.410
ΔER	220	0.000	0.013	-0.057	0.049
SE^{EM}	220	764.496	396.345	214.530	1597.860
RSR^{EM}	220	-0.017	0.087	-0.328	0.299

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.18: Descriptive Statistics-Japan/South Korea

Variable	N	Mean	Std. Dev.	Min	Max
Panel A-Fixed exchange rate regime					
SE^{DM}					
RSR^{DM}					
M1	107	69689.060	28348.820	27382.300	125659.000
ΔM1	107	-14932.730	163845.700	-1693887.000	3414.900
TB	107	-635.164	806.756	-3475.868	886.696
ΔTB	107	-12.743	849.486	-2831.061	2060.000
IR	107	5.991	1.137	5.000	8.000
ΔIR	107	0.022	0.566	-2.000	5.390
ER	107	6.599	1.286	4.372	9.142
ΔER	107	0.072	0.543	-0.653	5.189
SE^{EM}	107	786.227	140.892	508.630	1108.430
RSR^{EM}	107	0.851	0.129	0.630	1.198
Panel B-Floating exchange rate regime					
SE^{DM}	217	13139.870	3431.370	7280.150	20726.990
RSR^{DM}	217	0.002	0.060	-0.253	0.149
M1	217	337957.900	134211.200	101218.600	696785.600
ΔM1	217	2634.433	6579.429	-37006.800	19981.700
TB	217	2321.758	2215.144	-4043.455	10235.370
ΔTB	217	31.308	1671.883	-4572.187	6564.472
IR	217	2.200	0.982	0.750	5.000
ΔIR	217	-0.020	0.175	-2.000	0.500
ER	217	10.810	1.906	7.566	16.094
ΔER	217	0.006	0.597	-2.207	3.743
SE^{EM}	217	1301.860	580.824	305.640	2228.960
RSR^{EM}	217	0.949	0.148	0.687	1.312

This table shows the descriptive statistics for all countries in levels, first difference, and returns for the developed and emerging countries indices, and macroeconomic variables of M1 money supply, trade balance, interest rate, and bilateral exchange rate. Panel A shows the statistics during a fixed exchange rate regime, and Panel B shows the statistics during a floating exchange rate regime.

Table A1.3.19: Correlation Matrix; Australia/South Korea

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-South Korea (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.9066	1.0000				
	0.0000					
TB	-0.3173	-0.4277	1.0000			
	0.0203	0.0029				
IR	-0.5244	-0.4454	0.3102	1.0000		
	0.0005	0.0021	0.0126			
ER	0.7670	0.8732	-0.4075	-0.2312	1.0000	
	0.0000	0.0000	0.0042	0.0810		
SEEM	0.0913	0.0181	-0.1468	-0.4876	-0.1413	1.0000
	0.4732	0.8874	0.2571	0.0010	0.2749	
Panel B-South Korea (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.7051	1.0000				
	0.0000					
TB	0.1910	0.5374	1.0000			
	0.0047	0.0000				
IR	-0.4667	-0.8611	-0.4733	1.0000		
	0.0000	0.0000	0.0000			
ER	0.3147	0.5241	0.2940	-0.5046	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	0.8444	0.8447	0.3432	-0.6992	0.6896	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.20: Correlation Matrix; Australia/Thailand

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Thailand (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.8347	1.0000				
	0.0000					
TB	0.6522	0.4619	1.0000			
	0.0047	0.0000				
IR	0.3430	0.5937	-0.2637	1.0000		
	0.0000	0.0000	0.0000			
ER	0.6423	0.8319	0.2649	0.6923	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	0.0291	0.0166	0.3563	-0.6335	-0.1623	
	0.0000	0.0000	0.0000	0.0000	0.0000	
Panel B-Thailand (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.7051	1.0000				
	0.0000					
TB	0.1910	0.5374	1.0000			
	0.0047	0.0000				
IR	-0.4667	-0.8611	-0.4733	1.0000		
	0.0000	0.0000	0.0000			
ER	0.3147	0.5241	0.2940	-0.5046	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	0.8444	0.8447	0.3432	-0.6992	0.6896	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.21: Correlation Matrix; Australia/Indonesia

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Indonesia (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.8928	1.0000				
	0.0000					
TB	0.0339	-0.0043	1.0000			
	0.7953	0.9740				
IR	-0.6750	-0.6870	0.0217	1.0000		
	0.0001	0.0001	0.8681			
ER	0.6707	0.8773	-0.0724	-0.5338	1.0000	
	0.0000	0.0000	0.5812	0.0006		
SEEM	0.9160	0.8782	0.0284	-0.6931	0.6910	1.0000
	0.0000	0.0000	0.8278	0.0001	0.0000	
Panel B-Indonesia (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.6952	1.0000				
	0.0000					
TB	-0.1551	-0.6170	1.0000			
	0.0246	0.0000				
IR	-0.5722	-0.5034	0.1229	1.0000		
	0.0000	0.0000	0.0689			
ER	0.7653	0.9071	-0.4886	-0.5398	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	0.7181	0.9729	-0.5770	-0.4899	0.9002	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.22: Correlation Matrix; US/China

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-China (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	-0.0223	1.0000				
	0.8244					
TB	-0.0518	0.1867	1.0000			
	0.6058	0.0602				
IR	-0.4876	-0.6508	0.1031	1.0000		
	0.0000	0.0000	0.3024			
ER	-0.4337	-0.4885	0.1354	0.8054	1.0000	
	0.0001	0.0000	0.1750	0.0000		
SEEM	0.4996	0.0453	-0.3655	-0.5411	-0.3868	1.0000
	0.0000	0.6512	0.0009	0.0000	0.0005	
Panel B-China (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.6302	1.0000				
	0.0000					
TB	0.5872	0.4398	1.0000			
	0.0000	0.0000				
IR	0.4481	0.5009	0.0821	1.0000		
	0.0000	0.0000	0.3609			
ER	-0.4191	-0.9215	-0.3191	-0.5591	1.0000	
	0.0000	0.0000	0.0010	0.0000		
SEEM	0.2573	0.0821	0.2238	0.0993	-0.0791	1.0000
	0.0036	0.3608	0.0118	0.2688	0.3816	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.23: Correlation Matrix; US/Mexico

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A -Mexico (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.9499	1.0000				
	0.0000					
TB	-0.8786	-0.9107	1.0000			
	0.0000	0.0000				
IR	-0.8529	-0.8460	0.8425	1.0000		
	0.0000	0.0000	0.0000			
ER	0.8619	0.8644	-0.8432	-0.9079	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	0.9420	0.9621	-0.9004	-0.8426	0.8788	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	
Panel B-Mexico (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.7744	1.0000				
	0.0000					
TB	-0.3297	-0.1662	1.0000			
	0.0000	0.0099				
IR	-0.5999	-0.6550	0.3748	1.0000		
	0.0000	0.0000	0.0000			
ER	0.6879	0.8988	-0.2696	-0.7384	1.0000	
	0.0000	0.0000	0.0001	0.0000		
SEEM	0.7244	0.9527	-0.1149	-0.6334	0.8251	1.0000
	0.0000	0.0000	0.0717	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.24: Correlation Matrix; US/Brazil

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Brazil (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.9501	1.0000				
	0.0000					
TB	-0.2777	-0.3257	1.0000			
	0.0942	0.0541				
IR	-0.3890	-0.3926	0.1552	1.0000		
	0.2251	0.0253	0.0242	0.3204		
ER	0.9693	0.9537	-0.3582	-0.4700	1.0000	
	0.0000	0.0000	0.0367	0.0094		
SEEM	0.7804	0.7806	-0.2171	-0.5054	0.7195	1.0000
	0.0000	0.0000	0.1817	0.0062	0.0000	
Panel B-Brazil (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.5735	1.0000				
	0.0000					
TB	-0.2004	-0.0116	1.0000			
	0.0057	0.8693				
IR	-0.3388	-0.7528	-0.1382	1.0000		
	0.0000	0.0000	0.0531			
ER	0.0274	-0.0788	0.1202	0.2690	1.0000	
	0.6975	0.2656	0.0869	0.0001		
SEEM	0.3558	0.8484	0.1423	-0.8099	-0.4249	1.0000
	0.0000	0.0000	0.0424	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.25: Correlation Matrix; Canada/China

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-China (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.4434	1.0000				
	0.0000					
TB	0.1426	0.1867	1.0000			
	0.1529	0.0602				
IR	-0.4958	-0.6508	0.1031	1.0000		
	0.0000	0.0000	0.3024			
ER	0.3329	0.5188	0.4534	0.1314	1.0000	
	0.0006	0.0000	0.0000	0.1879		
SEEM	0.4578	0.0453	-0.3655	-0.5411	-0.4482	1.0000
	0.0000	0.6512	0.0009	0.0000	0.0001	
Panel B-China (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.4433	1.0000				
	0.0000					
TB	0.4074	0.4398	1.0000			
	0.0000	0.0000				
IR	0.5609	0.5009	0.0821	1.0000		
	0.0000	0.0000	0.3609			
ER	-0.1219	-0.7492	-0.5044	-0.1041	1.0000	
	0.1803	0.0000	0.0000	0.2513		
SEEM	0.4588	0.0821	0.2238	0.0993	0.0291	1.0000
	0.0000	0.3608	0.0118	0.2688	0.7466	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.26: Correlation Matrix; Canada/Mexico

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Mexico (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.4417	1.0000				
	0.0001					
TB	-0.2608	-0.9107	1.0000			
	0.0398	0.0000				
IR	-0.1899	-0.8460	0.8425	1.0000		
	0.1259	0.0000	0.0000			
ER	0.2730	0.8644	-0.8432	-0.9079	1.0000	
	0.0213	0.0000	0.0000	0.0000		
SEEM	0.5348	0.9621	-0.9004	-0.8426	0.8788	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	
Panel B-Mexico (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.8500	1.0000				
	0.0000					
TB	-0.2645	-0.1662	1.0000			
	0.0001	0.0099				
IR	-0.7129	-0.6550	0.3748	1.0000		
	0.0000	0.0000	0.0000	0.0000		
ER	0.7656	0.8988	-0.2696	-0.7384	1.0000	
	0.0000	0.0000	0.0001	0.0000		
SEEM	0.9127	0.9527	-0.1149	-0.6334	0.8251	1.0000
	0.0000	0.0000	0.0717	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.27: Correlation Matrix; Canada/South Korea

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-South Korea (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.8679	1.0000				
	0.0000					
TB	-0.2873	-0.3832	1.0000			
	0.0056	0.0004				
IR	-0.6259	-0.8670	0.3089	1.0000		
	0.0000	0.0000	0.0012			
ER	0.2034	0.2554	-0.0537	-0.2015	1.0000	
	0.0356	0.0079	0.5839	0.0455		
SEEM	0.1044	0.0653	0.0167	-0.2117	-0.5133	1.0000
	0.2847	0.5038	0.8646	0.0362	0.0000	
Panel B-South Korea (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.7760	1.0000				
	0.0000					
TB	0.2796	0.5374	1.0000			
	0.0000	0.0000				
IR	-0.5435	-0.8611	-0.4733	1.0000		
	0.0000	0.0000	0.0000			
ER	0.4309	0.4548	0.2324	-0.4761	1.0000	
	0.0000	0.0000	0.0006	0.0000		
SEEM	0.9196	0.8447	0.3432	-0.6992	0.6202	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.28: Correlation Matrix; New Zealand/China

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-China (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.5725	1.0000				
	0.0000					
TB	0.0956	0.2270	1.0000			
	0.3389	0.0218				
IR	0.0543	-0.6508	-0.2536	1.0000		
	0.5880	0.0000	0.0157			
ER	0.8161	0.3541	0.0293	0.3758	1.0000	
	0.0000	0.0003	0.7699	0.0001		
SEEM	-0.4361	0.0453	-0.0962	-0.5411	-0.6993	1.0000
	0.0001	0.6512	0.3408	0.0000	0.0000	
Panel B-China (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.0225	1.0000				
	0.8024					
TB	0.1795	0.6153	1.0000			
	0.0443	0.0000				
IR	0.0689	0.5009	-0.0287	1.0000		
	0.4434	0.0000	0.7502			
ER	0.3163	-0.3304	-0.3447	0.2082	1.0000	
	0.0003	0.0007	0.0004	0.0193		
SEEM	0.2585	0.0821	0.1200	0.0993	0.0918	1.0000
	0.0035	0.3608	0.1806	0.2688	0.3065	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.29: Correlation Matrix; New Zealand/South Korea

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-South Korea (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	-0.0884	1.0000				
	0.3027					
TB	0.2156	-0.5971	1.0000			
	0.0105	0.0000				
IR	-0.1175	-0.8068	0.4540	1.0000		
	0.1726	0.0000	0.0000			
ER	0.3968	0.6459	-0.3231	-0.6326	1.0000	
	0.0000	0.0000	0.0004			
SEEM	-0.4274	0.4792	-0.3381	-0.2722	0.0157	1.0000
	0.0000	0.0000	0.0002	0.0025	0.8541	
Panel B-South Korea (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.5658	1.0000				
	0.0000					
TB	0.2813	0.5374	1.0000			
	0.0000	0.0000				
IR	-0.2726	-0.8611	-0.4733	1.0000		
	0.0002	0.0000	0.0000			
ER	0.1988	0.6412	0.4145	-0.5702	1.0000	
	0.0033	0.0000	0.0000	0.0000		
SEEM	0.5093	0.8447	0.3432	-0.6992	0.6971	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.30: Correlation Matrix; New Zealand/Thailand

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Thailand (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.7776	1.0000				
	0.0000					
TB	0.7449	0.4619	1.0000			
	0.0000	0.0002				
IR	0.1557	0.5937	-0.2637	1.0000		
	0.2391	0.0000	0.0592			
ER	0.7585	0.9593	0.5001	0.5765	1.0000	
	0.0000	0.0000	0.0001	0.0000		
SEEM	0.2064	0.0166	0.3563	-0.6335	0.0262	1.0000
	0.1167	0.9007	0.0056	0.0002	0.8436	
Panel B-Thailand (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.4867	1.0000				
	0.0000					
TB	-0.0716	-0.2824	1.0000			
	0.2906	0.0001				
IR	-0.3002	-0.3497	0.1566	1.0000		
	0.0000	0.0000	0.0195			
ER	0.6184	0.4967	-0.2185	-0.5429	1.0000	
	0.0000	0.0000	0.0018			
SEEM	0.6031	0.9367	-0.3320	-0.2023	0.5511	1.0000
	0.0000	0.0000	0.0000	0.0036	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.31: Correlation Matrix; Israel/China

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-China (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	0.8188	1.0000				
	0.0000					
TB	0.1959	0.1867	1.0000			
	0.0485	0.0602				
IR	0.5042	0.7399	-0.1029	1.0000		
	0.0000	0.0000	0.3083			
ER	-0.5550	-0.7427	0.0994	-0.9729	1.0000	
	0.0000	0.0000	0.3200	0.0000		
SEEM	0.2250	0.0453	-0.3655	0.2725	-0.3194	1.0000
	0.0230	0.6512	0.0009	0.0056	0.0030	
Panel B-China (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.7131	1.0000				
	0.0000					
TB	0.4432	0.4398	1.0000			
	0.0000	0.0000				
IR	-0.4236	-0.5935	-0.1415	1.0000		
	0.0000	0.0000	0.1214			
ER	-0.2467	-0.5552	-0.2586	-0.2067	1.0000	
	0.0087	0.0000	0.0061	0.0259		
SEEM	0.5085	0.0821	0.2238	-0.2550	0.1547	1.0000
	0.0000	0.3608	0.0118	0.0068	0.0837	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.32: Correlation Matrix; Japan/Indonesia

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Indonesia (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	-0.4477	1.0000				
	0.0002					
TB	-0.2690	0.3354	1.0000			
	0.0156	0.0011				
IR	0.3699	-0.7939	-0.3478	1.0000		
	0.0003	0.0000	0.0025			
ER	-0.6637	0.7686	0.2600	-0.7877	1.0000	
	0.0000	0.0000	0.0123	0.0000		
SEEM	0.1261	0.6722	0.1743	-0.5416	0.3343	1.0000
	0.2310	0.0000	0.0966	0.0000	0.0011	
Panel B-Indonesia (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	0.0085	1.0000				
	0.9004					
TB	0.0958	(0.6113)	1.0000			
	0.1569	0.0000				
IR	0.2323	(0.5042)	0.1184	1.0000		
	0.0005	0.0000	0.0797			
ER	(0.3249)	0.7964	(0.4832)	(0.4562)	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	0.0314	0.9733	(0.5711)	(0.4898)	0.7477	1.0000
	0.6434	0.0000	0.0000	0.0000	0.0000	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.33: Correlation Matrix; Japan/Thailand

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Thailand (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	-0.6265	1.0000				
	0.0000					
TB	-0.4020	0.7476	1.0000			
	0.0003	0.0000				
IR	0.3938	-0.3733	-0.7925	1.0000		
	0.0000	0.0006	0.0000			
ER	-0.6700	0.7277	0.7864	-0.7267	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SEEM	-0.4385	0.4980	0.5682	-0.6405	0.7030	1.0000
	0.0001	0.0000	0.0000	0.0000	0.0000	
Panel B-Thailand (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	-0.0889	1.0000				
	0.1927					
TB	0.2189	-0.2901	1.0000			
	0.0011	0.0001				
IR	0.4604	-0.3359	0.1654	1.0000		
	0.0000	0.0000	0.0141			
ER	-0.6507	-0.1301	-0.1687	-0.1361	1.0000	
	0.0000	0.0582	0.0148	0.0477		
SEEM	0.0902	0.9401	-0.3340	-0.1981	-0.2620	1.0000
	0.1826	0.0000	0.0000	0.0045	0.0002	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.34: Correlation Matrix; Japan/South Korea

Variables	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-South Korea (Fixed Exchange Rate Period)						
SE^{DM}	1.0000					
M1	-0.6915	1.0000				
	0.0000					
TB	0.2225	-0.3832	1.0000			
	0.0212	0.0004				
IR	0.7012	-0.8670	0.3089	1.0000		
	0.0000	0.0000	0.0012			
ER	-0.7844	0.8296	-0.2399	-0.8916	1.0000	
	0.0000	0.0000	0.0186	0.0000		
SEEM	0.2387	0.0653	0.0167	-0.2117	0.2637	1.0000
	0.0133	0.5038	0.8646	0.0362	0.0061	
Panel B-South Korea (Floating Exchange Rate Period)						
SEDM	1.0000					
M1	-0.0186	1.0000				
	0.7850					
TB	0.1919	0.5374	1.0000			
	0.0046	0.0000				
IR	0.2641	-0.8611	-0.4733	1.0000		
	0.0001	0.0000	0.0000			
ER	-0.6445	0.1454	0.1174	-0.3743	1.0000	
	0.0000	0.0322	0.0843	0.0000		
SEEM	0.0390	0.8447	0.3432	-0.6992	0.2098	1.0000
	0.5677	0.0000	0.0000	0.0000	0.0019	

*This table shows the pairwise correlation values between the stock indices of the developed country, emerging country M1 money supply, trade balance, interest rate, bi-lateral exchange rate, and developing country stock indices. Panel 1 represents the correlations during a fixed exchagne rate regime and Panel 2 shows the correlation values during the floating exchange rate regime. The figures under each correlatin represents the significance level. For this study we only observe the "very strong" relationships with signficane levels of ***p<0.001.*

Table A1.3.35: Summary of Correlation Matrix on Emerging Country Stock Returns ("Very Strong Correlations" Only)

Emerging Country	Fixed Rate Period	Floating Rate Period
Panel A-Australia		
South Korea	NA	M1(0.8447***) SE^{DM}(0.8444***)
Thailand	NA	M1(0.9351***)
Indonesia	SE^{DM}(0.9160***) M1(0.8782***)	M1(0.9729***) ER(0.9002***)
Panel B-US		
China	NA	NA
Mexico	M1(0.9621***) SE^{DM}(0.9420***) ER(0.8788***) IR(-0.8426***)	M1(0.9527***) ER(0.8251***)
Brazil	NA	M1(0.8484***) IR(-0.8099***)
Panel C-Canada		
China	N/A	N/A
Mexico	M1(0.9621***) TB(-0.9004***) ER(0.8788***) IR(-0.8426***)	M1(0.9527***) SE^{DM}(0.9127** ER(0.8251***)
South Korea	M1(-0.8860***)	N/A
Panel D-New Zealand		
China	N/A	N/A
South Korea	N/A	M1(0.8447***)
Thailand	N/A	M1(0.9367***)
Panel E-Israel		
China	N/A	N/A
Panel F-Japan		
Indonesia	N/A	M1(0.9733***)
Thailand	N/A	M1(0.9401***)
South Korea	N/A	M1(0.8447***)

This table illustrates only the very strong correlations (0.80-1.00) between the emerging country stock returns and the noted variable, in order from strongest to lowest correlation, during each exchange rate regime. During a fixed exchange rate regime on four countries exhibited correlations. Where applicable, M1 money supply is the primary variable of correlation and the developed country equity market is the secondary varibale. During a floating exchange rate regime, M1 money supply is very highly correlated with emerging market stock returns, followed by both the developed coutry equity market and exchange rates.

Table A1.4.1: AIC Vector Autoregressive Structural Lags for each model

Obs	Lags-Fixed	Obs	Lags-Floating	Obs	Lags-Fixed	Obs	Lags-Floating	Obs	Lags-Fixed	Obs	Lags-Floating
Panel-A (Australia/South Korea,Thailand,Indonesia)											
South Korea				Thailand				Indonsia			
64	2	217	5	59	1	222	3	61	1	220	4
Panel-B (US/China,Mexico,Brazil)											
China				Mexico				Brazil			
102	4	126	2	71	3	253	3	43	1	204	3
Panel-C (Canada/China,Mexico,South Korea)											
China				Mexico				South Korea			
102	3	126	4	71	2	253	3	107	2	217	1
Panel-D (New Zealand/China,South Korea,Thailand)											
China				South Korea				Thailaind			
102	2	126	2	140	2	217	1	59	1	222	2
Panel-E (Israel and China)											
China											
102	1	126	2								
Panel-F (Japan and Indonesia, Thailand, South Korea)											
Indonesia				Thailand				South Korea			
92	4	220	4	104	4	220	2	107	1	217	1

This table reflects the optimial number of time series lag length recommendations for each developed country and trading partner during a fixed and floating exchange rate regime. The Akaike Information Criterion (AIC) function is used in this analysis.

Table A1.4.2-Summary of Cholesky order based on IRF results; Fixed exchange rate regimes

CountryPair	Var1	Var2	Var2	Var4	Var5	Var6
AUSO1	RSR^{DM}	ΔTB	ΔIR	ΔM1	ΔER	RSR^{EM}
USMX1	RSR^{DM}	ΔER	ΔIR	ΔM1	ΔTB	RSR^{EM}
CNSO1	RSR^{DM}	ΔIR	ΔER	ΔM1	ΔTB	RSR^{EM}
USBR1	RSR^{DM}	ΔER	ΔM1	ΔTB	ΔIR	RSR^{EM}
NZSO1	RSR^{DM}	ΔIR	ΔTB	ΔER	ΔM1	RSR^{EM}
JPSO1	RSR^{DM}	ΔM1	ΔER	ΔIR	ΔTB	RSR^{EM}
Common	RSR^{DM}	2ΔER,2ΔIR	2ΔIR,2ΔER	3ΔM1	3ΔTB	RSR^{EM}
Estimated Order	RSR^{DM}	ΔER	ΔIR	ΔM1	ΔTB	RSR^{EM}

This table shows the reverse order of the magnitude of the impulse response shocks to domestic returns when applied to the variables listeds. An IRF analysis is applied to each developed country and its trading partner with the most observations. The estimated order defines the model through the Cholesky order sequence for the fixed exchange rate. The country pair testing includes Australia/South Korea, US/Mexico, Canada/South Korea, US/Brazil, New Zealand/South Korea, and Japan/South Korea.

Table A1.4.3-Summary of Cholesky order based on IRF results; Floating exchange rate regimes

CountryPair	Var1	Var2	Var2	Var4	Var5	Var6
AUSO2	RSR^{DM}	ΔM1	ΔTB	ΔER	ΔIR	RSR^{EM}
USMX2	RSR^{DM}	ΔER	ΔTB	ΔIR	ΔM1	RSR^{EM}
CNSO2	RSR^{DM}	ΔM1	ΔIR	ΔTB	ΔER	RSR^{EM}
USBR2	RSR^{DM}	ΔTB	ΔM1	ΔER	ΔIR	RSR^{EM}
NZSO2	RSR^{DM}	ΔM1	ΔTB	ΔIR	ΔER	RSR^{EM}
USMX2	RSR^{DM}	ΔER	ΔTB	ΔIR	ΔM1	RSR^{EM}
Common	RSR^{DM}	3ΔM1,2ΔER	4ΔTB	3ΔIR,2ΔER	2ΔIR,2ΔER,2ΔM1	RSR^{EM}
Estimated Order	RSR^{DM}	ΔM1	ΔTB	ΔIR	ΔER	RSREM

This table shows the reverse order of the magnitude of the impulse response shocks to domestic returns when applied to the variables listeds. An IRF analysis is applied to each developed country and its trading partner with the most observations. The estimated order define the model through the Cholesky order sequence for the floating exchange rate. The country pair testing includes Australia/South Korea, US/Mexico, Canada/South Korea, US/Brazil, New Zealand/South Korea, and Japan/South Korea.

Table A1.4.4: Variance Decomposition Aggregate Results (Top 3 Variables influencing returns for Periods 1, 5, and 10)

	PERIOD 1				PERIOD 5					PERIOD 10				
Primary Variables	Qty as Primary	Total Influence	Average Influence	% Top Three	Primary Variables	Qty as Primary	Total Influence	Average Influence	% Top Three	Primary Variables	Qty as Primary	Total Influence	Average Influence	% Top Three
Panel A-Fixed Exchange Rate Regime														
RSR^{DM}	6	138.0461	23.01	37.5%	RSR^{DM}	6	140.9621	23.49	55.8%	RSR^{DM}	5	131.3139	26.26	31.3%
ΔER	6	40.0430	6.67	37.5%	ΔM1	4	38.1648	9.54	22.6%	ΔIR	4	44.4657	11.12	25.0%
ΔIR	3	12.4884	4.16	18.8%	ΔIR	3	30.4951	9.10	21.6%	ΔM1	3	31.4209	10.47	18.8%
Panel B-Floating Exchange Rate Regime														
RSR^{DM}	10	198.3572	19.84	62.5%	RSR^{DM}	9	185.2736	20.59	56%	RSR^{DM}	9	170.6152	18.96	56.25%
ΔER	4	47.957917	11.99	25.0%	ΔM1	6	80.5201	13.42	38%	ΔIR	6	115.7732	19.30	37.50%
ΔTB	1	0.8344	0.83	6.3%	ΔTB	1	30.8827	30.88	6%	ΔER	1	30.8827	30.88	6.25%

This table identifies the number of times the top three variables were primary indicators during a fixed and floating exchange rate regime. The results indicated that at equilibrium period 10, the first two indicators are the same for both the fixed and floating regimes, while the tertiary indicator is M1 during the fixed regime and the bi-lateral exchange rate is the tertiary indicator during the floating exchange rate period. The primary and secondary indicators have the greatest influence in explaining domestic returns in 31 percent and 56 percent of the tests for the fixed and foating exchange rate regimes, respectively.

Table A1.4.5: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Fixed/Floating exchange rate regimes; AUSO, AUTH, AUID; Period 10 Results

Variables	AUSO MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	AUTH MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	AUID MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB
Panel A-Fixed Exchange Rate Regime												
RSR^{DM}	4.9540	2.6178	5.2567	3.4502	10.6530	10.4701	10.7432	10.5798	1.6388	1.6863	1.8182	1.8521
ΔER	4.7714	4.6392	6.0186	5.5055	8.3464	8.1389	8.3531	8.1608	2.9014	3.0442	3.0780	3.2093
ΔIR	0.3701	0.3315	0.3812	0.3212	10.8535	11.1126	10.6208	10.9258	1.5959	1.5938	1.6946	1.6739
ΔM1	5.1982		5.6983		4.3645		4.8678		23.8329		23.2361	
ΔTB	9.7360	7.8771			1.3582	0.9478			0.8295	1.7721		
RSR^{EM}	74.9703	84.5345	82.6453	90.7230	64.4244	69.3306	65.4152	70.3335	69.2014	91.9037	70.1731	93.2646
Panel B-Floating Exchange Rate Regime												
RSR^{DM}	18.1322	18.0304	18.9379	18.4347	1.6388	2.3564	2.3491	2.3872	9.1409	10.1113	9.4590	10.2752
ΔM1	1.3229		1.1852		2.9014		2.2633		0.3114		0.3613	
ΔTB	2.0437	1.8959			1.5959	0.8698			1.4429	1.2756		
ΔIR	7.2237	7.4647	7.1103	7.3139	23.8329	22.0733	21.7010	22.8884	27.6786	26.7743	27.3792	26.6587
ΔER	15.2108	15.5930	16.9257	17.2080	0.8295	4.6899	4.4200	4.6180	3.6887	3.1590	3.7270	3.2782
RSR^{EM}	56.0668	57.0159	55.8408	57.0434	69.2014	70.0106	69.2667	70.1064	57.7375	58.6797	59.0735	59.7879

This table includes the results of the variance decomposition of the emerging trading partner real stock returns of South Korea, Thailand, and Indonesia with the consideration of it developed trading partner of the Australia. Column 2 through 4 serve as robustness testing in the removal of the M1 money supply variable, the trade balance variable, and both variables, to confirm that a six vector autoregression does not negatively effect the results.

Table A1.4.6: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Fixed/Floating exchange rate regimes; USCH,USMX, USBR; Period 10 Results

Variables	USCH MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	USMX MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	USBR MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB
Panel A-Fixed Exchange Rate Regime												
RSR^{DM}	1.7354	2.5199	2.7882	4.3436	27.0634	26.5551	25.4856	22.0262	37.3659	46.5296	41.0087	49.8713
ΔER	17.5882	21.2892	19.3182	8.4593	5.3340	5.2550	3.4436	2.6999	26.6979	12.6433	16.5172	10.0091
ΔIR	22.0727	22.4898	19.4719	28.2028	11.9834	12.0232	7.8303	7.5186	6.2924	3.9285	6.2698	5.5326
ΔM1	7.7734		8.5149		3.6329		4.3985		15.1292		9.8784	
ΔTB	4.6731	2.7615			9.9360	12.1107			5.6077	9.8317		
RSR^{EM}	46.1619	50.7896	49.9068	58.9943	42.0504	44.0561	58.8421	67.7553	8.9069	27.0668	26.3258	34.5871
Panel B-Floating Exchange Rate Regime												
RSR^{DM}	5.7249	6.1383	1.1149	6.4016	23.3345	22.0361	21.4304	22.1864	27.9195	27.6655	27.9227	27.6781
ΔM1	1.0104		0.5651		1.3454		2.1514		0.5183		0.5854	
ΔTB	0.7772	0.7599			0.8776	1.0497			0.3022	0.2087		
ΔIR	3.8079	3.5368	3.9857	5.4268	8.2895	7.8924	7.8056	7.9955	8.3425	8.6151	8.5667	8.3797
ΔER	2.8603	2.8361	2.5047	3.5805	3.8729	1.9176	2.1659	1.5138	3.4408	3.2825	3.2515	3.2562
RSR^{EM}	85.8193	86.7289	91.8297	84.5912	62.2801	67.1042	66.4467	68.3043	59.4767	60.2282	59.6738	60.6860

This table includes the results of the variance decomposition of the emerging trading partner real stock returns of China, Mexico, and Brazil with the consideration of it developed trading partner of the US. Column 2 through 4 serve as robustness testing in the removal of the M1 money supply variable, the trade balance variable, and both variables, to confirm that a six vector autoregression does not negatively effect the results.

Table A1.4.7: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Fixed/Floating exchange rate regimes; CNCH, CNMX, CNSO; Period 10 Results

Variables	CNCH MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	CNMX MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	CNSO MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB
Panel A-Fixed Exchange Rate Regime												
RSR^{DM}	2.467	2.6001	2.5456	2.5590	28.663	30.1872	28.1147	31.4986	12.1035	11.17348	11.20273	10.65392
ΔER	1.958	1.6444	2.0764	1.8619	7.049	7.346627	10.48808	13.93734	0.4056	0.367246	0.229368	0.234653
ΔIR	16.067	16.8303	15.8280	16.9115	8.307	10.82968	12.36507	13.3909	0.0985	0.093985	0.078687	0.060592
ΔM1	2.365		3.7685		11.982		9.869708		0.8377		1.459852	
ΔTB	3.618	3.0714			7.349	13.10529			1.9474	1.901586		
RSR^{EM}	73.526	75.8538	75.7815	78.6677	36.649	38.53125	39.16249	41.17315	84.6072	86.4637	87.02936	89.05083
Panel B-Floating Exchange Rate Regime												
RSR^{DM}	12.222	13.2436	16.47638	15.0431	27.874	25.4750	25.54839	25.51744	23.4184	23.37147	23.37787	23.31956
ΔM1	6.439		3.89587		0.392		1.579291		0.1150		0.119845	
ΔTB	5.198	1.3671			1.689	2.091387			1.9005	1.811923		
ΔIR	2.933	4.1821	2.554279	3.7104	6.862	6.978787	7.471904	7.157772	0.2579	0.212107	0.312198	0.26211
ΔER	7.621	6.9579	7.627427	7.1611	5.393	5.147265	4.763642	5.381434	30.8827	31.0744	32.66826	32.77506
RSR^{EM}	65.587	74.2493	69.44605	74.0853	57.790	60.30761	60.63678	61.94335	43.4256	43.5301	43.52183	43.64327

This table includes the results of the variance decomposition of the emerging trading partner real stock returns of China, Mexico, and South Korea with the consideration of it developed trading partner of Canada. Column 2 through 4 serve as robustness testing in the removal of the M1 money supply variable, the trade balance variable, and both variables, to confirm that a six vector autoregression does not negatively effect the results.

Table A1.4.8: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Fixed/Floating exchange rate regimes; NZCH, NZSO, NZTH; Period 10 Results

Variables	NZCH MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	NZSO MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB1	NZTH MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB
Panel A-Fixed Exchange Rate Regime												
RSR^{DM}	5.0954	4.949628	4.888516	4.87196	1.0037	0.396426	1.048824	0.491188	5.2070	5.296554	5.305027	5.465852
ΔER	0.4716	0.457716	0.334243	0.291278	2.6152	2.911026	2.633247	2.875034	1.0736	1.078903	0.809917	0.779096
ΔIR	6.3788	6.833928	7.974075	8.402188	1.9613	2.183414	1.841059	2.014023	11.1664	11.35548	10.98036	11.22138
ΔM1	4.4326		3.127459		4.6551		5.091278		3.7201		4.201921	
ΔTB	4.2569	4.232349			3.7737	3.781647			3.4026	2.412833		
RSR^{EM}	79.3647	83.52638	83.67571	86.43457	85.9910	90.72749	89.38559	94.61976	75.4303	79.85623	78.70277	82.53367
Panel B-Floating Exchange Rate Regime												
RSR^{DM}	12.5164	9.243127	10.10112	9.225485	25.2504	25.18901	25.81735	25.76772	16.6352	16.67259	16.55232	16.25216
ΔM1	1.4290		1.364454		0.2844		0.302729		2.0140		1.865303	
ΔTB	1.0885	1.028508			1.1217	1.155682			0.4576	0.396069		
ΔIR	3.3002	3.899759	2.896357	3.783797	1.3592	1.431023	1.373025	1.462153	20.8111	21.82741	20.85521	21.97908
ΔER	2.7643	2.941325	3.116465	3.066766	7.7968	7.62655	8.270964	8.141337	6.7582	7.251467	6.922775	7.372385
RSR^{EM}	78.9017	82.88728	82.52161	83.92395	64.1875	64.59774	64.23593	64.62879	53.3240	53.85247	53.8044	54.39638

This table includes the results of the variance decomposition of the emerging trading partner real stock returns of China, South Korea, and Thailand with the consideration of it developed trading partner of New Zealand. Column 2 through 4 serve as robustness testing in the removal of the M1 money supply variable, the trade balance variable, and both variables, to confirm that a six vector autoregression does not negatively effect the results.

Table A1.4.9: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Fixed/Floating exchange rate regimes; ISCH; Period 10 Results

Variables	ISCH MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB
Panel A-Fixed Exchange Rate Regime				
RSR^{DM}	0.8922	0.9964	0.8827	0.5448
ΔER	0.5520	0.6458	1.0444	0.9039
ΔIR	1.4200	1.9004	0.9555	1.6188
ΔM1	2.9330		4.2363	
ΔTB	2.0621	1.6937		
RSR^{EM}	92.1407	94.7637	92.8811	96.9325
Panel B-Floating Exchange Rate Regime				
RSR^{DM}	15.3318	15.2845	15.8345	16.1270
ΔM1	0.5230		0.4751	
ΔTB	0.4007	0.8129		
ΔIR	7.8284	7.7986	7.7333	7.7623
ΔER	4.4958	4.6037	4.4554	4.4801
RSR^{EM}	71.4203	71.5003	71.5017	71.6306

This table includes the results of the variance decomposition of the emerging trading partner real stock returns of China with the consideration of it developed trading partner of Israel Column 2 through 4 serve as robustness testing in the removal of the M1 money supply variable, the trade balance variable, and both variables, to confirm that a six vector autoregression does not negatively effect the results.

Table A1.4.10: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Fixed/Floating exchange rate regimes; JPID, JPTH, JPSO; Period 10 Results

Variables	JPID MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	JPTH MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB	JPSO MODELS	Remove ΔM1	Remove ΔTB	Remove ΔM1& ΔTB
Panel A-Fixed Exchange Rate Regime												
RSR^{DM}	3.108	3.450321	3.981197	4.184603	3.609	4.476886	3.397044	4.00862	0.189	0.245711	0.226231	0.291726
ΔER	7.016	7.050416	6.145216	6.368071	10.309	11.35721	10.42251	11.853	88.747	85.57079	88.91028	85.74313
ΔIR	1.637	1.658253	1.4501	1.486786	4.134	3.946914	4.133581	3.942127	0.005	0.98012	0.009908	0.957383
ΔM1	6.678		5.523631		5.326		4.65714		0.172		0.137506	
ΔTB	3.248	3.002157			2.474	2.906295			0.323	0.488951		
RSR^{EM}	78.313	84.83885	82.89985	87.96054	74.148	77.31269	77.38972	80.19625	10.564	12.71443	10.71607	13.00777
Panel B-Floating Exchange Rate Regime												
RSR^{DM}	2.338	4.408097	4.183563	4.43976	0.388	0.532446	0.404937	0.550723	11.251	11.26861	11.38794	11.43464
ΔM1	2.105		0.65084		2.475		2.329613		0.578		0.622832	
ΔTB	1.469	2.38492			0.362	0.248584			1.464	1.524431		
ΔIR	18.709	8.339952	7.80187	7.745515	21.863	23.35219	22.07502	23.62142	3.608	3.359975	3.198296	2.913514
ΔER	8.589	4.891533	4.853709	4.848772	3.737	3.921524	3.833168	3.929124	13.546	13.39147	12.59213	12.47707
RSR^{EM}	66.791	79.9755	82.51002	82.96595	71.176	71.94526	71.35726	71.89873	69.553	70.45552	72.19881	73.17477

This table includes the results of the variance decomposition of the emerging trading partner real stock returns of Indonesia, Thailand, and South Korea, with the consideration of it developed trading partner of Japan. Column 2 through 4 serve as robustness testing in the removal of the M1 money supply variable, the trade balance variable, and both variables, to confirm that a six vector autoregression does not negatively effect the results.

Table A1.4.11: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

Variables	AUSO MODELS	Fixed ER Model	Floating ER Model	AUTH MODELS	Fixed ER Model	Floating ER Model	AUID MODELS	Fixed ER Model	Floating ER Model
Panel A-Fixed Exchange Rate Regime									
RSR^{DM}	4.9540		4.9540	10.6530		10.6530	1.6388		1.6388
ΔER	4.7714		4.9172	8.3464		6.1958	2.9014		3.6721
ΔIR	0.3701		0.4149	10.8535		11.3847	1.5959		1.6223
ΔM1	5.1982		5.2205	4.3645		4.4936	23.8329		22.9086
ΔTB	9.7360		9.5231	1.3582		2.8485	0.8295		0.9567
RSR^{EM}	74.9703		74.9703	64.4244		64.4244	69.2014		69.2014
Panel B-Floating Exchange Rate Regime									
RSR^{DM}	18.1322	18.3333		2.3162	2.3162		9.1409	9.1409	
ΔM1	1.3229	1.1636		2.2385	2.1605		0.3114	0.3374	
ΔTB	2.0437	2.3042		0.3955	0.3258		1.4429	1.2520	
ΔIR	7.2237	7.8091		21.3499	21.4182		27.6786	26.4721	
ΔER	15.2108	15.9983		4.4111	4.4906		3.6887	5.0601	
RSR^{EM}	56.0668	54.3914		69.2888	69.2888		57.7375	57.7375	

This table reiterates the variance decomposition results for each exchange rate regime and compares the results to the colicky order robustness test. Column 2 represents the results using the fixed exchange rate model for the floating exchange rate period. Column 3 shows the variance decomposition results using the floating exchange rate model for the fixed exchange rate period.

Table A1.4.12: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

Variables	USCH MODELS	Fixed ER Model	Floating ER Model	USMX MODELS	Fixed ER Model	Floating ER Model	USBR MODELS	Fixed ER Model	Floating ER Model
Panel A-Fixed Exchange Rate Regime									
RSR^{DM}	1.7354		1.7354	27.0634		27.0634	37.3659		37.3659
ΔER	22.0727		18.8168	5.3340		5.5885	26.6979		29.3939
ΔIR	17.5836		15.9263	11.9834		10.7211	6.2924		2.8379
ΔM1	7.7734		8.6634	3.6329		4.8312	15.1292		16.0872
ΔTB	4.6731		8.6963	9.9360		9.7454	5.6077		5.4083
RSR^{EM}	46.1619		46.1619	42.0504		42.0504	8.9069		8.9069
Panel B-Floating Exchange Rate Regime									
RSR^{DM}	5.7249	5.7249		23.3345	21.3121		27.9195	27.6322	
ΔM1	1.0104	1.3301		1.3454	2.1612		0.5183	0.7412	
ΔTB	0.7772	1.2746		0.8776	0.8098		0.3022	0.3904	
ΔIR	3.8079	2.6049		8.2895	5.7351		8.3425	9.9667	
ΔER	2.8603	3.2463		3.8729	4.4696		3.4408	2.1435	
RSR^{EM}	85.8193	85.8193		62.2801	65.5122		59.4767	59.1260	

This table reiterates the variance decomposition results for each exchange rate regime and compares the results to the colicky order robustness test. Column 2 represents the results using the fixed exchange rate model for the floating exchange rate period. Column 3 shows the variance decomposition results using the floating exchange rate model for the fixed exchange rate period.

Table A1.4.13: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

Variables	CNCH MODELS	Fixed ER Model	Floating ER Model	CNMX MODELS	Fixed ER Model	Floating ER Model	CNSO MODELS	Fixed ER Model	Floating ER Model
Panel A-Fixed Exchange Rate Regime									
RSR^{DM}	2.4666		4.3939	28.6631		28.6631	12.1035		12.1035
ΔER	1.9578		4.6795	7.0494		7.5423	0.4056		0.3511
ΔIR	16.0669		16.2607	8.3070		6.8148	0.0985		0.0568
ΔM1	2.3649		5.9430	11.9821		12.3939	0.8377		0.8939
ΔTB	3.6180		8.1648	7.3494		7.9370	1.9474		1.9875
RSR^{EM}	73.5258		60.5581	36.6490		36.6490	84.6072		84.6072
RSR^{DM}	12.2224	12.2224		25.0470		25.0470	23.4184	23.4184	
ΔM1	6.4388	6.4399		1.1603		1.2159	0.1150	0.0536	
ΔTB	5.1977	4.2787		1.8470		1.1801	1.9005	0.0882	
ΔIR	2.9328	3.1029		7.0624		4.3771	0.2579	0.2031	
ΔER	7.6211	8.3688		3.5376		6.8342	30.8827	32.8112	
RSR^{EM}	65.5873	65.5873		61.3457		61.3457	43.4256	43.4256	

This table reiterates the variance decomposition results for each exchange rate regime and compares the results to the colicky order robustness test. Column 2 represents the results using the fixed exchange rate model for the floating exchange rate period. Column 3 shows the variance decomposition results using the floating exchange rate model for the fixed exchange rate period.

Table A1.4.14: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

Variables	NZCH MODELS	Fixed ER Model	Floating ER Model	NZSO MODELS	Fixed ER Model	Floating ER Model	NZTH MODELS	Fixed ER Model	Floating ER Model
Panel A-Fixed Exchange Rate Regime									
RSR^{DM}	5.0954		5.0954	1.0037		1.0037	5.2070		5.2070
ΔER	0.4716		0.7903	2.6152		3.0499	1.0736		1.3822
ΔIR	6.3788		5.9452	1.9613		1.2214	11.1664		10.5858
ΔM1	4.4326		5.5534	4.6551		5.0967	3.7201		3.9488
ΔTB	4.2569		3.2510	3.7737		3.6373	3.4026		3.4459
RSR^{EM}	79.3647		79.3647	85.9910		85.9910	75.4303		75.4303
Panel B-Floating Exchange Rate Regime									
RSR^{DM}	12.5164	11.1926		25.2504	25.2504		16.6352	16.6352	
ΔM1	1.4290	1.4505		0.2844	0.4643		2.0140	1.5600	
ΔTB	1.0885	0.7494		1.1217	0.6583		0.4576	0.2311	
ΔIR	3.3002	4.0377		1.3592	1.5993		20.8111	21.0533	
ΔER	2.7643	1.6233		7.7968	7.8404		6.7582	7.1964	
RSR^{EM}	78.9017	80.9464		64.1875	64.1875		53.3240	53.3240	

This table reiterates the variance decomposition results for each exchange rate regime and compares the results to the colicky order robustness test. Column 2 represents the results using the fixed exchange rate model for the floating exchange rate period. Column 3 shows the variance decomposition results using the floating exchange rate model for the fixed exchange rate period.

Table A1.4.15: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

Variables	ISCH MODELS	Fixed ER Model	Floating ER Model
Panel A-Fixed Exchange Rate Regime			
RSR^{DM}	0.8922		0.8922
ΔER	0.5520		0.5673
ΔIR	1.4200		1.3588
ΔM1	2.9330		2.9832
ΔTB	2.0621		2.0579
RSR^{EM}	92.1407		92.1407
Panel B-Floating Exchange Rate Regime			
RSR^{DM}	15.3318	15.3318	
ΔM1	0.5230	0.5351	
ΔTB	0.4007	0.5268	
ΔIR	7.8284	7.8636	
ΔER	4.4958	4.3224	
RSR^{EM}	71.4203	71.4203	

This table reiterates the variance decomposition results for each exchange rate regime and compares the results to the colicky order robustness test. Column 2 represents the results using the fixed exchange rate model for the floating exchange rate period. Column 3 shows the variance decomposition results using the floating exchange rate model for the fixed exchange rate period.

Table A1.4.16: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

Variables	JPID MODELS	Fixed ER Model	Floating ER Model	JPTH MODELS	Fixed ER Model	Floating ER Model	JPSO MODELS	Fixed ER Model	Floating ER Model
Panel A-Fixed Exchange Rate Regime									
RSR^{DM}	3.1080		3.1080	3.6086		3.6086	0.1893		0.1893
ΔER	7.0156		6.7234	10.3092		11.9668	88.7472		86.8645
ΔIR	1.6375		2.0038	4.1341		3.2173	0.0048		0.7095
ΔM1	6.6779		6.5554	5.3255		3.9226	0.1722		1.5012
ΔTB	3.2479		3.2962	2.4741		3.1363	0.3226		0.1717
RSR^{EM}	78.3132		78.3132	74.1484		74.1484	10.5638		10.5638
Panel B-Floating Exchange Rate Regime									
RSR^{DM}	2.3375	2.3375		0.3879	0.3879		11.2515	11.2515	
ΔM1	2.1054	1.5722		2.4747	2.2846		0.5783	0.5646	
ΔTB	1.4687	1.3452		0.3624	0.2427		1.4637	2.8011	
ΔIR	18.7087	15.1341		21.8626	21.7404		3.6078	1.3417	
ΔER	8.5892	12.8206		3.7368	4.1688		13.5460	14.4884	
RSR^{EM}	66.7905	66.7905		71.1756	71.1756		69.5527	69.5527	

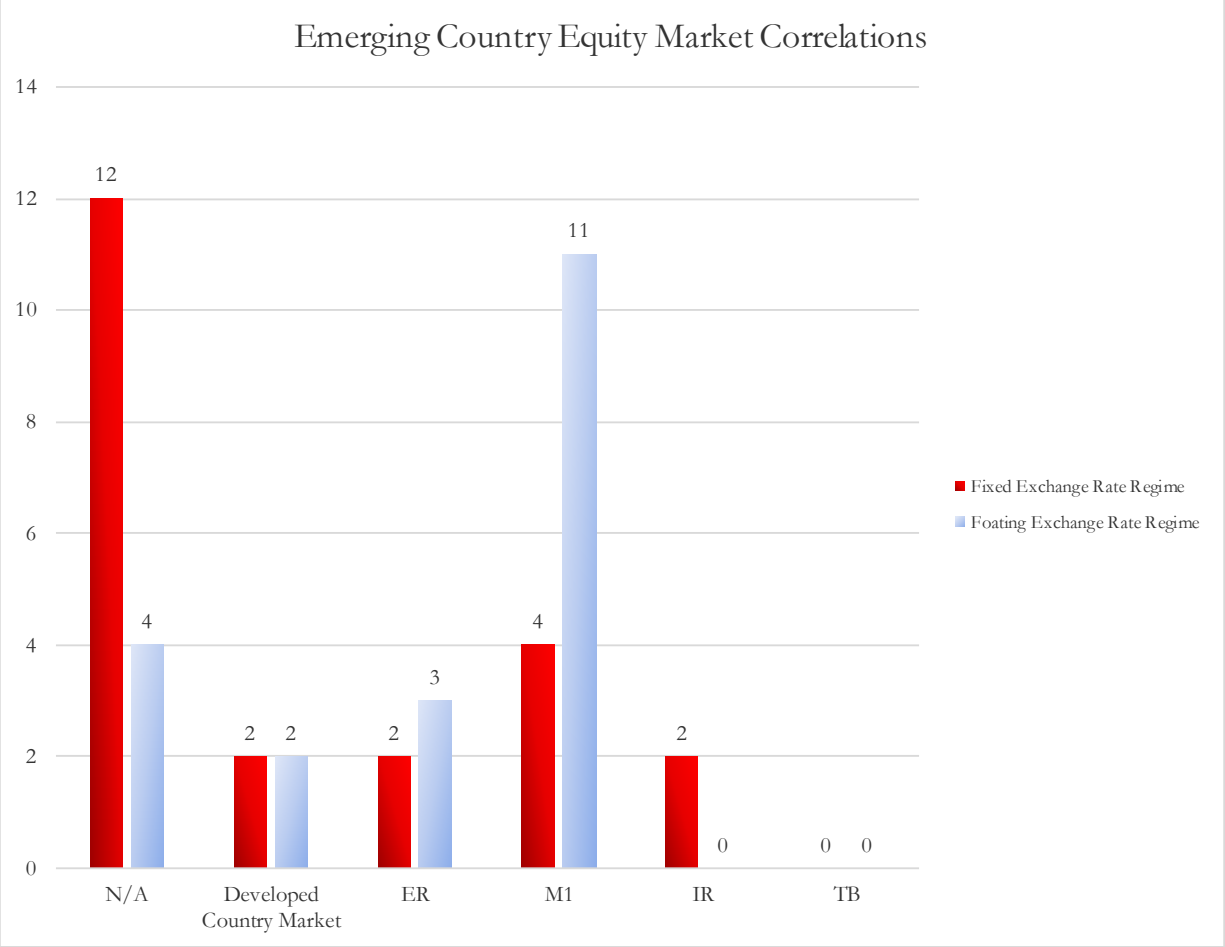
This table reiterates the variance decomposition results for each exchange rate regime and compares the results to the colicky order robustness test. Column 2 represents the results using the fixed exchange rate model for the floating exchange rate period. Column 3 shows the variance decomposition results using the floating exchange rate model for the fixed exchange rate period.

APPENDIX B1

APPENDIX B1

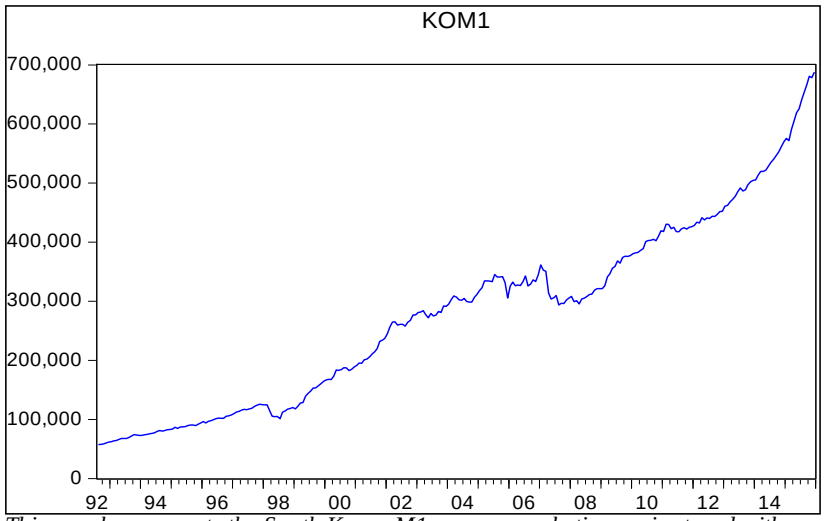
FIGURES

Figure B1.3.1: Summary of Correlation Variable (Very Strong Correlations Only)



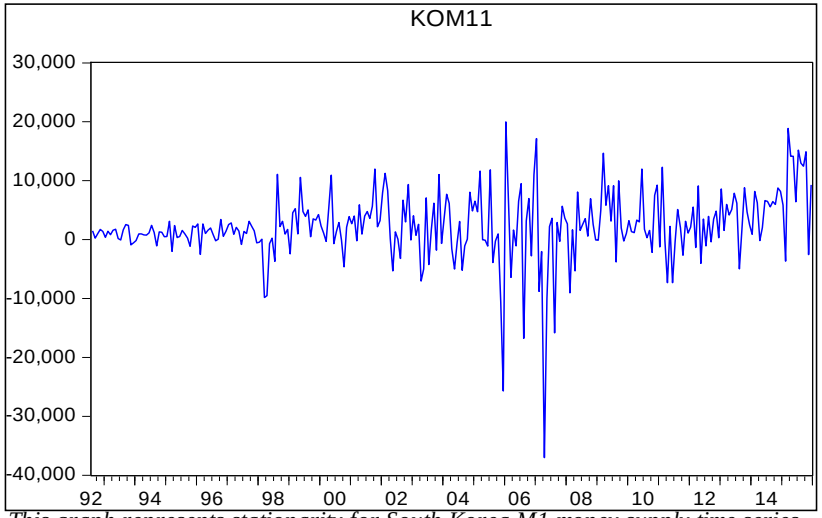
This figure illustrates the variables, and number of variables that are very highly correlated with emerging market equity markets. The graph indicates that more correlations exist during a fixed exchange rate regime. Duirng a fixed regime, M1 money supply is attributed with 4 out of the 10 correlation. The developed country equity market, bi-lateral exchange rate, and interest rates are correlated with domestic returns in 2 out of 10 correlations each. During a floating regime, M1 money supply is attributed with 11 very strong correlations, followed by exchange rates at 3 and the developed country equity market with 2 very strong correlations.

Figure B1.4.1A: South Korea M1 money supply at levels



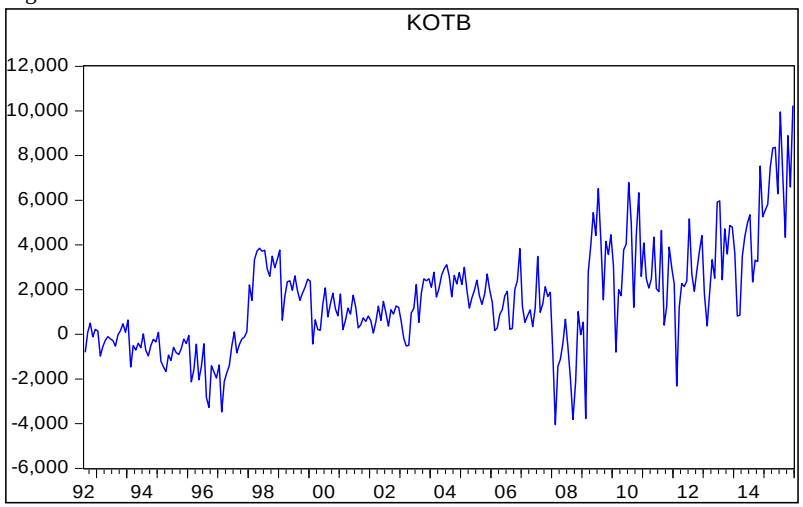
This graph represents the South Korea M1 money supply time series trend with a constant at levels.

Figure B1.4.1B: South Korea M1 money supply at first difference



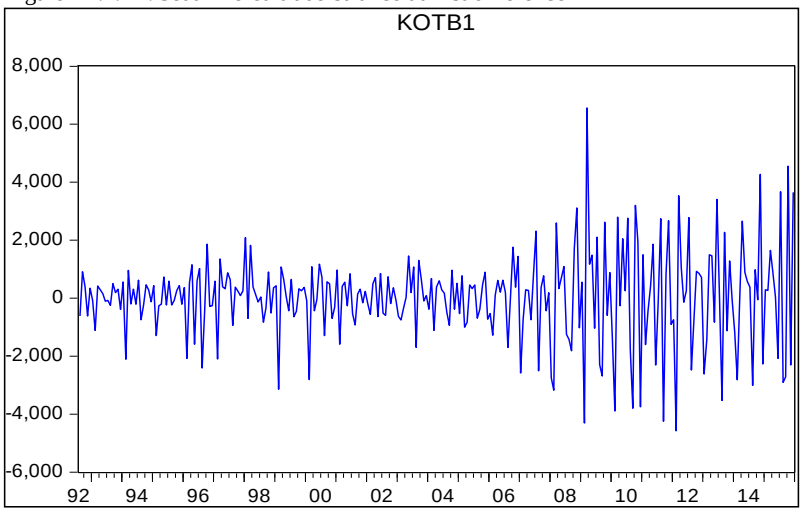
This graph represents stationarity for South Korea M1 money supply time series data at first difference.

Figure B1.4.2A: South Korea trade balance at levels



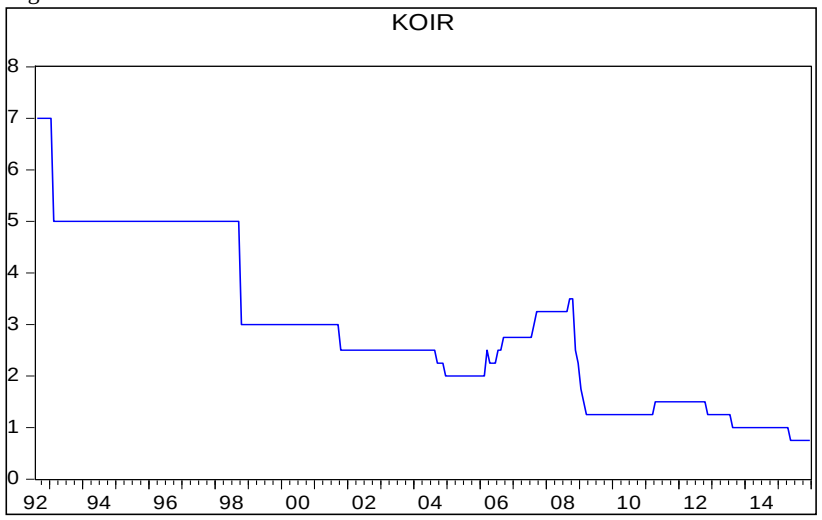
This graph represents the South Korea trade balance time series trend with a constant at levels.

Figure B1.4.2B: South Korea trade balance at first difference



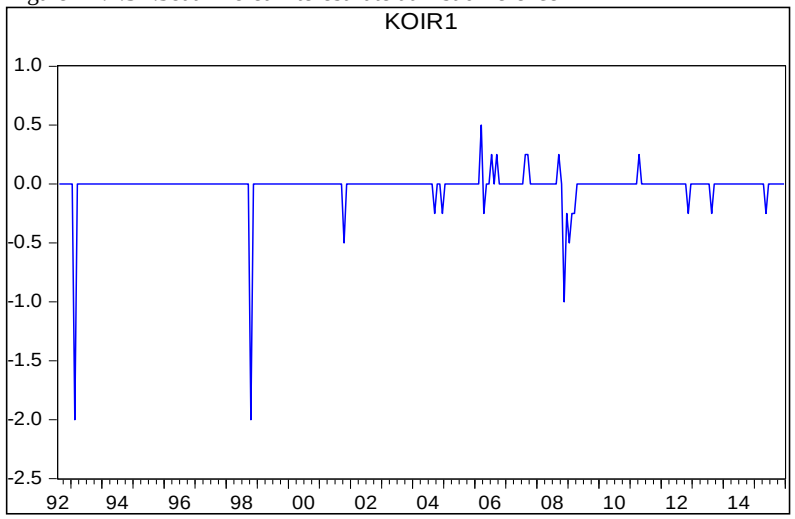
This graph represents stationarity for South Korea trade balance production time series data at first difference.

Figure B1.4.3A: South Korea interest rate at levels



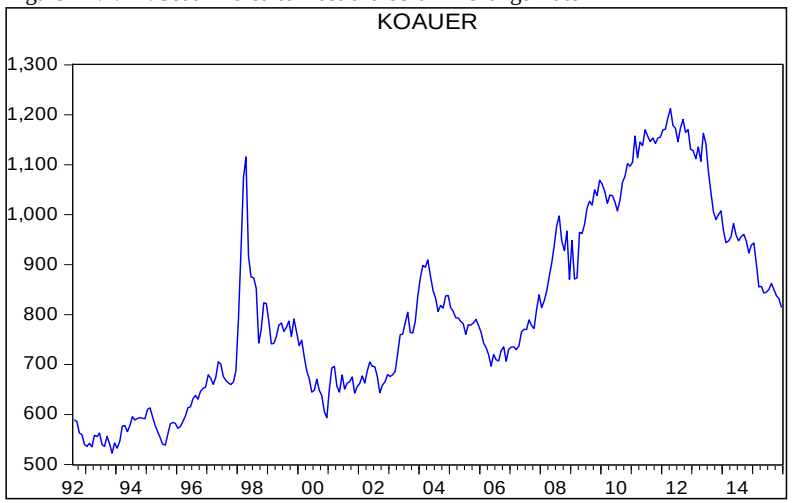
This graph represents the South Korea interest rate time series data at levels. Interest rates remain constant for long periods.

Figure B1.4.3B:South Korea interest rate at first difference



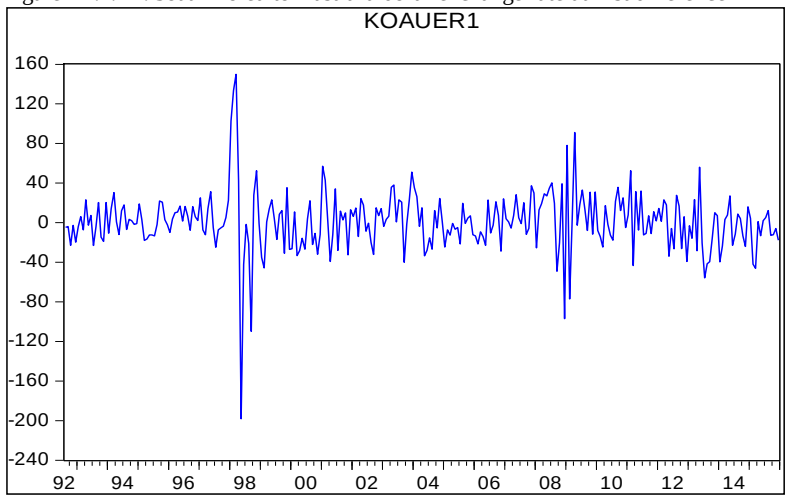
This graph represents stationarity for South Korea interest rate time series data at first difference. Long periods of consistent interest rates are evident.

Figure B1.4.4A: South Korea to Australia dollar Exchange Rate



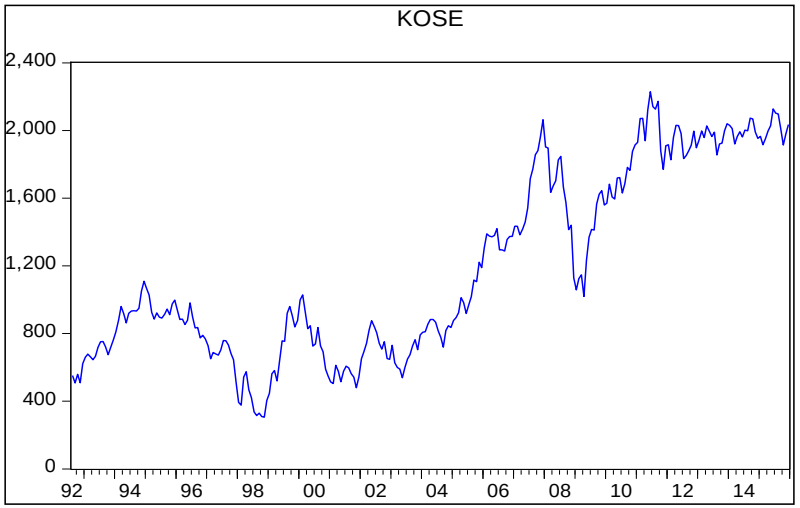
This graph represents the South Korea index time series trend with a constant at levels

Figure B1.4.4B: South Korea to Australia dollar exchange rate at first difference



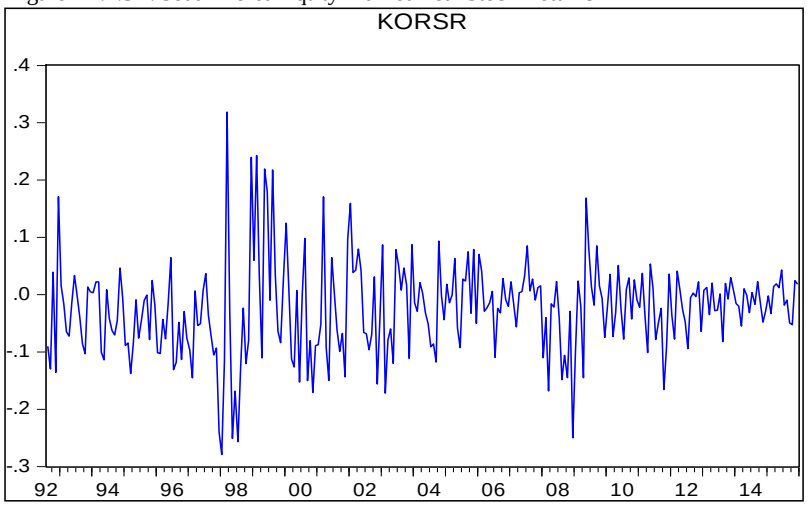
This graph represents stationarity for the South Korea to Australia exchange rate time series data at first difference.

Figure B1.4.5A: South Korea Equity Market Index



This graph represents the South Korea index time series trend with a constant at levels.

Figure B1.4.5B: South Korea Equity Market Real Stock Returns



This graph represents stationarity for the South Korea index real stock returns time series data.

APPENDIX A2

TABLES

Table A2.3.1: Equity Markets and Composite Indices

Developed Market	Emerging Market	Equity Market Indices	Trade Symbol
Australia		Australia Securities Exchange	S&P/ASX 200
	South Korea	Korea Stock Exchange	KOSPI
	Thailand	Stock Exchange of Thailand	SET
	Indonesia	Bursa Efek Stock Exchange	JAKARTA
United States		Standard and Poor's	S&P 500
	China	Shanghai Stock Exchange	SSE 180
	Mexico	Mexican Stock Exchange (BDV)	MEXBOL
	Brazil	Brazil Bovespa Exchange	IBOV
Canada		Canada Securites Exchange	S&P/TSX
	China	Shanghai Stock Exchange	SSE 180
	Mexico	Mexican Stock Exchange (BDV)	MEXBOL
	South Korea	Korea Stock Exchange	KOSPI
New Zealand		New Zealand Stock Exchange	NZX50
	China	Shanghai Stock Exchange	SSE 180
	South Korea	Korea Stock Exchange	KOSPI
	Thailand	Stock Exchange of Thailand	SET
Israel		Tel Aviv Stock Exchange	TA100
	China	Shanghai Stock Exchange	SSE 180
Japan		Tokyo Stock Exchange	NIKKEI 225
	Indonesia	Bursa Efek Stock Exchange	JAKARTA
	Thailand	Stock Exchange of Thailand	SET
	South Korea	Korea Stock Exchange	KOSPI

This table shows the equity market stock exchanges and their corresponding composite index. These indices are used for identifying the nominal stock returns for each developed country and their corresponding emerging trading partners.

Table A2.3.2: Developed/Developing Market Testing Parameters (Only Applicable for Pre and Post Crisis)

Developed Market	Emerging Market	Start Float Floating ER Varies	Pre-Crisis End Floating ER Nov-07	*Number of Obs*	Recovery-Strt Floating ER Jul-09	Recovery-End Floating ER Dec-15	*Number of Obs*
Australia			Nov-07		Jul-09	Dec-15	
	South Korea	Dec-97	Nov-07	120	Jul-09	Dec-15	78
	Thailand	Jul-97	Nov-07	125	Jul-09	Dec-15	78
	Indonesia	Sep-97	Nov-07	123	Jul-09	Dec-15	78
United States			Nov-07		Jul-09	Dec-15	
	China	Jul-05	Nov-07	29	Jul-09	Dec-15	78
	Mexico	Dec-94	Nov-07	156	Jul-09	Dec-15	78
	Brazil	Jan-99	Nov-07	107	Jul-09	Dec-15	78
Canada			Nov-07		Jul-09	Dec-15	
	China	Jul-05	Nov-07	29	Jul-09	Dec-15	78
	Mexico	Dec-94	Nov-07	156	Jul-09	Dec-15	78
	South Korea	Dec-97	Nov-07	120	Jul-09	Dec-15	78
New Zealand			Nov-07		Jul-09	Dec-15	
	China	Jul-05	Nov-07	29	Jul-09	Dec-15	78
	South Korea	Dec-97	Nov-07	120	Jul-09	Dec-15	78
	Thailand	Jul-97	Nov-07	125	Jul-09	Dec-15	78
Israel			Nov-07		Jul-09	Dec-15	
	China	Jul-05	Nov-07	29	Jul-09	Dec-15	78
Japan			Nov-07		Jul-09	Dec-15	
	Indonesia	Sep-97	Nov-07	123	Jul-09	Dec-15	78
	Thailand	Jul-97	Nov-07	125	Jul-09	Dec-15	78
	South Korea	Dec-97	Nov-07	120	Jul-09	Dec-15	78

This table shows the range for the pre- and post-crisis periods for the developed countries and their corresponding trading partners. Several testing periods are adjusted comply with the floating exchange rate constraint.

Table A2.3.3: Descriptive Statistics-Australia and South Korea, Thailand, Indonesia

Statistics	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-South Korea (Pre-crisis)						
N	120	120	120	120	120	120
Mean	3705.14	247518.80	1631.61	2.81	754.62	873.99
Std. Dev.	1060.35	77486.19	1035.42	0.71	84.15	379.21
Min	2405.20	101218.60	-521.13	2.00	593.69	305.64
Max	6828.70	361484.40	3852.04	5.00	1115.79	2063.14
Panel B-South Korea (Post-crisis)						
N	78	78	78	78	78	78
Mean	4865.94	480915.50	3881.63	1.19	1040.01	1917.36
Std. Dev.	512.42	87345.97	2369.25	0.24	112.37	163.50
Min	3874.00	364338.50	-2316.93	0.75	814.01	1411.66
Max	5958.90	696785.60	10235.37	1.50	1212.46	2228.96
Panel A-Thailand (Pre-crisis)						
N	125	125	125	125	125	125
Mean	3661.09	645923.70	400.75	5.13	26.40	508.57
Std. Dev.	1061.29	182753.90	640.90	2.91	3.14	179.26
Min	2405.20	381672.00	-1763.89	0.67	19.44	214.53
Max	6828.70	968867.00	2113.25	11.86	35.45	907.28
Panel B-Thailand (Post-crisis)						
N	78	78	78	78	78	78
Mean	4865.94	1404669.00	-243.74	4.50	29.51	1203.46
Std. Dev.	512.42	179184.00	1802.49	1.32	2.23	287.96
Min	3874.00	1019447.00	-5906.41	1.78	24.80	624.00
Max	5958.90	1722916.00	2947.46	6.33	33.06	1597.86
Panel A-Indonesia (Pre-Crisis)						
N	123	123	123	123	123	123
Mean	3677.34	198307.00	2332.40	15.58	5704.48	813.65
Std. Dev.	1062.15	86173.12	643.28	10.68	1472.44	558.53
Min	2405.20	66258.00	1098.20	6.01	1590.96	276.15
Max	6828.70	450055.00	4641.92	54.67	8447.01	2745.83
Panel B-Indonesia (Post-Crisis)						
N	78	78	78	78	78	78
Mean	4865.94	765157.90	755.12	7.31	9576.17	4119.10
Std. Dev.	512.42	176667.30	1324.76	1.14	862.74	829.59
Min	3874.00	485537.90	-2329.13	5.61	7608.13	2341.54
Max	5958.90	1063039.00	3683.22	9.62	11153.34	5518.68

Each panel reports the descriptive statistics, in levels, for Australia S&P/ASX 200 (developed country), the South Korea exchange KOSPI, the Stock Exchange of Thailand SET, and the Bursa Efek Stock Exchange of Indonesia JAKARTA (trading partners). Each panel shows the pre- and post-crisis statistical model variable data for the developed country of Australia, and its three developing country trading partners. These variables include the developed country stock index, and the domestic variables of M1 money supply, trade balance, interest rate, exchange rate, and the domestic country stock index. Panel B illustrates the statistics for the same variables post crisis.

Table A2.3.4: Descriptive Statistics-US and China, Mexico, Brazil

Statistics	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-China (Pre-crisis)						
N	29	29	29	29	29	29
Mean	1353.22	11919.75	169.51	2.65	7.88	2541.10
Std. Dev.	109.77	1498.31	70.13	0.86	0.22	1534.50
Min	1194.44	9767.41	25.33	1.49	7.45	1083.03
Max	1547.03	14800.98	271.31	5.02	8.28	5954.77
Panel B-China (Post-crisis)						
N	78	78	78	78	78	78
Mean	1520.80	29278.74	252.39	4.02	6.39	2660.48
Std. Dev.	365.40	4652.69	194.22	1.35	0.25	585.94
Min	923.33	19588.93	-319.71	1.68	6.05	1979.21
Max	2117.39	40095.34	628.32	6.96	6.83	4611.74
Panel A-Mexico (Pre-crisis)						
N	156	156	156	156	156	156
Mean	1083.63	5.89E+08	-407.49	16.69	9.46	9064.06
Std. Dev.	282.85	3.24E+08	563.42	13.01	1.58	7507.93
Min	448.92	1.26E+08	-1593.68	4.45	3.44	1517.96
Max	1547.03	1.22E+09	997.28	74.75	11.53	31946.40
Panel B-Mexico (Post-crisis)						
N	78	78	78	78	78	78
Mean	1520.80	2.15E+09	-319.11	3.83	13.34	38719.85
Std. Dev.	365.40	5.12E+08	706.36	0.62	1.21	5114.19
Min	923.33	1.41E+09	-2185.90	2.67	11.50	24524.01
Max	2117.39	3.35E+09	1316.54	4.60	16.85	45768.49
Panel A-Brazil (Pre-Crisis)						
N	107	107	107	107	107	107
Mean	1224.16	96793.99	1872.51	18.68	2.39	22664.93
Std. Dev.	179.37	37200.34	1669.63	4.77	0.53	13385.32
Min	834.81	44052.23	-718.16	10.09	1.21	6784.00
Max	1547.03	187792.50	5659.37	37.78	3.76	64050.00
Panel B- Brazil (Post-Crisis)						
N	78	78	78	78	78	78
Mean	1520.80	276839.40	1264.31	12.06	2.16	57689.47
Std. Dev.	365.40	35309.29	1985.93	1.49	0.57	7314.66
Min	923.33	198240.00	-4066.52	9.18	1.55	45046.75
Max	2117.39	351603.00	6240.00	16.49	3.97	71560.88

Each panel reports the descriptive statistics, in levels, for the US S&P500 (developed country), the Shanghai Stock Exchange SSE180, the Mexico Stock Exchange MEXBOL, and the Brazil Bovespa Exchange IBOV (trading partners). Each panel shows the pre- and post-crisis statistical model variable data for the developed country of the US and its three emerging country trading partners. These variables include the developed country stock index, and the domestic variables of M1 money supply, trade balance, interest rate, exchange rate, and the domestic country stock index. Panel B illustrates the statistics for the same variables post crisis.

Table A2.3.5: Descriptive Statistics-Canada and China, Mexico, South Korea

Statistics	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-China (Pre-crisis)						
N	29	29	29	29	29	29
Mean	12303.47	11919.75	169.51	2.65	7.01	2541.10
Std. Dev.	1229.45	1498.31	70.13	0.86	0.28	1534.50
Min	9902.77	9767.41	25.33	1.49	6.60	1083.03
Max	14372.54	14800.98	271.31	5.02	7.85	5954.77
Panel B-China (Post-crisis)						
N	78	78	78	78	78	78
Mean	12987.83	29278.74	252.39	4.02	6.02	2660.48
Std. Dev.	1300.26	4652.69	194.22	1.35	0.59	585.94
Min	10374.91	19588.93	-319.71	1.68	4.76	1979.21
Max	15625.73	40095.34	628.32	6.96	6.84	4611.74
Panel A-Mexico (Pre-crisis)						
N	156	156	156	156	156	156
Mean	8059.48	5.89E+08	-407.49	16.69	9.46	9064.06
Std. Dev.	2555.42	3.24E+08	563.42	13.01	1.58	7507.93
Min	4019.11	1.26E+08	-1593.68	4.45	3.44	1517.96
Max	14372.54	1.22E+09	997.28	74.75	11.53	31946.40
Panel B-Mexico (Post-crisis)						
N	78	78	78	78	78	78
Mean	12987.83	2.15E+09	-319.11	3.83	13.34	38719.85
Std. Dev.	1300.26	5.12E+08	706.36	0.62	1.21	5114.19
Min	10374.91	1.41E+09	-2185.90	2.67	11.50	24524.01
Max	15625.73	3.35E+09	1316.54	4.60	16.85	45768.49
Panel A-South Korea (Pre-Crisis)						
N	120	120	120	120	120	120
Mean	8900.62	247518.80	1631.61	2.81	841.87	873.99
Std. Dev.	2274.81	77486.19	1035.42	0.71	62.81	379.21
Min	5437.98	101218.60	-521.13	2.00	738.36	305.64
Max	14372.54	361484.40	3852.04	5.00	1153.70	2063.14
Panel B-South Korea (Post-Crisis)						
N	78	78	78	78	78	78
Mean	12987.83	480915.50	3881.63	1.19	1052.92	1917.36
Std. Dev.	1300.26	87345.97	2369.25	0.24	94.79	163.50
Min	10374.91	364338.50	-2316.93	0.75	866.06	1411.66
Max	15625.73	696785.60	10235.37	1.50	1159.82	2228.96

Each panel reports the descriptive statistics, in levels, for the Canada S&P/TSX (developed country), the Shanghai Stock Exchange SSE180, the Mexico Stock Exchange MEXBOL, and the South Korea Stock Exchange IBOV (trading partners). Each panel shows the pre- and post-crisis statistical model variable data for the developed country of the Canada and its three developing country trading partners. These variables include the developed country stock index, and the domestic variables of M1 money supply, trade balance, interest rate, exchange rate, and the domestic country stock index. Panel B illustrates the statistics for the same variables post crisis.

Table A2.3.6: Descriptive Statistics-New Zealand and China, South Korea, Thailand

Statistics	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-China (Pre-crisis)						
N	29	29	29	29	29	29
Mean	1085.73	11919.75	1468.38	2.65	5.46	2541.10
Std. Dev.	64.80	1498.31	914.39	0.86	0.28	1534.50
Min	1000.20	9767.41	168.56	1.49	4.89	1083.03
Max	1202.77	14800.98	3837.20	5.02	5.91	5954.77
Panel B-China (Post-crisis)						
N	78	78	78	78	78	78
Mean	905.06	29278.74	3881.63	4.02	4.93	2660.48
Std. Dev.	159.81	4652.69	2369.25	1.35	0.34	585.94
Min	697.19	19588.93	-2316.93	1.68	4.00	1979.21
Max	1217.43	40095.34	10235.37	6.96	5.67	4611.74
Panel A-South Korea (Pre-crisis)						
N	120	120	120	120	120	120
Mean	854.25	247518.80	1631.61	2.81	650.72	873.99
Std. Dev.	157.58	77486.19	1035.42	0.71	92.22	379.21
Min	590.90	101218.60	-521.13	2.00	443.89	305.64
Max	1202.77	361484.40	3852.04	5.00	914.96	2063.14
Panel B-South Korea (Post-crisis)						
N	78	78	78	78	78	78
Mean	905.06	480915.50	3881.63	1.19	864.03	1917.36
Std. Dev.	159.81	87345.97	2369.25	0.24	54.22	163.50
Min	697.19	364338.50	-2316.93	0.75	741.02	1411.66
Max	1217.43	696785.60	10235.37	1.50	956.61	2228.96
Panel A-Thailand (Pre-Crisis)						
N	125.0	125.0	125.0	125.0	125.0	125.0
Mean	854.41	645297.30	406.69	5.13	22.80	508.57
Std. Dev.	154.58	181769.70	654.84	2.91	3.68	179.26
Min	590.90	381672.00	-1763.89	0.67	16.65	214.53
Max	1202.77	932933.00	2283.21	11.86	30.22	907.28
Panel B-Thailand (Post-Crisis)						
N	78	78	78	78	78	78
Mean	905.06	1395531.00	-236.85	4.50	24.60	1203.46
Std. Dev.	159.81	182351.90	1805.38	1.32	1.54	287.96
Min	697.19	981851.60	-5906.41	1.78	21.89	624.00
Max	1217.43	1722916.00	2947.46	6.33	28.70	1597.86

Each panel reports the descriptive statistics, in levels, for New Zealand NZX50 (developed country), the Shanghai Stock Exchange SSE180, the South Korea Exchange KOSPI, and the Stock Exchange of Thailand SET (trading partners). Each panel shows the pre- and post-crisis statistical model variable data for the developed country of New Zealand and its three developing country trading partners. These variables include the developed country stock index, and the domestic variables of M1 money supply, trade balance, interest rate, exchange rate, and the domestic country stock index. Panel B illustrated the statistics for the same variables post crisis.

Table A2.3.7: Descriptive Statistics-Israel and China

Statistics	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-China (Pre-crisis)						
N	29	29	29	29	29	29
Mean	846.54	11919.75	169.51	4.35	1.81	2541.10
Std. Dev.	120.01	1498.31	70.13	0.24	0.05	1534.50
Min	652.48	9767.41	25.33	3.83	1.71	1083.03
Max	1067.72	14800.98	271.31	4.70	1.91	5954.77
Panel A-China (Post-Crisis)						
N	78	78	78	78	78	78
Mean	1029.30	29278.74	252.39	3.71	1.73	2660.48
Std. Dev.	133.08	4652.69	194.22	0.17	0.09	585.94
Min	833.00	19588.93	-319.71	3.37	1.56	1979.21
Max	1348.64	40095.34	628.32	4.01	1.92	4611.74

Each panel reports the descriptive statistics, in levels, for Israel Tel Aviv Stock Exchange TA100 (developed country), the Shanghai Stock Exchange SSE180, its trading partner. Each panel shows the pre- and post-crisis statistical model variable data for the developed country of Israel and its trading partner of China. These variables include the developed country stock index, and the domestic variables of M1 money supply, trade balance, interest rate, exchange rate, and the domestic country stock index. Panel B illustrated the statistics for the same variables post crisis.

Table A2.3.8: Descriptive Statistics-Japan and Indonesia, Thailand, South Korea

Statistics	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Indonesia (Pre-crisis)						
N	123	123	123	123	123	123
Mean	13905.56	197900.70	2335.73	15.58	76.32	810.51
Std. Dev.	3205.63	85087.30	644.01	10.68	12.57	548.56
Min	7863.29	66258.00	1098.20	6.01	24.01	276.15
Max	20726.99	413429.00	4641.92	54.67	104.48	2688.33
Panel B-Indonesia (Post-crisis)						
N	78	78	78	78	78	78
Mean	12515.36	757756.40	775.71	7.32	109.87	4089.71
Std. Dev.	3694.31	176830.90	1322.83	1.15	6.39	852.08
Min	8440.25	468943.80	-2329.13	5.61	95.46	2323.24
Max	20569.87	1063039.00	3683.22	9.62	122.86	5518.68
Panel A-Thailand (Pre-crisis)						
N	125	125	125	125	125	125
Mean	14002.91	645297.30	406.69	5.13	0.34	508.57
Std. Dev.	3270.85	181769.70	654.84	2.91	0.04	179.26
Min	7863.29	381672.00	-1763.89	0.67	0.21	214.53
Max	20726.99	932933.00	2283.21	11.86	0.40	907.28
Panel B-Thailand (Post-crisis)						
N	78	78	78	78	78	78
Mean	12515.36	1395531.00	-236.85	4.50	0.34	1203.46
Std. Dev.	3694.31	182351.90	1805.38	1.32	0.04	287.96
Min	8440.25	981851.60	-5906.41	1.78	0.27	624.00
Max	20569.87	1722916.00	2947.46	6.33	0.41	1597.86
Panel A-South Korea (Pre-Crisis)						
N	120	120	120	120	120	120
Mean	13817.57	247518.80	1631.61	2.81	9.89	873.99
Std. Dev.	3194.25	77486.19	1035.42	0.71	1.11	379.21
Min	7863.29	101218.60	-521.13	2.00	7.57	305.64
Max	20726.99	361484.40	3852.04	5.00	12.98	2063.14
Panel B-South Korea (Post-Crisis)						
N	78	78	78	78	78	78
Mean	12515.36	480915.50	3881.63	1.19	12.07	1917.36
Std. Dev.	3694.31	87345.97	2369.25	0.24	1.92	163.50
Min	8440.25	364338.50	-2316.93	0.75	8.90	1411.66
Max	20569.87	696785.60	10235.37	1.50	15.36	2228.96

Each panel reports the descriptive statistics, in levels, for Tokyo Japan Stock Exchange NIKKEI225 (developed country), and Bursa Efek Stock Exchange of Indonesia JAKARTA, the Stock Exchange of Thailand SET, and the South Korea Stock Exchange KOSPI, its trading partners. Each panel shows the pre- and post-crisis statistical model variable data for the developed country of New Zealand and its three developing country trading partners. These variables include the developed country stock index, and the domestic variables of M1 money supply, trade balance, interest rate, exchange rate, and the domestic country stock index. Panel B illustrated the statistics for the same variables post crisis.

Table A2.3.9: Correlation Matrix-Australia and South Korea, Thailand, Indonesia

	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-South Korea (Pre-Crisis); 120 Obs						
SE^{DM}	1.0000					
M1	0.6889	1.0000				
	0.0000					
TB	-0.1211	-0.2252	1.0000			
	0.1940	0.0186				
IR	-0.2953	-0.7267	0.3277	1.0000		
	0.0026	0.0000	0.0003			
ER	-0.0424	-0.0785	0.6208	0.3550	1.0000	
	0.6464	0.3969	0.0000	0.0001		
SE^{EM}	0.9379	0.6465	-0.1180	-0.3194	0.0212	1.0000
	0.0000	0.0000	0.2055	0.0013	0.8182	
Panel 2-South Korea (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.7615	1.0000				
	0.0000					
TB	0.5052	0.6371	1.0000			
	0.0000	0.0000				
IR	-0.8151	-0.0825	-0.6163	1.0000		
	0.0000	0.0000	0.0000			
ER	-0.7844	-0.7918	-0.6536	0.9334	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SE^{EM}	0.4792	0.5313	0.1501	-0.1915	-0.0806	1.0000
	0.0000	0.0000	0.1897	0.0930	0.4831	
Panel 1-Thailand(Pre-Crisis); 125 Obs						
SE^{DM}	1.0000					
M1	0.8284	1.0000				
	0.0000					
TB	-0.0294	-0.3024	1.0000			
	0.7452	0.0017				
IR	-0.6349	-0.8765	0.4058	1.0000		
	0.0000	0.0000	0.0000			
ER	0.5238	0.7079	-0.1733	-0.6238	1.0000	
	0.0000	0.0000	0.0607	0.0000		
SE^{EM}	0.7573	0.8420	-0.2066	-0.6628	0.7992	1.0000
	0.0000	0.0000	0.0266	0.0000	0.0000	
Panel 2-Thailand (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.6626	1.0000				
	0.0000					
TB	0.2454	-0.1522	1.0000			
	0.0304	0.1935				
IR	0.5872	0.5263	0.0620	1.0000		
	0.0000	0.0000	0.5899			
ER	-0.6476	-0.3334	-0.4826	-0.5192	1.0000	
	0.0000	0.0073	0.0003	0.0001		
SE^{EM}	0.6609	0.9080	-0.2456	0.5317	-0.2767	1.0000
	0.0000	0.0000	0.0409	0.0000	0.0228	
Panel 1-Indonesia (Pre-Crisis); 123 Obs						
SE^{DM}	1.0000					
M1	0.9425	1.0000				
	0.0000					
TB	0.7216	0.6911	1.0000			
	0.0000	0.0000				
IR	-0.5065	-0.6136	-0.4341	1.0000		
	0.0000	0.0000	0.0000			
ER	0.7277	0.8032	0.5032	-0.3932	1.0000	
	0.0000	0.0000	0.0000	0.0001		
SE^{EM}	0.9584	0.9065	0.6679	-0.4352	0.6762	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	
Panel 2-Indonesia (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.6973	1.0000				
	0.0000					
TB	-0.1935	-0.5607	1.0000			
	0.1018	0.0001				
IR	0.6315	0.3961	0.0427	1.0000		
	0.0000	0.0003	0.7103			
ER	0.6092	0.8328	-0.5202	0.3316	1.0000	
	0.0000	0.0000	0.0001	0.0030		
SE^{EM}	0.6414	0.8755	-0.5361	0.2245	0.8411	1.0000
	0.0000	0.0000	0.0001	0.0482	0.0000	

The figures under the correlation value represent the significance level. For correlation analysis only a focus on the "very strong" correlations at a value of 0.80-1.00 with significance levels of 0.001 are relevant. Each panel reports the correlation between the developed country equity market index, and the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate and equity market index.

Table A2.3.10: Correlation Matrix-US and China, Mexico, Brazil

	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel 1-China (Pre-Crisis); 29 Obs						
SE^{DM}	1.0000					
M1	0.9563	1.0000				
	0.0000					
TB	0.7528	0.7880	1.0000			
	0.0000	0.0000				
IR	0.8337	0.8938	0.7751	1.0000		
	0.0000	0.0000	0.0000			
ER	-0.9613	-0.9870	-0.7611	-0.8848	1.0000	
	0.0013	0.0011	0.0040	0.0019		
SE^{EM}	0.9275	0.9532	0.7602	0.8356	-0.9611	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0013	
Panel 2-China (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.9362	1.0000				
	0.0000					
TB	0.6420	0.6360	1.0000			
	0.0000	0.0000				
IR	0.2785	0.3800	-0.1261	1.0000		
	0.0135	0.0006	0.2789			
ER	-0.7715	-0.8184	-0.3339	-0.6649	1.0000	
	0.0000	0.0000	0.0072	0.0000		
SE^{EM}	0.2148	0.0960	0.3188	-0.4648	0.2661	1.0000
	0.0589	0.4030	0.0044	0.0004	0.0185	
Panel 1-Mexico(Pre-Crisis); 156 Obs						
SE^{DM}	1.0000					
M1	0.6531	1.0000				
	0.0000					
TB	-0.6719	-0.5675	1.0000			
	0.0000	0.0000				
IR	-0.6286	-0.7525	0.6384	1.0000		
	0.0000	0.0000	0.0000			
ER	0.7147	0.8491	-0.5934	-0.7460	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SE^{EM}	0.6227	0.8835	-0.4232	-0.5279	0.6199	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	
Panel 2-Mexico (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.9572	1.0000				
	0.0000					
TB	-0.3366	-0.3891	1.0000			
	0.0068	0.0023				
IR	-0.9581	-0.9026	0.2823	1.0000		
	0.0000	0.0000	0.0123			
ER	0.5953	0.7501	-0.4383	-0.5683	1.0000	
	0.0000	0.0000	0.0078	0.0000		
SE^{EM}	0.8630	0.8503	-0.2536	-0.7664	0.3904	1.0000
	0.0000	0.0000	0.0353	0.0000	0.0004	
Panel 1-Brazil (Pre-Crisis); 107 Obs						
SE^{DM}	1.0000					
M1	0.1917	1.0000				
	0.0479					
TB	-0.0410	0.8470	1.0000			
	0.6759	0.0000				
IR	-0.3894	-0.6918	-0.5262	1.0000		
	0.0003	0.0000	0.0000			
ER	-0.8837	0.0737	0.2554	0.1078	1.0000	
	0.0000	0.4506	0.0079	0.2693		
SE^{EM}	0.5389	0.9086	0.6838	-0.7339	-0.2884	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0054	
Panel 2-Brazil (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.8867	1.0000				
	0.0000					
TB	-0.2010	-0.2471	1.0000			
	0.0899	0.0399				
IR	0.2650	0.0399	0.2134	1.0000		
	0.0191	0.7287	0.0607			
ER	0.8048	0.6417	-0.0098	0.5280	1.0000	
	0.0000	0.0000	0.9320	0.0000		
SE^{EM}	-0.6862	-0.6373	0.1452	-0.2074	-0.7320	1.0000
	0.0000	0.0000	0.2047	0.0807	0.0000	

The figures under the correlation value represent the significance level. For correlation analysis only a focus on the "very strong" correlations at a value of 0.80-1.00 with significance levels of 0.001 are relevant. Each panel reports the correlation between the developed country equity market index, and the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate and equity market index.

Table A2.3.11: Correlation Matrix-Canada and China, Mexico, South Korea

	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel 1-China (Pre-Crisis); 29 Obs						
SE^{DM}	1.0000					
M1	0.9397	1.0000				
	0.0000					
TB	0.7292	0.7880	1.0000			
	0.0000	0.0000				
IR	0.8586	0.8938	0.7751	1.0000		
	0.0000	0.0000	0.0000			
ER	0.4528	0.4583	0.4566	0.5582	1.0000	
	0.0136	0.0124	0.0128	0.0017		
SE^{EM}	0.8965	0.9532	0.7602	0.8356	0.4296	1.0000
	0.0000	0.0000	0.0000	0.0000		
Panel 2-China (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.7381	1.0000				
	0.0000					
TB	0.4753	0.6360	1.0000			
	0.0000	0.0000				
IR	0.3246	0.3800	-0.1261	1.0000		
	0.0037	0.0006	0.2789			
ER	-0.5827	-0.8160	-0.6420	-0.0428	1.0000	
	0.0000	0.0000	0.0000	0.7102		
SE^{EM}	0.2627	0.0960	0.3188	-0.4648	-0.4000	1.0000
	0.0201	0.4030	0.0044	0.0004	0.0018	
Panel 1-Mexico (Pre-Crisis); 156 Obs						
SE^{DM}	1.0000					
M1	0.8726	1.0000				
	0.0000					
TB	-0.5463	-0.5675	1.0000			
	0.0000	0.0000				
IR	-0.6405	-0.7525	0.6384	1.0000		
	0.0000	0.0000	0.0000			
ER	0.7042	0.8491	-0.5934	-0.7460	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SE^{EM}	0.9196	0.8835	-0.4232	-0.5279	0.6199	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	
Panel 2-Mexico (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.7361	1.0000				
	0.0000					
TB	-0.2164	-0.3891	1.0000			
	0.0691	0.0023				
IR	-0.8395	-0.9026	0.2823	1.0000		
	0.0000	0.0000	0.0123			
ER	0.2895	0.7501	-0.4383	-0.5683	1.0000	
	0.0101	0.0000	0.0008	0.0000		
SE^{EM}	0.7301	0.8503	-0.2536	-0.7664	0.3904	1.0000
	0.0000	0.0000	0.0353	0.0000	0.0041	
Panel 1-South Korea (Pre-Crisis); 120 Obs						
SE^{DM}	1.0000					
M1	0.5779	1.0000				
	0.0000					
TB	-0.1055	-0.2252	1.0000			
	0.2569	0.0186				
IR	-0.1950	-0.7267	0.3277	1.0000		
	0.0398	0.0000	0.0026			
ER	0.0330	-0.0257	0.5070	0.3934	1.0000	
	0.7201	0.7801	0.0000	0.0000		
SE^{EM}	0.8864	0.6465	-0.1180	-0.3194	0.0473	1.0000
	0.0000	0.0000	0.2055	0.0013	0.6080	
Panel 2-South Korea (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.7337	1.0000				
	0.0000					
TB	0.3961	0.6371	1.0000			
	0.0003	0.0000				
IR	-0.5730	-0.8251	-0.6163	1.0000		
	0.0000	0.0000	0.0000			
ER	-0.7544	-0.9212	-0.6128	0.8776	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SE^{EM}	0.7366	0.5313	0.1501	-0.1915	-0.3827	1.0000
	0.0000	0.0000	0.1897	0.1052	0.0059	

The figures under the correlation value represent the significance level. For correlation analysis only a focus on the "very strong" correlations at a value of 0.80-1.00 with significance levels of 0.001 are relevant. Each panel reports the correlation between the developed country equity market index, and the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate and equity market index.

Table A2.3.12: Correlation Matrix-New Zealand and China, South Korea, Tailand

	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel 1-China (Pre-Crisis); 29 Obs						
SE^{DM}	1.0000					
M1	0.7500	1.0000				
	0.0000					
TB	0.0587	0.1143	1.0000			
	0.7624	0.5548				
IR	0.6104	0.8938	0.0620	1.0000		
	0.0004	0.0000	0.7493			
ER	0.4242	0.3645	0.2525	0.2188	1.0000	
	0.0218	0.0519	0.1864	0.2541		
SE^{EM}	0.7500	0.9532	0.0770	0.8356	0.4609	1.0000
	0.0000	0.0000	0.6913	0.0000	0.0119	
Panel 2-China (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.8951	1.0000				
	0.0000					
TB	0.5744	0.5012	1.0000			
	0.0000	0.0000				
IR	0.1441	0.3800	-0.1840	1.0000		
	0.2083	0.0006	0.1188			
ER	-0.4103	-0.3066	-0.5443	0.3750	1.0000	
	0.0014	0.0126	0.0001	0.0007		
SE^{EM}	0.2633	0.0960	0.5018	-0.4648	-0.6190	1.0000
	0.0198	0.4030	0.0000	0.0004	0.0000	
Panel 1-South Korea (Pre-Crisis); 120 Obs						
SE^{DM}	1.0000					
M1	0.7345	1.0000				
	0.0000					
TB	0.0640	-0.2252	1.0000			
	0.4871	0.0186				
IR	-0.3237	-0.7267	0.3277	1.0000		
	0.0011	0.0000	0.0003			
ER	0.3828	0.2048	0.5315	0.0885	1.0000	
	0.0000	0.0248	0.0000	0.3365		
SE^{EM}	0.8734	0.6465	-0.1180	-0.3194	0.1162	1.0000
	0.0000	0.0000	0.2055	0.0013	0.2062	
Panel 2-South Korea (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.4474	1.0000				
	0.0000					
TB	0.2882	0.7006	1.0000			
	0.0001	0.0000				
IR	-0.0598	-0.8318	-0.6846	1.0000		
	0.4298	0.0000	0.0000			
ER	0.0270	0.6433	0.4099	-0.6977	1.0000	
	0.7208	0.0000	0.0000	0.0000		
SE^{EM}	0.3795	0.7774	0.4030	-0.5828	0.7247	1.0000
	0.0000	0.0000	0.0000	0.0000	0.0000	
Panel 1-Thailand (Pre-Crisis); 125 Obs						
SE^{DM}	1.0000					
M1	0.8438	1.0000				
	0.0000					
TB	-0.1479	-0.2913	1.0000			
	0.1073	0.0024				
IR	-0.6793	-0.8804	0.3946	1.0000		
	0.0000	0.0000	0.0000			
ER	0.7099	0.7438	-0.2170	-0.7070	1.0000	
	0.0000	0.0000	0.0202	0.0000		
SE^{EM}	0.9118	0.8393	-0.1863	-0.6628	0.7920	1.0000
	0.0000	0.0000	0.0440	0.0000	0.0000	
Panel 2-Thailand (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.8618	1.0000				
	0.0000					
TB	0.0802	-0.1716	1.0000			
	0.4849	0.1444				
IR	0.7151	0.5163	0.0098	1.0000		
	0.0000	0.0000	0.9321			
ER	0.3067	0.4446	-0.2045	0.2508	1.0000	
	0.0063	0.0000	0.0848	0.0268		
SE^{EM}	0.8180	0.9125	-0.2662	0.5317	0.4525	1.0000
	0.0000	0.0000	0.0278	0.0000	0.0000	

The figures under the correlation value represent the significance level. For correlation analysis only a focus on the "very strong" correlations at a value of 0.80-1.00 with significance levels of 0.001 are relevant. Each panel reports the correlation between the developed country equity market index, and the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate and equity market index.

Table A2.3.13: Correlation Matrix-Israel and China

	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel 1-China (Pre-Crisis); 29 Obs						
SE^{DM}	1.0000					
M1	0.8660	1.0000				
	0.0000					
TB	0.7810	0.7880	1.0000			
	0.0000	0.0000				
IR	-0.7357	-0.9127	-0.7824	1.0000		
	0.0047	0.0016	0.0035			
ER	0.5064	0.6413	0.6441	-0.7908	1.0000	
	0.0051	0.0002	0.0002	0.0033		
SE^{EM}	0.8810	0.9532	0.7602	-0.8715	0.5783	1.0000
	0.0000	0.0000	0.0000	0.0020	0.0010	
Panel 2-China (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.6520	1.0000				
	0.0000					
TB	0.5326	0.6360	1.0000			
	0.0000	0.0000				
IR	0.0305	0.0509	0.2653	1.0000		
	0.7912	0.6582	0.0189			
ER	-0.2245	-0.5906	-0.4260	-0.6435	1.0000	
	0.0600	0.0000	0.0010	0.0000		
SE^{EM}	0.6022	0.0960	0.3188	0.3653	-0.1503	1.0000
	0.0000	0.4030	0.0044	0.0010	0.1990	

The figures under the correlation value represent the significance level. For correlation analysis only a focus on the "very strong" correlations at a value of 0.80-1.00 with significance levels of 0.001 are relevant. Each panel reports the correlation between the developed country equity market index, and the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate and equity market index.

Table A2.3.14: Correlation Matrix-Japan and Indonesia, Thailand, South Korea

	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel 1-Indonesia (Pre-Crisis); 123 Obs						
SE^{DM}	1.0000					
M1	-0.0161	1.0000				
	0.8597					
TB	0.2681	0.7119	1.0000			
	0.0027	0.0000				
IR	0.1819	-0.6178	-0.4376	1.0000		
	0.0440	0.0000	0.0000			
ER	-0.2771	0.3825	0.2429	-0.2452	1.0000	
	0.0040	0.0000	0.0068	0.0099		
SE^{EM}	0.3384	0.9040	0.6945	-0.4387	0.1676	1.0000
	0.0001	0.0000	0.0000	0.0000	0.0639	
Panel 2-Indonesia (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.8136	1.0000				
	0.0000					
TB	-0.2985	-0.5574	1.0000			
	0.0148	0.0001				
IR	0.6582	0.3435	0.0597	1.0000		
	0.0000	0.0021	0.6038			
ER	-0.0243	0.3545	-0.2091	0.0154	1.0000	
	0.8326	0.0015	0.0784	0.8932		
SE^{EM}	0.6528	0.8840	-0.5312	0.1706	0.2426	1.0000
	0.0000	0.0000	0.0001	0.1352	0.0324	
Panel 1-Thailand (Pre-Crisis); 125 Obs						
SE^{DM}	1.0000					
M1	0.8136	1.0000				
	0.0000					
TB	-0.2985	-0.5574	1.0000			
	0.0148	0.0001				
IR	0.6582	0.3435	0.0597	1.0000		
	0.0000	0.0021	0.6038			
ER	-0.0243	0.3545	-0.2091	0.0154	1.0000	
	0.8326	0.0015	0.0784	0.8932		
SE^{EM}	0.6528	0.8840	-0.5312	0.1706	0.2426	1.0000
	0.0000	0.0000	0.0001	0.1352	0.0324	
Panel 2-Thailand (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.7316	1.0000				
	0.0000					
TB	0.2368	-0.1716	1.0000			
	0.0368	0.1444				
IR	0.6533	0.5163	0.0100	1.0000		
	0.0000	0.0000	0.9310			
ER	-0.9379	-0.6560	-0.1731	-0.6520	1.0000	
	0.0000	0.0000	0.1412	0.0000		
SE^{EM}	0.6460	0.9125	-0.2662	0.5316	-0.6599	1.0000
	0.0000	0.0000	0.0278	0.0000	0.0000	
Panel 1-South Korea (Pre-Crisis); 120 Obs						
SE^{DM}	1.0000					
M1	-0.3463	1.0000				
	0.0005					
TB	0.1178	-0.2252	1.0000			
	0.2001	0.0186				
IR	0.4481	-0.7267	0.3277	1.0000		
	0.0000	0.0000	0.0026			
ER	-0.2561	-0.5605	0.1352	0.2213	1.0000	
	0.0081	0.0000	0.1490	0.0151		
SE^{EM}	0.3790	0.6465	-0.1180	-0.3194	-0.7665	1.0000
	0.0000	0.0000	0.2055	0.0013	0.0000	
Panel 2-South Korea (Post-Crisis); 78 Obs						
SE^{DM}	1.0000					
M1	0.9251	1.0000				
	0.0000					
TB	0.6373	0.6371	1.0000			
	0.0000	0.0000				
IR	-0.9099	-0.8251	-0.6163	1.0000		
	0.0000	0.0000	0.0000			
ER	-0.9561	-0.8405	-0.5743	0.8954	1.0000	
	0.0000	0.0000	0.0000	0.0000		
SE^{EM}	0.3995	0.5313	0.1501	-0.1915	-0.3627	1.0000
	0.0003	0.0000	0.1897	0.1052	0.0040	

The figures under the correlation value represent the significance level. For correlation analysis only a focus on the "very strong" correlations at a value of 0.80-1.00 with significance levels of 0.001 are relevant. Each panel reports the correlation between the developed country equity market index, and the developing country M1 money supply, trade balance, interest rate, bi-lateral exchange rate and equity market index.

Table A2.3.15: Summary of Correlation Analysis for Pre-Crisis and Post-Crisis Periods

	Pre-Crsisis						Post-Crisis					
Developing	SE^{DM}	M1	TB	IR	ER	SE^{EM}	SE^{DM}	M1	TB	IR	ER	SE^{EM}
Panel A-Australia												
South Korea	0.9379***							0.5313***				
Thailand		0.8420***						0.9080***				
Indonesia	0.9584***							0.8755***				
Panel B- US												
China					-0.9611**					-0.4648***		
Mexico		0.8853***					0.8630***					
Brazil		0.9086***									-0.7320***	
Panel C-Canada												
China		0.9532***								-0.4648***		
Mexico		0.9196***						0.8503***				
South Korea	0.8864***						0.7366***					
Panel D-New Zealand												
China		0.9532***									-0.619***	
South Korea	0.8734***							0.7774***				
Thailand	0.9118***							0.9125***				
Panel E-Israel												
China		0.9532***					0.6022***					
Panel F-Japan												
Indonesia		0.9040***						0.8840***				
Thailand		0.8840***						0.9125***				
South Korea					-0.7665***			0.5313***				

This table shows the highest correlation values on the domestic stock index for each developed country during the pre-crisis and post-crisis periods.

Table A2.4.1: AIC Vector Autoregressive Model Structural Lags (Pre- and Post-Crisis)

Obs	Lags Pre-Crisis	Obs	Lags Post-Crisis	Obs	Lags Pre-Crisis	Obs	Lags Post-Crisis	Obs	Lags Pre-Crisis	Obs	Lags Post-Crisis
Panel-A (Australia and South Korea, Thailand, Indonesia)											
	South Korea				Thailand				Indonsia		
120	2	78	2	125	1	78	2	123	3	78	3
Panel-B (US and China, Mexico, Brazil)											
	China				Mexico				Brazil		
29	3	78	3	156	5	78	1	107	2	78	2
Panel-C (Canada and China, Mexico, South Korea)											
	China				Mexico				South Korea		
29	3	78	3	156	5	78	1	120	5	78	2
Panel-D (New Zealand and China, South Korea, Thailand)											
	China				South Korea				Thailaind		
29	3	78	3	120	5	78	2	125	1	78	2
Panel-E (Israel and China)											
	China										
29	3	78	3								
Panel-F (Japan and Indonesia, Thailand, South Korea)											
	Indonesia				Thailand				South Korea		
123	3	78	4	125	1	78	2	120	4	78	2

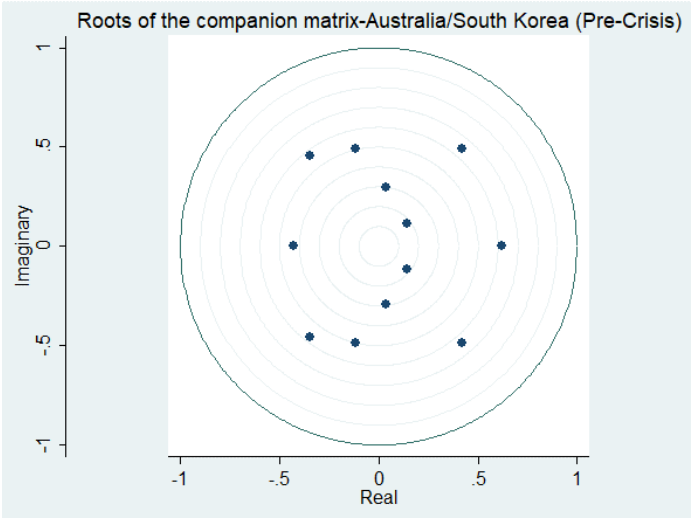
This table reflects the optimial number of time series lag length recommendations for each developed country testing model, with each of its trading partners during the pre- and post-crisis periods. The Akaike Information Criterion (AIC) function is used in this analysis.

Table A2.4.2: Model Stability Test-Australia/South Korea (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.4191292 + .4889638i	.644015
.4191292 - .4889638i	.644015
.6195224	.619522
-.34415 + .4561203i	.571389
-.34415 - .4561203i	.571389
-.1171727 + .4893201i	.503154
-.1171727 - .4893201i	.503154
-.4287127	.428713
.03603829 + .29421i	.296409
.03603829 - .29421i	.296409
.1454218 + .1137385i	.184618
.1454218 - .1137385i	.184618

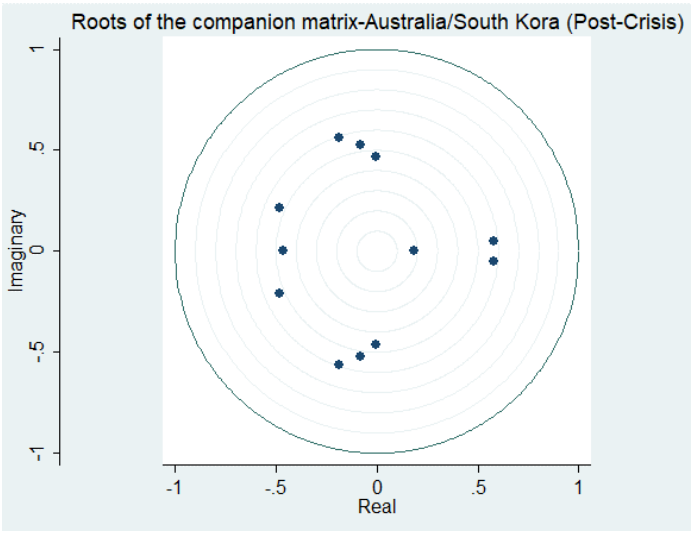
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.188613 + .5640236i	.594725
-.188613 - .5640236i	.594725
.581674 + .04920347i	.583751
.581674 - .04920347i	.583751
-.08381002 + .5243852i	.53104
-.08381002 - .5243852i	.53104
-.4817819 + .2119792i	.526354
-.4817819 - .2119792i	.526354
-.4667278	.466728
-.00375412 + .4655397i	.465555
-.00375412 - .4655397i	.465555
.1835093	.183509

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



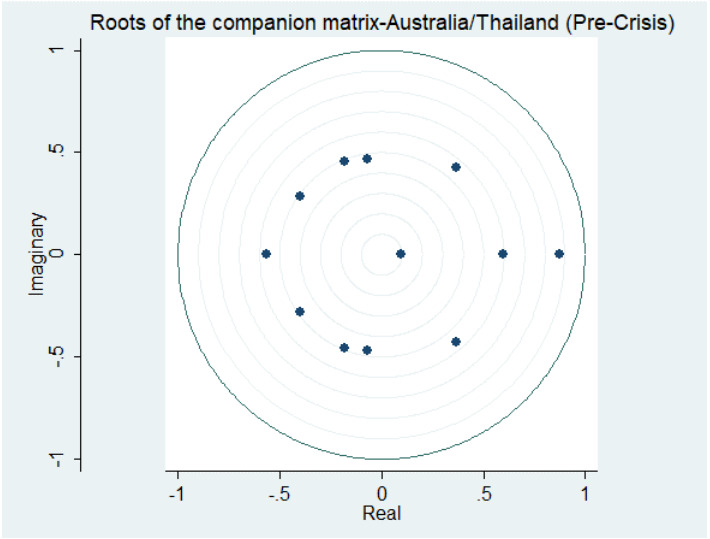
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Australia/South Korea indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.3: Model Stability Test-Australia/Thailand (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.8723136	.872314
.5956251	.595625
.3639378 + .4288068i	.562429
.3639378 - .4288068i	.562429
-.5611317	.561132
-.1795739 + .4562604i	.490327
-.1795739 - .4562604i	.490327
-.3988403 + .2830712i	.489084
-.3988403 - .2830712i	.489084
-.07166349 + .4681846i	.473638
-.07166349 - .4681846i	.473638
.09498262	.094983

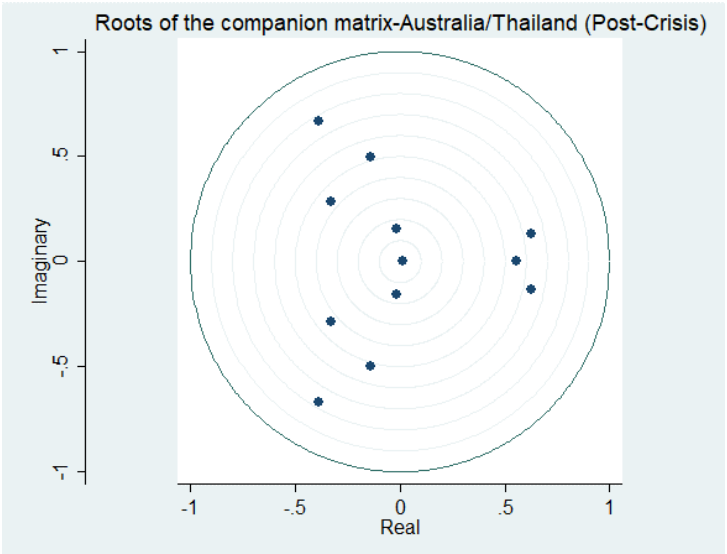
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.386519 + .6692063i	.772809
-.386519 - .6692063i	.772809
.6269546 + .1316608i	.64063
.6269546 - .1316608i	.64063
.5571435	.557144
-.1372768 + .4966986i	.51532
-.1372768 - .4966986i	.51532
-.3309933 + .2849004i	.43672
-.3309933 - .2849004i	.43672
-.01464225 + .1567613i	.157444
-.01464225 - .1567613i	.157444
.01249305	.012493

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



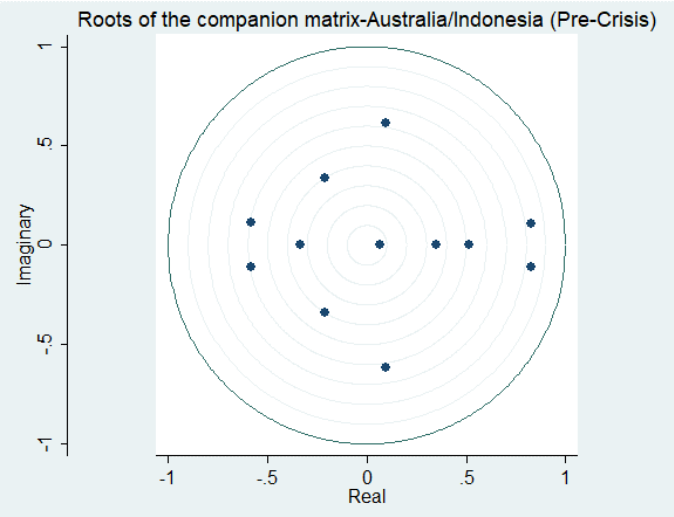
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Australia/Thailand indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.4: Model Stability Test-Australia/Indonesia (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.8261842 + .1106518i	.833561
.8261842 - .1106518i	.833561
.09674178 + .6159513i	.623502
.09674178 - .6159513i	.623502
-.583562 + .1112109i	.594064
-.583562 - .1112109i	.594064
.5131947	.513195
-.2110429 + .3402631i	.400397
-.2110429 - .3402631i	.400397
.3472867	.347287
-.3317171	.331717
.06692451	.066925

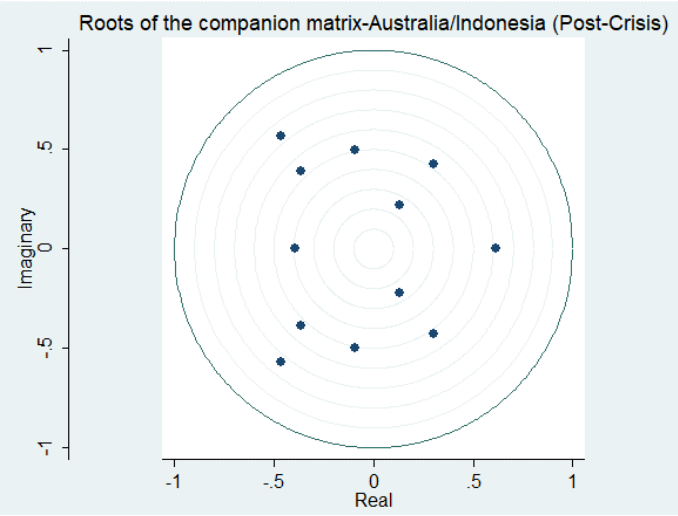
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.4613519 + .5695695i	.732977
-.4613519 - .5695695i	.732977
.613962	.613962
-.3608979 + .388502i	.530265
-.3608979 - .388502i	.530265
.3012257 + .4256866i	.521484
.3012257 - .4256866i	.521484
-.09537209 + .4963465i	.505426
-.09537209 - .4963465i	.505426
-.3929523	.392952
.1284751 + .2226571i	.257064
.1284751 - .2226571i	.257064

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



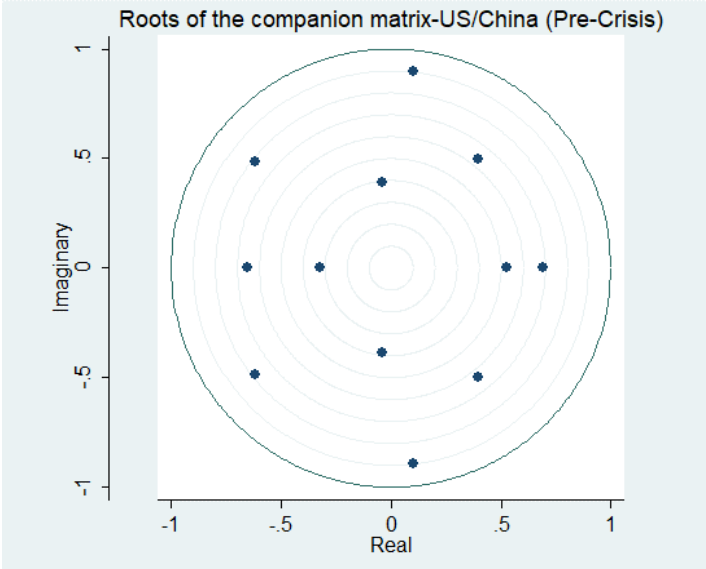
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Australia/Indonesia indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.5: Model Stability Test-US/China (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.1037286 + .8954744i	.901462
.1037286 - .8954744i	.901462
-.6162718 + .4839546i	.783583
-.6162718 - .4839546i	.783583
.6924544	.692454
-.6531412	.653141
.3984794 + .4970843i	.637086
.3984794 - .4970843i	.637086
.5272108	.527211
-.03783821 + .3883456i	.390185
-.03783821 - .3883456i	.390185
-.3228987	.322899

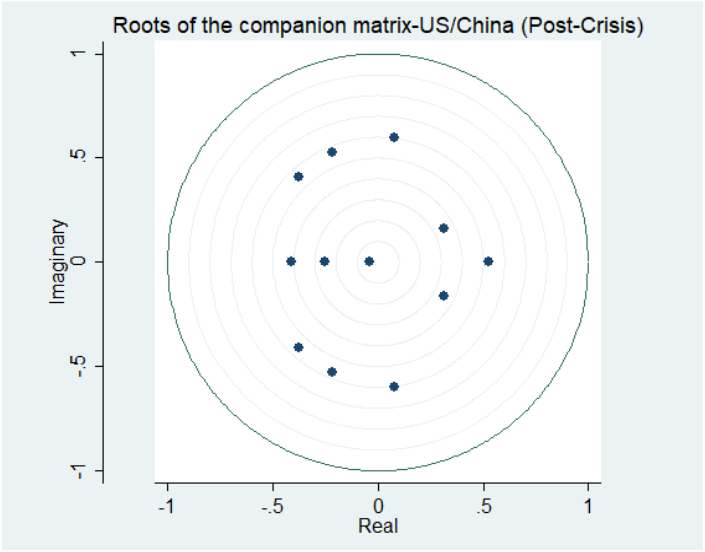
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
.07697809 + .5964275i	.601375
.07697809 - .5964275i	.601375
-.2171214 + .5265533i	.569561
-.2171214 - .5265533i	.569561
-.3752171 + .4089786i	.555024
-.3752171 - .4089786i	.555024
.523191	.523191
-.4083185	.408318
.3117456 + .1614204i	.351058
.3117456 - .1614204i	.351058
-.2498277	.249828
-.04197786	.041978

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



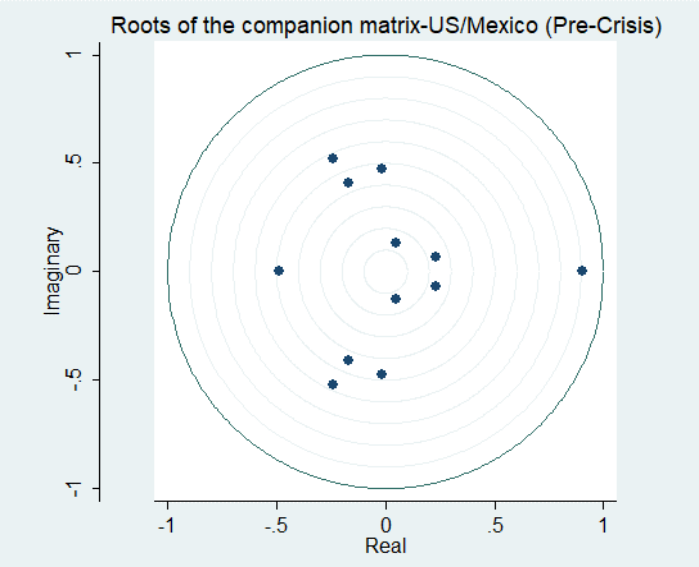
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for US/China indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.6: Model Stability Test-US/Mexico (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.9019084	.901908
-.2373446 + .5206518i	.572198
-.2373446 - .5206518i	.572198
-.4848907	.484891
-.01432494 + .4736442i	.473861
-.01432494 - .4736442i	.473861
-.1668407 + .4094053i	.442096
-.1668407 - .4094053i	.442096
.2330972 + .06604142i	.242272
.2330972 - .06604142i	.242272
.04899413 + .1293767i	.138343
.04899413 - .1293767i	.138343

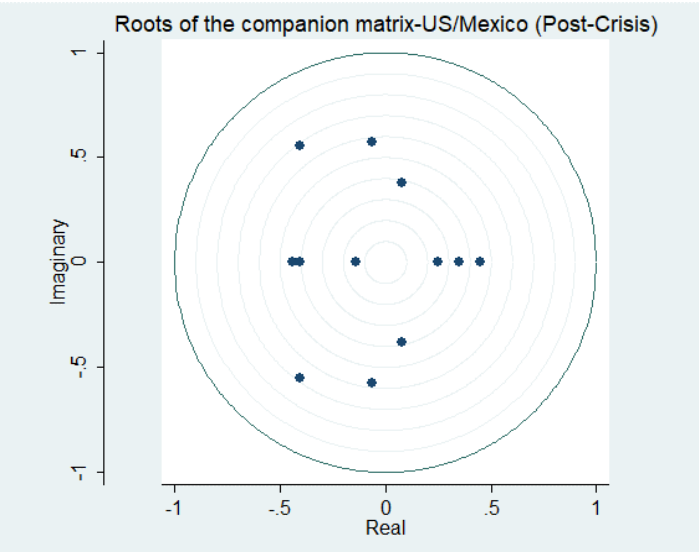
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.4032118 + .5544452i	.685558
-.4032118 - .5544452i	.685558
-.06433912 + .5723461i	.575951
-.06433912 - .5723461i	.575951
.4508023	.450802
-.4394964	.439496
-.4036085	.403609
.07979616 + .3815543i	.389809
.07979616 - .3815543i	.389809
.3513504	.35135
.2486591	.248659
-.1414426	.141443

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



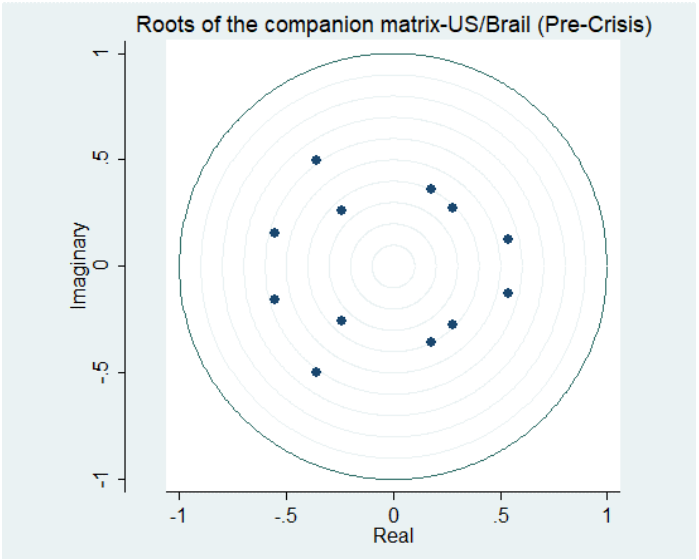
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for US/Mexico indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.7: Model Stability Test-US/Brazil (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
-.357308 + .4975292i	.612539
-.357308 - .4975292i	.612539
-.5540796 + .158031i	.576175
-.5540796 - .158031i	.576175
.536872 + .125354i	.551312
.536872 - .125354i	.551312
.1807066 + .3598869i	.402708
.1807066 - .3598869i	.402708
.2794835 + .2720943i	.390059
.2794835 - .2720943i	.390059
-.2391352 + .2582021i	.351929
-.2391352 - .2582021i	.351929

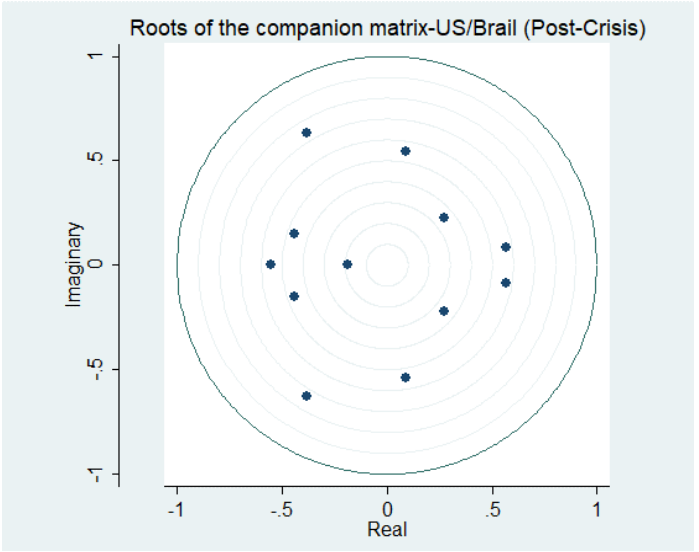
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.3786297 + .6296297i	.734707
-.3786297 - .6296297i	.734707
.566288 + .08553426i	.572711
.566288 - .08553426i	.572711
-.5542305	.55423
.0891364 + .5409457i	.54824
.0891364 - .5409457i	.54824
-.4383262 + .1508467i	.463556
-.4383262 - .1508467i	.463556
.2714281 + .2246146i	.352314
.2714281 - .2246146i	.352314
-.1847176	.184718

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



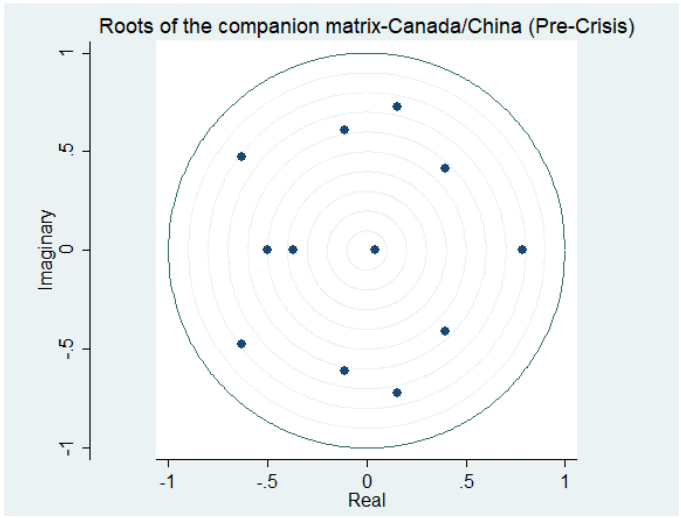
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for US/Brazil indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.8: Model Stability Test-Canada/China (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
-.6264646 + .473207i	.7851
-.6264646 - .473207i	.7851
.7827979	.782798
.1551772 + .7238876i	.740333
.1551772 - .7238876i	.740333
-.1075257 + .6085325i	.617959
-.1075257 - .6085325i	.617959
.398688 + .412943i	.573998
.398688 - .412943i	.573998
-.5006739	.500674
-.3677125	.367712
.03993586	.039936

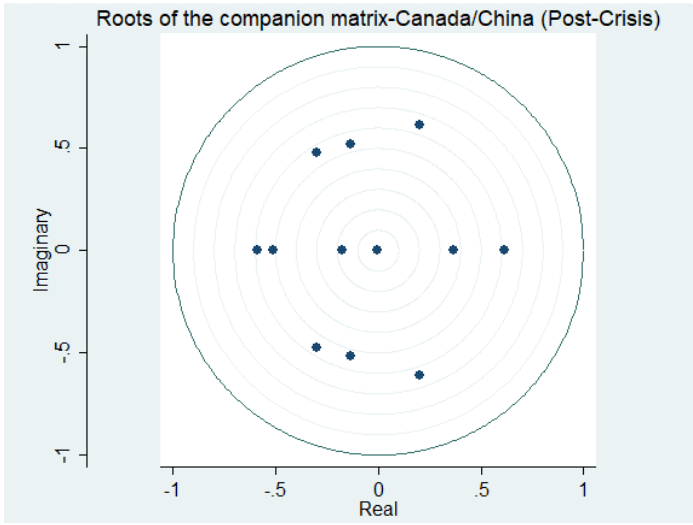
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
.2002596 + .6118988i	.643835
.2002596 - .6118988i	.643835
.6166812	.616681
-.5902414	.590241
-.3007477 + .4777771i	.564553
-.3007477 - .4777771i	.564553
-.1358683 + .517878i	.535404
-.1358683 - .517878i	.535404
-.5087936	.508794
.369537	.369537
-.1762364	.176236
-.00517934	.005179

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



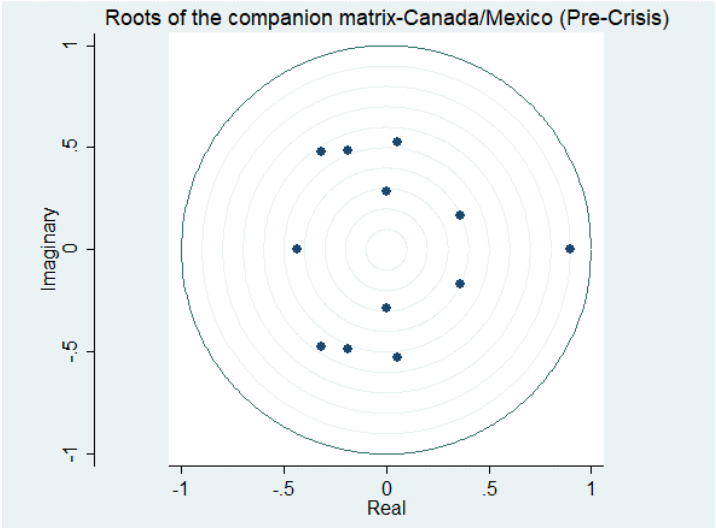
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Canada/China indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.9: Model Stability Test-Canada/Mexico (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.8940752	.894075
-.3165406 + .4771144i	.57257
-.3165406 - .4771144i	.57257
.05423012 + .5289431i	.531716
.05423012 - .5289431i	.531716
-.1877732 + .4845337i	.519646
-.1877732 - .4845337i	.519646
-.4326392	.432639
.3611537 + .1661517i	.39754
.3611537 - .1661517i	.39754
.00443158 + .2852831i	.285318
.00443158 - .2852831i	.285318

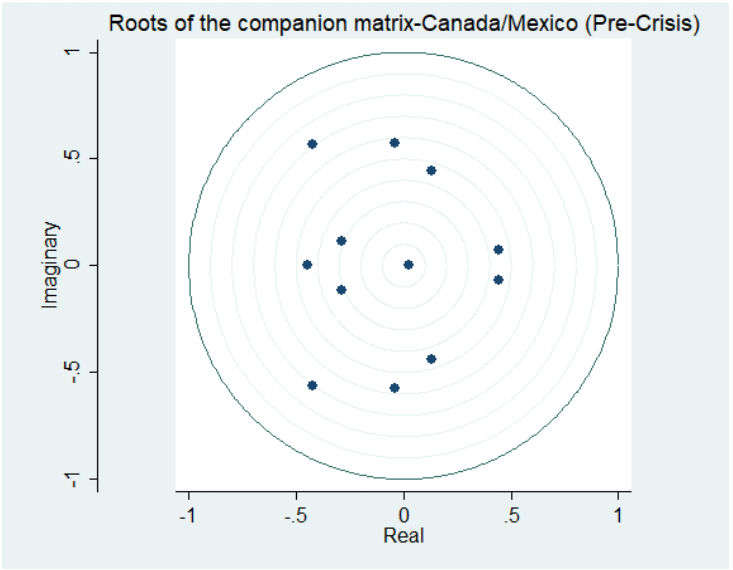
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.4239434 + .564683i	.706113
-.4239434 - .564683i	.706113
-.03906609 + .5753514i	.576676
-.03906609 - .5753514i	.576676
.132453 + .4417158i	.461147
.132453 - .4417158i	.461147
.4455789 + .07045543i	.451115
.4455789 - .07045543i	.451115
-.4470621	.447062
-.290093 + .1163825i	.312568
-.290093 - .1163825i	.312568
.02647929	.026479

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



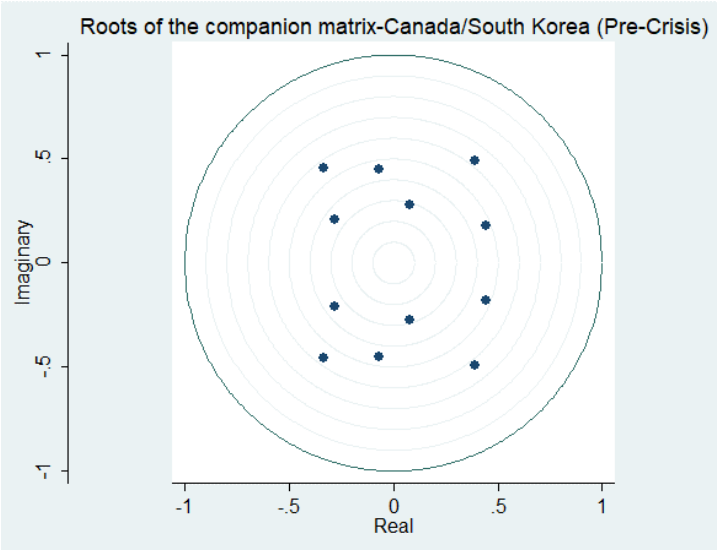
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Canada/Mexico indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.10: Model Stability Test-Canada/South Korea (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.3923643 + .4907397i	.628311
.3923643 - .4907397i	.628311
-.3370421 + .4570668i	.567897
-.3370421 - .4570668i	.567897
.443425 + .178575i	.478032
.443425 - .178575i	.478032
-.06800418 + .4504187i	.455523
-.06800418 - .4504187i	.455523
-.2828513 + .2076564i	.350893
-.2828513 - .2076564i	.350893
.07690392 + .2766824i	.287171
.07690392 - .2766824i	.287171

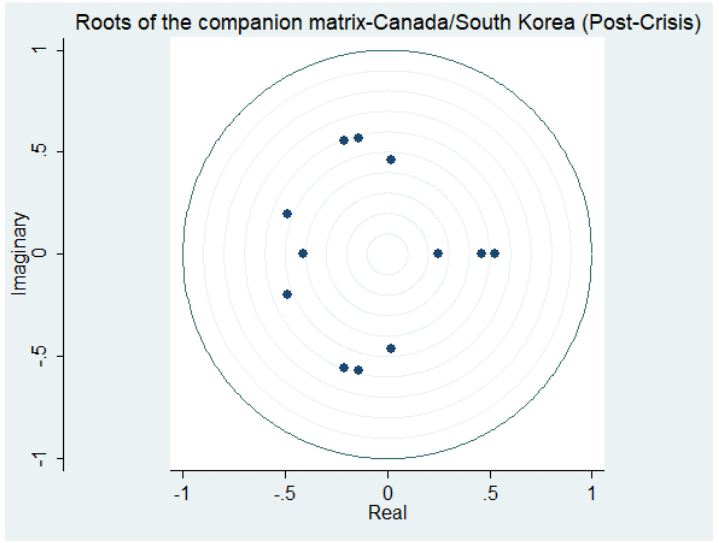
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.2096254 + .5546796i	.592969
-.2096254 - .5546796i	.592969
-.1402128 + .5682516i	.585294
-.1402128 - .5682516i	.585294
-.4858059 + .1991788i	.525052
-.4858059 - .1991788i	.525052
.5244327	.524433
.01994237 + .4626826i	.463112
.01994237 - .4626826i	.463112
.4588	.4588
-.4103552	.410355
.2466321	.246632

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



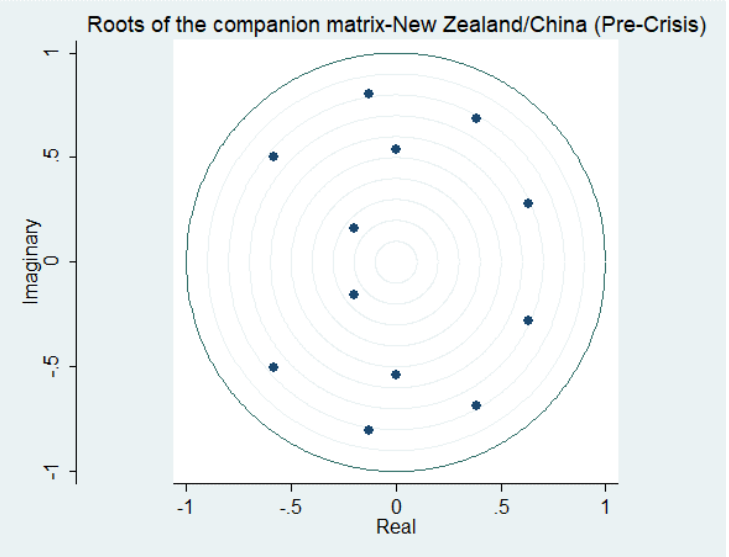
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Canada/South Korea indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.11: Model Stability Test-New Zealand/China (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
-.1289002 + .8053221i	.815573
-.1289002 - .8053221i	.815573
.38365 + .6842055i	.784426
.38365 - .6842055i	.784426
-.584564 + .5034871i	.771501
-.584564 - .5034871i	.771501
.6323797 + .2778901i	.690744
.6323797 - .2778901i	.690744
.00362191 + .5379164i	.537929
.00362191 - .5379164i	.537929
-.1966902 + .1583136i	.252488
-.1966902 - .1583136i	.252488

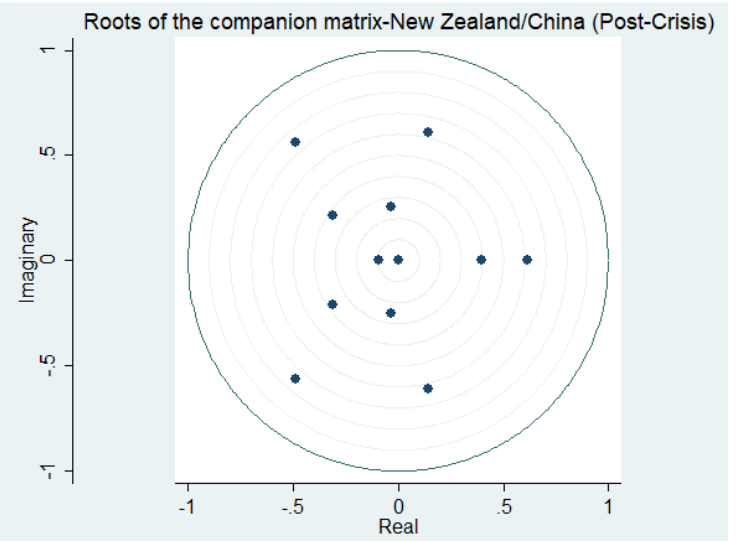
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.4863953 + .562781i	.743843
-.4863953 - .562781i	.743843
.144124 + .6095282i	.626336
.144124 - .6095282i	.626336
.6143435	.614343
.3972339	.397234
-.3106331 + .2113327i	.375705
-.3106331 - .2113327i	.375705
-.03476934 + .2529443i	.255323
-.03476934 - .2529443i	.255323
-.09021846	.090218
.00373656	.003737

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



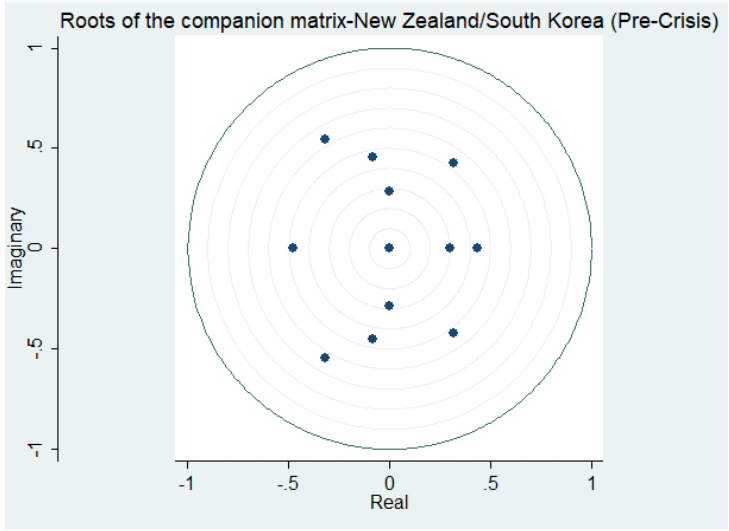
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for New Zealand/China indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.12: Model Stability Test-New Zealand/South Korea (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
-.3214621 + .5466244i	.634142
-.3214621 - .5466244i	.634142
.3179158 + .4235563i	.529595
.3179158 - .4235563i	.529595
-.4767348	.476735
-.08362259 + .4538283i	.461468
-.08362259 - .4538283i	.461468
.4344923	.434492
.2994235	.299424
.00008306 + .2851748i	.285175
.00008306 - .2851748i	.285175
-.00285507	.002855

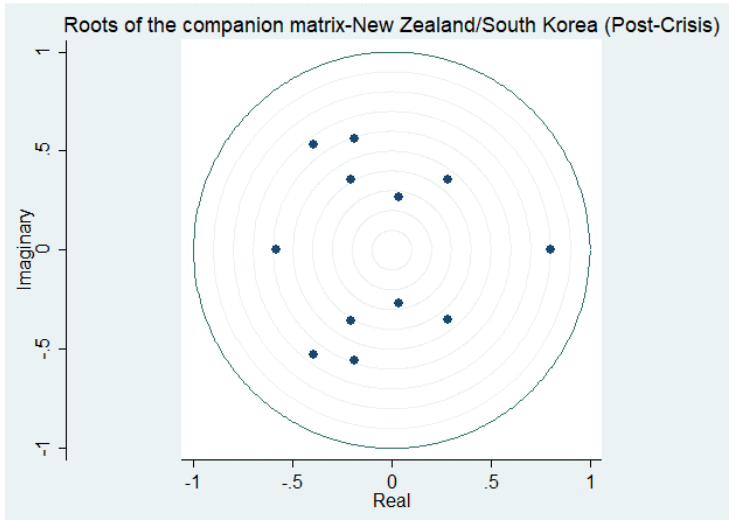
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
.7998381	.799838
-.3946715 + .5306269i	.66131
-.3946715 - .5306269i	.66131
-.1872582 + .5600417i	.590519
-.1872582 - .5600417i	.590519
-.5831459	.583146
.2853428 + .3541691i	.454815
.2853428 - .3541691i	.454815
-.2040128 + .3551251i	.409555
-.2040128 - .3551251i	.409555
.03884956 + .2673038i	.270112
.03884956 - .2673038i	.270112

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



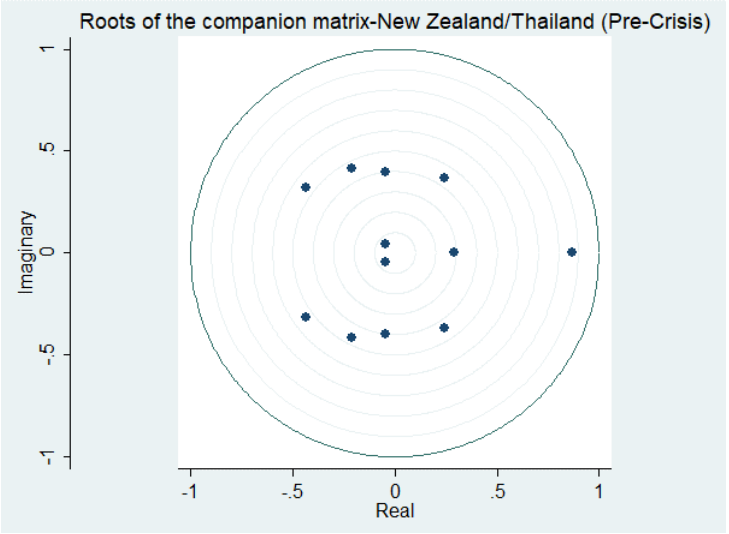
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for New Zealand/South Korea indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.13: Model Stability Test-New Zealand/Thailand (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.8646923	.864692
-.4349727 + .3185833i	.539163
-.4349727 - .3185833i	.539163
-.2108547 + .4161237i	.466496
-.2108547 - .4161237i	.466496
.2449328 + .3690079i	.442898
.2449328 - .3690079i	.442898
-.04483869 + .3974154i	.399937
-.04483869 - .3974154i	.399937
.288056	.288056
-.04792287 + .04407158i	.065107
-.04792287 - .04407158i	.065107

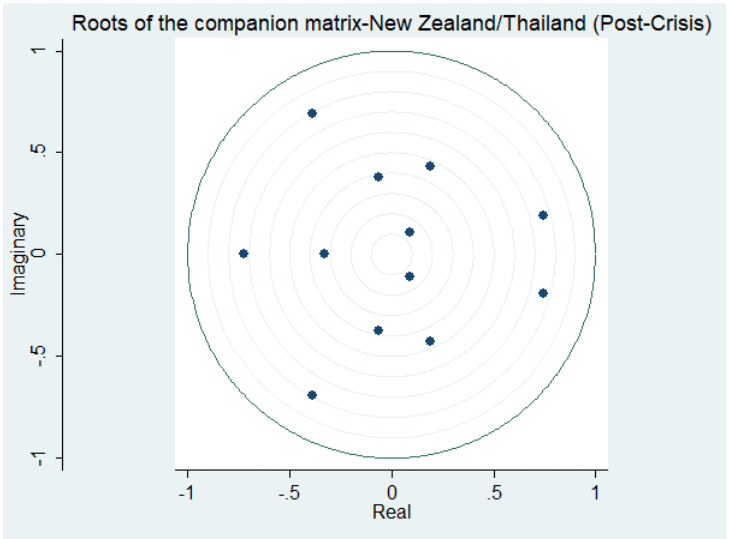
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
-.3853693 + .6915188i	.791649
-.3853693 - .6915188i	.791649
.7436747 + .1904791i	.767681
.7436747 - .1904791i	.767681
-.7231595	.723159
.1875736 + .429684i	.468841
.1875736 - .429684i	.468841
-.06111804 + .3776826i	.382596
-.06111804 - .3776826i	.382596
-.3277529	.327753
.09175307 + .1079273i	.141658
.09175307 - .1079273i	.141658

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



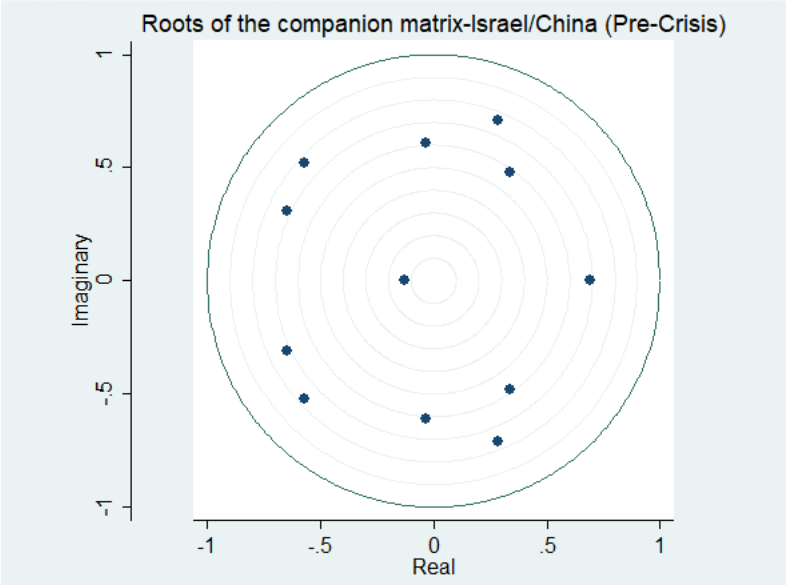
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for New Zealand/Thailand indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.14: Model Stability Test-New Israel/China (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
-.5723891 + .5199984i	.773322
-.5723891 - .5199984i	.773322
.2861449 + .7092574i	.764804
.2861449 - .7092574i	.764804
-.6461785 + .3075562i	.715638
-.6461785 - .3075562i	.715638
.6914723	.691472
-.03517461 + .6091291i	.610144
-.03517461 - .6091291i	.610144
.3382998 + .4818267i	.588731
.3382998 - .4818267i	.588731
-.1276601	.12766

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



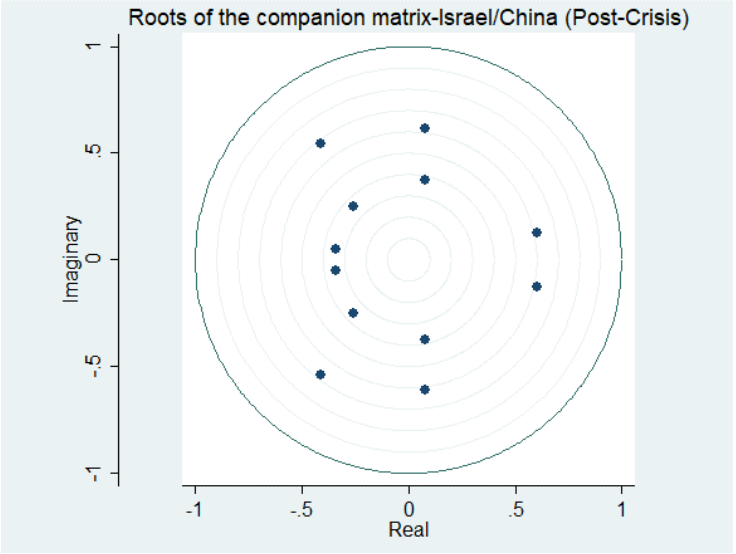
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Israel/China indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.15: Model Stability Test-New Japan/Indonesia (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
-.4131384 + .5416999i	.681265
-.4131384 - .5416999i	.681265
.07865775 + .6124699i	.6175
.07865775 - .6124699i	.6175
.6021365 + .1271603i	.615417
.6021365 - .1271603i	.615417
.07790443 + .3748938i	.382903
.07790443 - .3748938i	.382903
-.2599767 + .2490884i	.360046
-.2599767 - .2490884i	.360046
-.3426171 + .05082271i	.346366
-.3426171 - .05082271i	.346366

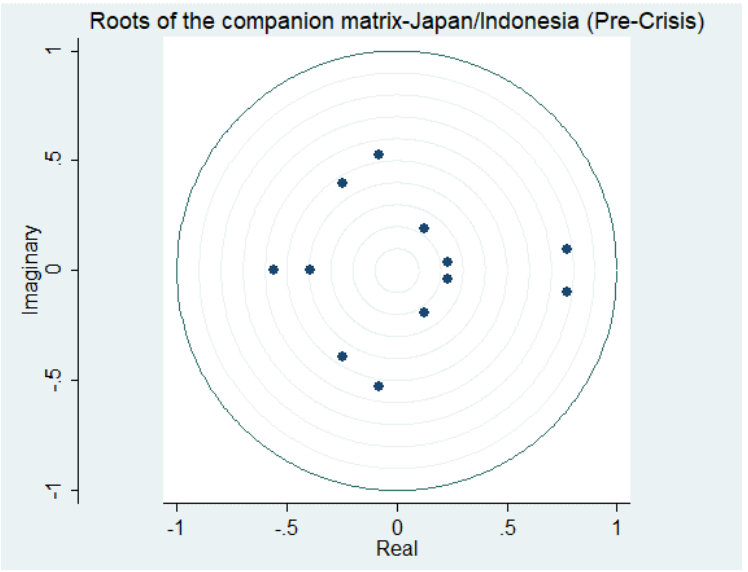
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
.7728993 + .09558726i	.778788
.7728993 - .09558726i	.778788
-.5581511	.558151
-.07960918 + .5254848i	.531481
-.07960918 - .5254848i	.531481
-.246818 + .3938393i	.464789
-.246818 - .3938393i	.464789
-.3950749	.395075
.2299246 + .03783356i	.233016
.2299246 - .03783356i	.233016
.1232021 + .1929541i	.228932
.1232021 - .1929541i	.228932

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



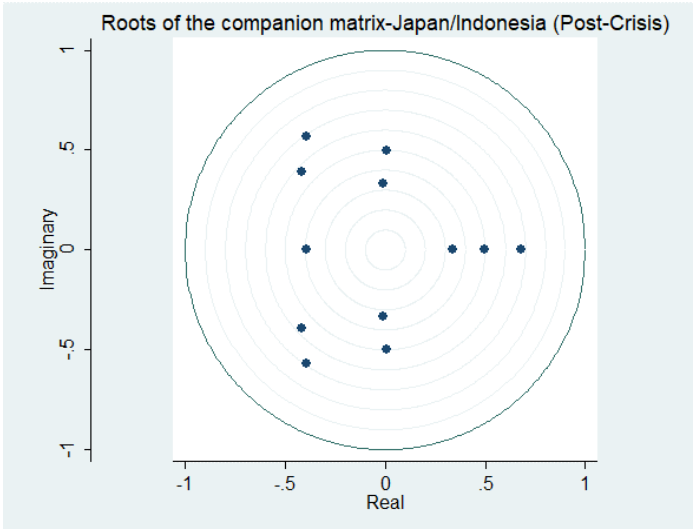
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Japan/Indonesia indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.16: Model Stability Test-New Japan/Thailand (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
-.3909123 + .5700439i	.691204
-.3909123 - .5700439i	.691204
.6775791	.677579
-.4140712 + .3910294i	.569525
-.4140712 - .3910294i	.569525
.498229	.498229
.00683834 + .4976424i	.497689
.00683834 - .4976424i	.497689
-.3908292	.390829
.3393262	.339326
-.01208708 + .3318318i	.332052
-.01208708 - .3318318i	.332052

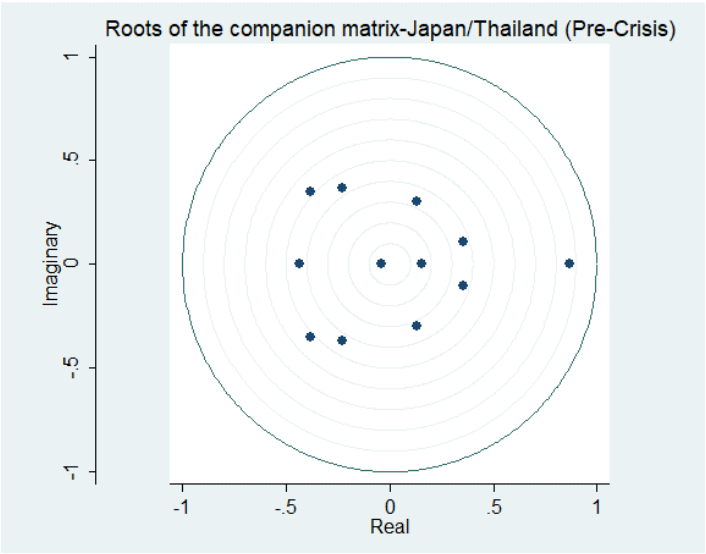
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
.870156	.870156
-.3794359 + .3517862i	.517422
-.3794359 - .3517862i	.517422
-.4334081	.433408
-.2289698 + .3671689i	.432713
-.2289698 - .3671689i	.432713
.3561436 + .1066545i	.371771
.3561436 - .1066545i	.371771
.1327648 + .3004865i	.32851
.1327648 - .3004865i	.32851
.1523707	.152371
-.04065656	.040657

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



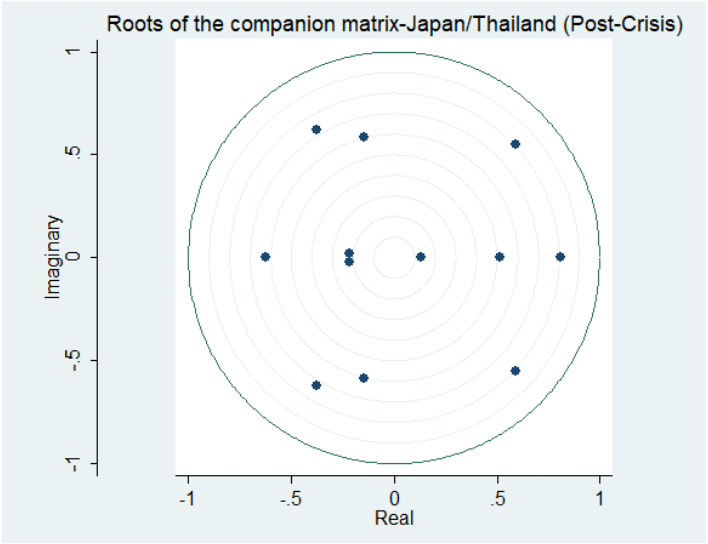
This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Japan/Thailand indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.17: Model Stability Test-New Japan/South Korea (Pre and Post-Crisis)

Eigenvalue stability condition

Eigenvalue	Modulus
.8104725	.810472
.5878195 + .5497732i	.804849
.5878195 - .5497732i	.804849
-.3762673 + .6199104i	.725166
-.3762673 - .6199104i	.725166
-.6244666	.624467
-.145109 + .5863488i	.604038
-.145109 - .5863488i	.604038
.5126226	.512623
-.218188 + .01994298i	.219098
-.218188 - .01994298i	.219098
.1323976	.132398

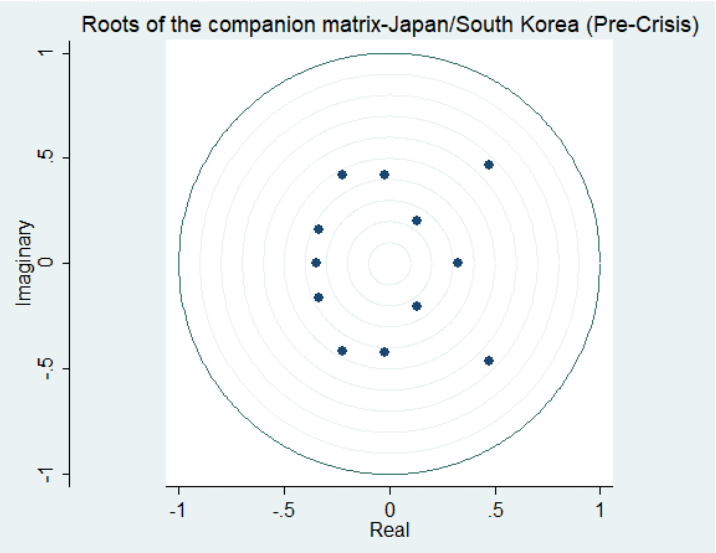
All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



Eigenvalue stability condition

Eigenvalue	Modulus
.4706713 + .4642443i	.661101
.4706713 - .4642443i	.661101
-.2228936 + .4177941i	.473533
-.2228936 - .4177941i	.473533
-.02124324 + .4222041i	.422738
-.02124324 - .4222041i	.422738
-.3315966 + .1616564i	.368903
-.3315966 - .1616564i	.368903
-.3473147	.347315
.3234255	.323426
.1291189 + .2034871i	.240995
.1291189 - .2034871i	.240995

All the eigenvalues lie inside the unit circle.
VAR satisfies stability condition.



This table and graph show the Eigenvalues associated with each bi-country test. The pre- and post-crisis results for Japan/South Korea indicate that the stability conditions for VAR testing is satisfied.

Table A2.4.18: Variance Decomposition Summary (16 Tests Per Period)

Indicator	Primay Indicator Qty	Average Effect	% of Countries
Panel A-Pre Crisis			
RSR^{DM}	6	24.72	37.50
ΔM1	2	5.39	12.50
ΔTB	1	23.51	6.25
ΔIR	3	20.33	18.75
ΔER	4	23.64	25.00
Panel B-Post Crisis			
RSR^{DM}	10	26.33	62.50
ΔM1	1	8.44	6.25
ΔTB	0	0.00	0.00
ΔIR	3	14.57	18.75
ΔER	2	9.20	12.50

This table shows the number of time a variable is the primary indicator affecting the developing country real stock returns. The average effect represents the average influence of the variable to explain the domestic returns. The percentage of countries indicates the percentage of the tests where the variable is the primary indicator.

Table A2.4.19: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Pre- and Post- Crisis; AUSO, AUTH, AUID; Period 10 Results

Variables	AUSO MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB	AUTH MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB	AUID MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB
Panel A-Pre-Crisis Exchange Rate Regime												
RSR^{DM}	20.0304	19.8396	20.4916	20.2586	0.5711	0.5959	0.5912	0.6120	7.0736	7.5560	7.8466	8.0308
ΔM1	0.8835		0.9635		4.8034		4.7151		2.8411		3.1665	
ΔTB	4.6602	4.5313			1.0888	1.4967			3.2649	3.4933		
ΔIR	4.0384	4.2818	4.8955	5.0530	2.6206	2.7348	2.9601	3.0818	29.3044	30.0675	30.9371	32.2622
ΔER	5.7617	5.9106	6.5688	6.6831	1.1270	1.6225	0.7405	1.0360	6.9035	7.1998	6.9043	7.4845
RSR^{EM}	64.6259	65.4367	67.0806	68.0053	89.7891	93.5502	90.9931	95.2702	50.6126	51.6834	51.1455	52.2225
Panel B-Post-Crisis												
RSR^{DM}	36.4430	34.5486	37.7265	35.4217	0.5907	2.0111	3.1845	2.0624	6.2551	3.9012	4.5010	3.2692
ΔM1	2.5484		3.4221		1.1286		1.9181		8.4365		9.5471	
ΔTB	3.7893	3.7421			4.8746	3.4020			3.6263	3.7896		
ΔIR	1.8676	2.4578	1.8619	2.6214	14.1048	4.7023	7.1244	6.2156	3.2012	3.6167	2.6154	2.6061
ΔER	3.8331	3.6194	3.4643	3.4347	8.1285	9.6300	10.8399	10.5991	4.2251	3.7776	3.8497	3.6611
RSR^{EM}	51.5187	55.6322	53.5252	58.5222	71.1730	80.2545	76.9331	81.1229	74.2558	84.9149	79.4868	90.4636

This table shows the robustness test results with the removal of ΔM1, ΔTB, and both ΔM1 & ΔTB in the variance decomposition model for Australia/South Korea, Thailand, Indonesia. The variance decomposition model results as tested in this paper is shown on the first column, followed by the results with the removal of the ΔM1 variable, ΔTB variable, and both variables, on the subsequent columns.

Table A2.4.20: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Pre- and Post- Crisis; USCH, USMX, USBR; Period 10 Results

Variables	USCH MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB	USMX MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB	USBR MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB
Panel A-Pre-Crisis Exchange Rate Regime												
RSR^{DM}	43.4738	49.6509	36.9934	44.4468	17.8903	17.1959	18.6739	18.0361	22.0765	22.3885	22.5719	22.2553
ΔM1	9.6061		10.9336		4.9708		5.7278		1.8906		1.5921	
ΔTB	14.1600	2.3009			12.4590	12.5830			1.7003	1.4599		
ΔIR	17.7024	8.0087	22.8749	8.8099	10.7344	11.2798	12.7632	14.1146	8.2960	8.2807	7.7996	8.0601
ΔER	3.5076	8.6524	3.3754	9.5846	5.3059	4.6691	9.4330	8.5633	5.7229	6.5354	5.4276	5.9135
RSR^{EM}	11.5500	31.3871	25.8227	37.1587	48.6396	54.2723	53.4021	59.2860	60.3137	61.3356	62.6089	63.7711
Panel B-Post-Crisis												
RSR^{DM}	1.7343	1.7532	1.0783	0.9635	40.8414	42.5254	44.2173	43.8849	36.3109	36.2927	35.8130	36.1308
ΔM1	6.2447		6.0565		2.4656		1.7607		1.1763		0.2885	
ΔTB	3.0890	2.8745			3.3477	2.7825			0.6109	0.3461		
ΔIR	1.7604	3.1569	1.0779	4.1454	0.2416	1.0855	1.7246	1.0778	9.8422	9.8742	10.3699	9.9507
ΔER	7.1520	6.6852	7.8054	5.9073	4.5397	0.6412	3.0206	1.0381	3.4763	3.7946	3.5977	3.6263
RSR^{EM}	80.0197	85.5302	83.9819	88.9838	48.5640	52.9654	49.2767	53.9992	48.5834	49.6923	49.9308	50.2923

This table shows the robustness test results with the removal of ΔM1, ΔTB, and both ΔM1 & ΔTB in the variance decomposition model for Us/China, Mexico, Brazil. The variance decomposition model results as tested in this paper is shown on the first column, followed by the results with the removal of the ΔM1 variable, ΔTB variable, and both variables, on

Table A2.4.21: Variance Decomposition Robustness#1-Canada/China, Mexico, South Korea; Reducing Number of Variables

Variables	CNCH MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB	CNMX MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB	CNSO MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB
Panel A-Pre-Crisis Exchange Rate Regime												
RSR^{DM}	9.3884	10.8972	12.5077	15.5662	24.7773	23.9030	25.4017	25.0282	8.2483	8.2852	7.9400	7.8633
ΔM1	6.9350		7.5888		6.0030		6.8094		0.9020		0.8549	
ΔTB	13.7277	8.0644			12.9016	15.1012			4.7888	4.1478		
ΔIR	10.8847	22.9345	17.0734	13.3734	7.9999	8.4198	10.4241	11.7526	4.1968	3.8834	4.5767	4.2087
ΔER	24.0528	24.8083	21.5395	23.9164	5.8752	5.4388	10.0187	10.0232	38.3179	36.6740	42.2152	40.1413
RSR^{EM}	35.0114	33.2955	41.2906	47.1440	42.4429	47.1372	47.3461	53.1960	43.5462	47.0096	44.4132	47.7867
Panel B-Post-Crisis												
RSR^{DM}	2.1588	2.5976	1.4565	1.9795	31.7938	29.2542	32.4950	30.0927	39.4781	39.9886	39.4463	39.7109
ΔM1	4.2777		5.1785		1.6959		1.6288		1.9544		2.1368	
ΔTB	6.9679	4.8292			2.6526	3.6752			2.8422	2.5963		
ΔIR	2.1553	3.3876	2.1964	3.3494	0.6673	0.5785	0.6117	0.5374	2.9350	3.1443	3.1816	3.6480
ΔER	11.2504	11.7687	14.7295	15.9635	7.7534	4.0419	9.3334	5.4792	12.0850	10.8076	13.0623	11.8401
RSR^{EM}	73.1898	77.4169	76.4391	78.7076	55.4370	62.4502	55.9311	63.8908	40.7053	43.4632	42.1730	44.8010

This table shows the robustness test results with the removal of ΔM1, ΔTB, and both ΔM1 & ΔTB in the variance decomposition model for Canada/China, Mexico, South Korea. The variance decomposition model results as tested in this paper is shown on the first column, followed by the results with the removal of the ΔM1 variable, ΔTB variable, and both

Table A2.4.22: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Pre- and Post- Crisis; NZCH, NZSO, NZTH; Period 10 Results

Variables	NZCH MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB	NZSO MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB	NZTH MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB
Panel A-Pre-Crisis Exchange Rate Regime												
RSR^{DM}	3.4732	8.0649	3.7213	12.5800	13.1820	14.4025	16.1176	17.2661	20.0921	22.3356	20.3841	22.6051
ΔM1	3.5044		7.8427		2.5940		2.1932		5.2352		5.2159	
ΔTB	1.5471	16.7987			5.4796	6.0587			0.8105	0.9850		
ΔIR	6.7316	9.9926	10.1550	8.1782	11.3141	10.1274	11.0726	9.8605	2.4345	2.9709	2.4786	2.9463
ΔER	2.2136	15.1186	21.1346	20.3167	16.8206	15.6886	18.8459	18.1430	4.6207	5.8501	3.9343	5.0510
RSR^{EM}	82.5301	50.0252	57.1465	58.9252	50.6097	53.7227	51.7709	54.7304	66.8070	67.8583	67.9871	69.3977
Panel B-Post-Crisis												
RSR^{DM}	16.7784	17.2225	17.7680	18.1117	15.3698	17.0804	17.3433	18.4196	9.7284	10.8650	11.7236	12.8817
ΔM1	6.4210		5.5035		4.7196		4.9518		3.2736		2.8703	
ΔTB	3.3173	2.6637			4.2991	4.0277			5.1070	3.6608		
ΔIR	1.2496	1.6616	1.0619	1.2484	0.6597	0.4279	0.8467	0.5827	15.0852	14.6868	12.2952	13.5089
ΔER	5.2863	5.1701	3.6050	3.8345	12.3235	12.4406	14.4685	14.4165	12.1577	10.1650	11.0009	10.4639
RSR^{EM}	66.9474	73.2820	72.0616	76.8054	62.6283	66.0234	62.3898	66.5813	54.6482	60.6225	62.1100	63.1456

This table shows the robustness test results with the removal of ΔM1, ΔTB, and both ΔM1 & ΔTB in the variance decomposition model for New Zealand/China, South Korea, Thailand. The variance decomposition model results as tested in this paper is shown on the first column, followed by the results with the removal of the ΔM1 variable, ΔTB variable, and both

Table A2.4.23: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Pre- and Post- Crisis; ISCH; Period 10 Results

Variables	ISCH MODEL	Remove ΔM1	Remove ΔTB1	Remove ΔM1 & ΔTB
Panel A-Pre-Crisis Exchange Rate Regime				
RSR^{DM}	14.0769	17.8517	5.8286	12.4702
ΔM1	2.9935		9.4155	
ΔTB	23.5115	12.0713		
ΔIR	18.1969	13.2514	10.2518	13.4814
ΔER	12.5660	17.2377	8.0421	11.4015
RSR^{EM}	28.6551	39.5880	66.4620	62.6469
Panel B-Post-Crisis				
RSR^{DM}	11.6234	12.7488	14.2320	14.1746
ΔM1	5.1115		4.1642	
ΔTB	2.0076	2.9060		
ΔIR	10.6047	11.0179	10.7565	12.2430
ΔER	9.1740	7.5774	9.3936	7.0495
RSR^{EM}	61.4788	65.7499	61.4537	66.5328

This table shows the robustness test results with the removal of ΔM1, ΔTB, and both ΔM1 & ΔTB in the variance decomposition model for Israel/China. The variance decomposition model results as tested in this paper is shown on the first column, followed by the results with the removal of the ΔM1 variable, ΔTB variable, and both variables, on the subsequent

Table A2.4.24: Robustness Test 1: Variance Decomposition-Remove ΔM1/ΔTB/Both Variables; Pre- and Post- Crisis; JPID, JPTH, JPSO; Period 10 Results

	JPID	Remove	Remove	Remove	JPTH	Remove	Remove	Remove	JPSO	Remove	Remove	Remove
Variables	MODEL	ΔM1	ΔTB1	ΔM1 & ΔTB	MODEL	ΔM1	ΔTB1	ΔM1 & ΔTB	MODEL	ΔM1	ΔTB1	ΔM1 & ΔTB
Panel A-Pre-Crisis Exchange Rate Regime												
RSR^{DM}	2.0630	2.2281	1.9394	2.0896	0.9531	0.9844	0.9302	0.9652	13.4121	13.4059	13.1240	13.0366
ΔM1	1.4638		1.4101		5.9784		5.9395		3.8301		3.8964	
ΔTB	2.9599	3.3739			0.8740	1.2799			6.4341	6.5707		
ΔIR	24.9678	25.1640	26.3617	27.0469	2.4778	2.7069	2.7782	3.0131	11.2508	12.1963	11.6844	12.4450
ΔER	12.0502	11.4352	11.7509	11.7035	0.9740	1.6225	0.8057	1.2051	15.3597	15.5359	18.1591	18.2310
RSR^{EM}	56.4952	57.7988	58.5380	59.1600	88.7428	93.4063	89.5464	94.8165	49.7131	52.2912	53.1361	56.2874
Panel B-Post-Crisis												
RSR^{DM}	13.6188	17.6871	14.5505	17.7312	4.9729	3.0260	3.0878	3.2707	21.0310	20.5762	20.4764	20.0985
ΔM1	8.2001		10.3464		2.7414		2.8110		4.9182		6.0439	
ΔTB	4.3533	4.6954			2.3346	1.2185			2.6513	2.7301		
ΔIR	4.1532	2.8186	3.5447	2.3051	14.5293	12.6783	11.8877	13.9906	0.9821	1.6733	0.8551	1.6317
ΔER	2.1996	3.1846	3.5878	3.2958	1.8553	1.5113	2.0165	1.6360	6.7481	6.3312	7.7408	7.3583
RSR^{EM}	67.4752	71.6144	67.9706	76.6680	73.5664	81.5659	80.1970	81.1026	63.6693	68.6892	64.8838	70.9115

This table shows the robustness test results with the removal of ΔM1, ΔTB, and both ΔM1 & ΔTB in the variance decomposition model for Japan/Indonesia, Thailand, South Korea. The variance decomposition model results as tested in this paper is shown on the first column, followed by the results with the removal of the ΔM1 variable, ΔTB variable, and both variables, on the subsequent columns.

Table A2.4.25: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

MODEL	AUSO VD	ALT MODEL	AUSO ALT VD	MODEL	AUTH VD	ALT MODEL	AUTH ALT VD	MODEL	AUID MODELS	ALT MODEL	AUID ALT VD
Panel A-Pre-Crisis Exchange Rate Regime											
RSR^{DM}	20.0304	RSR^{DM}	9.4975	RSR^{DM}	0.5711	RSR^{DM}	0.5711	RSR^{DM}	7.0736	RSR^{DM}	7.0736
ΔM1	0.8835	ΔER	5.6993	ΔM1	4.8034	ΔER	0.9431	ΔM1	2.8411	ΔER	9.2523
ΔTB	4.6602	ΔIR	1.9229	ΔTB	1.0888	ΔIR	3.4965	ΔTB	3.2649	ΔIR	27.9038
ΔIR	4.0384	ΔTB	3.4904	ΔIR	2.6206	ΔTB	1.0620	ΔIR	29.3044	ΔTB	2.0786
ΔER	5.7617	ΔM1	1.1846	ΔER	1.1270	ΔM1	4.1382	ΔER	6.9035	ΔM1	3.0792
RSR^{EM}	64.6259	RSR^{EM}	78.2054	RSR^{EM}	89.7891	RSR^{EM}	89.7891	RSR^{EM}	50.6126	RSR^{EM}	50.6126
Panel B-Post-Crisis											
RSR^{DM}	36.4430	RSR^{DM}	36.4430	RSR^{DM}	3.2558	RSR^{DM}	3.2558	RSR^{DM}	6.2551	RSR^{DM}	6.2551
ΔM1	2.5484	ΔER	2.5812	ΔM1	1.7943	ΔER	8.9355	ΔM1	8.4365	ΔER	4.3299
ΔTB	3.8135	ΔIR	2.8044	ΔTB	6.1321	ΔIR	6.3959	ΔTB	3.6263	ΔIR	2.8075
ΔIR	1.8676	ΔTB	4.5337	ΔIR	6.6524	ΔTB	5.1038	ΔIR	3.2012	ΔTB	4.0905
ΔER	3.7893	ΔM1	2.1190	ΔER	9.2212	ΔM1	3.3648	ΔER	4.2251	ΔM1	8.2611
RSR^{EM}	51.5187	RSR^{EM}	51.5187	RSR^{EM}	72.9443	RSR^{EM}	72.9443	RSR^{EM}	74.2558	RSR^{EM}	74.2558

This table includes the results of the variance decomposition of domestic real stock returns, at period 10, for each model variable including the developed country real stock returns, changes in domestic M1 money supply, changes in trade balance, changes in interest rate, changes in exchange rate and domestic real stock returns, for both the pre- and post-crisis periods (Column 1). The alternative model variable seqence reverses the macroeconomic variables and shows the results.

Table A2.4.26: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

MODEL	USCH VD	ALT MODEL	USCH ALT VD	MODEL	USMX VD	ALT MODEL	USMX ALT VD	MODEL	USBR MODELS	ALT MODEL	USBR ALT VD
Panel A-Pre-Crisis Exchange Rate Regime											
RSR^{DM}	43.4738	RSR^{DM}	43.4738	RSR^{DM}	17.8903	RSR^{DM}	17.8903	RSR^{DM}	22.0765	RSR^{DM}	22.0765
ΔM1	9.6061	ΔER	6.4589	ΔM1	4.9708	ΔER	*18.0404*	ΔM1	1.8906	ΔER	3.4636
ΔTB	14.1600	ΔIR	21.5312	ΔTB	12.4590	ΔIR	*3.7237*	ΔTB	1.7003	ΔIR	10.6351
ΔIR	17.7024	ΔTB	12.5448	ΔIR	10.7344	ΔTB	8.5225	ΔIR	8.2960	ΔTB	1.3997
ΔER	3.5076	ΔM1	4.4414	ΔER	5.3059	ΔM1	3.1836	ΔER	5.7229	ΔM1	2.1115
RSR^{EM}	11.5500	RSR^{EM}	11.5500	RSR^{EM}	48.6396	RSR^{EM}	48.6396	RSR^{EM}	60.3137	RSR^{EM}	60.3137
Panel B-Post-Crisis											
RSR^{DM}	1.5641	RSR^{DM}	1.5641	RSR^{DM}	40.8414	RSR^{DM}	43.2374	RSR^{DM}	36.3109	RSR^{DM}	36.3109
ΔM1	6.6390	ΔER	4.9645	ΔM1	2.4656	ΔER	*2.2122*	ΔM1	1.1763	ΔER	5.0639
ΔTB	6.4870	ΔIR	0.8548	ΔTB	3.3477	ΔIR	*2.3367*	ΔTB	0.6109	ΔIR	8.0275
ΔIR	1.7754	ΔTB	9.7710	ΔIR	0.2416	ΔTB	1.4873	ΔIR	9.8422	ΔTB	0.6131
ΔER	5.4739	ΔM1	4.7850	ΔER	4.5397	ΔM1	1.9494	ΔER	3.4763	ΔM1	1.4012
RSR^{EM}	78.0606	RSR^{EM}	78.0606	RSR^{EM}	48.5640	RSR^{EM}	48.7770	RSR^{EM}	48.5834	RSR^{EM}	48.5834

This table includes the results of the variance decomposition of domestic real stock returns, at period 10, for each model variable including the developed country real stock returns, changes in domestic M1 money supply, changes in trade balance, changes in interest rate, changes in exchange rate and domestic real stock returns, for both the pre- and post-crisis periods (Column 1). The alternative model variable seqence reverses the macroeconomic variables and shows the results.

Table A2.4.27: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

MODEL	CNCH VD	ALT MODEL	CNCH ALT VD	MODEL	CNMX VD	ALT MODEL	CNMX ALT VD	MODEL	CNSO MODELS	ALT MODEL	CNSO ALT VD
Panel A-Pre-Crisis Exchange Rate Regime											
RSR^{DM}	9.3884	RSR^{DM}	7.0899	RSR^{DM}	24.7773	RSR^{DM}	24.7773	RSR^{DM}	8.2483	RSR^{DM}	8.2483
ΔM1	6.9350	ΔER	25.4876	ΔM1	6.0030	ΔER	17.3753	ΔM1	0.9020	ΔER	39.3710
ΔTB	13.7277	ΔIR	22.6596	ΔTB	12.9016	ΔIR	2.9739	ΔTB	4.7888	ΔIR	3.9679
ΔIR	10.8847	ΔTB	6.2793	ΔIR	7.9999	ΔTB	8.5356	ΔIR	4.1968	ΔTB	3.2970
ΔER	24.0528	ΔM1	4.2560	ΔER	5.8752	ΔM1	3.8949	ΔER	38.3179	ΔM1	1.5697
RSR^{EM}	35.0114	RSR^{EM}	34.2276	RSR^{EM}	42.4429	RSR^{EM}	42.4429	RSR^{EM}	43.5462	RSR^{EM}	43.5462
Panel B-Post-Crisis											
RSR^{DM}	2.1588	RSR^{DM}	2.1588	RSR^{DM}	31.7938	RSR^{DM}	31.7938	RSR^{DM}	39.4781	RSR^{DM}	39.4781
ΔM1	4.2777	ΔER	13.3239	ΔM1	1.6959	ΔER	8.5429	ΔM1	1.9544	ΔER	13.3455
ΔTB	6.9679	ΔIR	3.3583	ΔTB	2.6526	ΔIR	1.0629	ΔTB	2.8422	ΔIR	1.9853
ΔIR	2.1553	ΔTB	5.2801	ΔIR	0.6673	ΔTB	1.3277	ΔIR	2.9350	ΔTB	2.8238
ΔER	11.2504	ΔM1	2.6891	ΔER	7.7534	ΔM1	1.8356	ΔER	12.0850	ΔM1	1.6621
RSR^{EM}	73.1898	RSR^{EM}	73.1898	RSR^{EM}	55.4370	RSR^{EM}	55.4370	RSR^{EM}	40.7053	RSR^{EM}	40.7053

This table includes the results of the variance decomposition of domestic real stock returns, at period 10, for each model variable including the developed country real stock returns, changes in domestic M1 money supply, changes in trade balance, changes in interest rate, changes in exchange rate and domestic real stock returns, for both the pre- and post-crisis periods (Column 1). The alternative model variable seqence reverses the macroeconomic variables and shows the results.

Table A2.4.28: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

MODEL	NZCH VD	ALT MODEL	NZCH ALT VD	MODEL	NZSO VD	ALT MODEL	NZSO ALT VD	MODEL	NZTH MODELS	ALT MODEL	NZTH ALT VD
Panel A-Pre-Crisis Exchange Rate Regime											
RSR^{DM}	7.6063	RSR^{DM}	7.6063	RSR^{DM}	13.1820	RSR^{DM}	13.1820	RSR^{DM}	20.0921	RSR^{DM}	20.0921
ΔM1	13.6391	ΔER	24.6708	ΔM1	2.5940	ΔER	17.2330	ΔM1	5.2352	ΔER	4.7465
ΔTB	17.5135	ΔIR	14.0417	ΔTB	5.4796	ΔIR	11.4615	ΔTB	0.8105	ΔIR	2.8185
ΔIR	13.4754	ΔTB	15.0884	ΔIR	11.3141	ΔTB	4.5593	ΔIR	2.4345	ΔTB	1.5052
ΔER	15.4272	ΔM1	6.2543	ΔER	16.8206	ΔM1	2.9546	ΔER	4.6207	ΔM1	4.0308
RSR^{EM}	32.3385	RSR^{EM}	32.3385	RSR^{EM}	50.6097	RSR^{EM}	50.6097	RSR^{EM}	66.8070	RSR^{EM}	66.8070
Panel B-Post-Crisis											
RSR^{DM}	16.7784	RSR^{DM}	16.7784	RSR^{DM}	15.3698	RSR^{DM}	15.3698	RSR^{DM}	9.7284	RSR^{DM}	9.7284
ΔM1	6.4210	ΔER	4.5050	ΔM1	4.7196	ΔER	12.4374	ΔM1	3.2736	ΔER	12.4372
ΔTB	3.3173	ΔIR	1.2385	ΔTB	4.2991	ΔIR	1.1081	ΔTB	5.1070	ΔIR	18.5700
ΔIR	1.2496	ΔTB	3.3128	ΔIR	0.6597	ΔTB	3.8316	ΔIR	15.0852	ΔTB	2.6359
ΔER	5.2863	ΔM1	7.2179	ΔER	12.3235	ΔM1	4.6248	ΔER	12.1577	ΔM1	1.9802
RSR^{EM}	66.9474	RSR^{EM}	66.9474	RSR^{EM}	62.6283	RSR^{EM}	62.6283	RSR^{EM}	54.6482	RSR^{EM}	54.6482

This table includes the results of the variance decomposition of domestic real stock returns, at period 10, for each model variable including the developed country real stock returns, changes in domestic M1 money supply, changes in trade balance, changes in interest rate, changes in exchange rate and domestic real stock returns, for both the pre- and post-crisis periods (Column 1). The alternative model variable seqence reverses the macroeconomic variables and shows the results.

Table A2.4.29: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

MODEL	ISCH VD	ALT MODEL	ISCH ALT VD
Panel A-Pre-Crisis Exchange Rate Regime			
RSR^{DM}	14.0769	RSR^{DM}	14.0769
ΔM1	2.9935	ΔER	23.4427
ΔTB	23.5115	ΔIR	2.9790
ΔIR	18.1969	ΔTB	25.3790
ΔER	12.5660	ΔM1	5.4673
RSR^{EM}	28.6551	RSR^{EM}	28.6551
Panel B-Post-Crisis			
RSR^{DM}	11.6234	RSR^{DM}	12.5040
ΔM1	5.1115	ΔER	7.7890
ΔTB	2.0076	ΔIR	11.6234
ΔIR	10.6047	ΔTB	3.7240
ΔER	9.1740	ΔM1	2.8807
RSR^{EM}	61.4788	RSR^{EM}	61.4788

This table includes the results of the variance decomposition of domestic real stock returns, at period 10, for each model variable including the developed country real stock returns, changes in domestic M1 money supply, changes in trade balance, changes in interest rate, changes in exchange rate and domestic real stock returns, for both the pre- and post-crisis periods (Column 1). The alternative model variable seqence reverses the macroeconomic variables and shows the results.

Table A2.4.30: Robustness Test 2: Variance Decomposition-Reorder of variables; Period 10 Results

MODEL	JPID VD	ALT MODEL	JPID ALT VD	MODEL	JPTH VD	ALT MODEL	JPTH ALT VD	MODEL	JPSO MODELS	ALT MODEL	JPSO ALT VD
Panel A-Pre-Crisis Exchange Rate Regime											
RSR^{DM}	2.0630	RSR^{DM}	2.0630	RSR^{DM}	0.9531	RSR^{DM}	0.9531	RSR^{DM}	13.4121	RSR^{DM}	13.4121
ΔM1	1.4638	ΔER	16.8764	ΔM1	5.9784	ΔER	1.0001	ΔM1	3.8301	ΔER	18.0201
ΔTB	2.9599	ΔIR	20.6039	ΔTB	0.8740	ΔIR	3.3152	ΔTB	6.4341	ΔIR	9.6020
ΔIR	24.9678	ΔTB	2.7372	ΔIR	2.4778	ΔTB	0.8066	ΔIR	11.2508	ΔTB	5.3801
ΔER	12.0502	ΔM1	1.2243	ΔER	0.9740	ΔM1	5.1822	ΔER	15.3597	ΔM1	3.8726
RSR^{EM}	56.4952	RSR^{EM}	56.4952	RSR^{EM}	88.7428	RSR^{EM}	88.7428	RSR^{EM}	49.7131	RSR^{EM}	49.7131
Panel B-Post-Crisis											
RSR^{DM}	13.6188	RSR^{DM}	13.6188	RSR^{DM}	4.9729	RSR^{DM}	4.9729	RSR^{DM}	21.0310	RSR^{DM}	21.0310
ΔM1	8.2001	ΔER	1.7607	ΔM1	2.7414	ΔER	1.0976	ΔM1	4.9182	ΔER	5.9386
ΔTB	4.3533	ΔIR	4.8846	ΔTB	2.3346	ΔIR	15.7659	ΔTB	2.6513	ΔIR	1.4578
ΔIR	4.1532	ΔTB	4.0594	ΔIR	14.5293	ΔTB	2.3698	ΔIR	0.9821	ΔTB	3.1681
ΔER	2.1996	ΔM1	8.2014	ΔER	1.8553	ΔM1	2.2273	ΔER	6.7481	ΔM1	4.7353
RSR^{EM}	67.4752	RSR^{EM}	67.4752	RSR^{EM}	73.5664	RSR^{EM}	73.5664	RSR^{EM}	63.6693	RSR^{EM}	63.6693

This table includes the results of the variance decomposition of domestic real stock returns, at period 10, for each model variable including the developed country real stock returns, changes in domestic M1 money supply, changes in trade balance, changes in interest rate, changes in exchange rate and domestic real stock returns, for both the pre- and post-crisis periods (Column 1). The alternative model variable seqence reverses the macroeconomic variables and shows the results.

BIOGRAPHICAL SKETCH

Jorge Salomon Maldonado was born in Harlingen, Texas and resides at 24233 Preston Trail in Harlingen, TX. 78552. After completing his high school education at Harlingen High School in 1976, Jorge attended Texas A&M University in College Station, Texas in the college of Agriculture and Life Sciences (Microbiology). In 1980, Jorge changed his discipline to the College of Engineering (Chemical Engineering). In June 1982, Jorge attended Texas A&I University in Kingsville, TX and received a Bachelor of Science degree in Chemical Engineering in December 1982. On the same month, Jorge was married to Maria Del Rosario Rodriguez from McAllen, TX and was hired by Tex-Steel Corporation. Jorge was promoted to Vice-President of Sales in 1983 before being promoted to President of Tex-Steel Industries in 1985. In 1987, Jorge's duties were expanded to include Chief Financial Officer and Co-Director of Mergers and Acquisitions. In 1989, Jorge, Rosie and their first child Chris moved to Southern California, where Jorge expanded the sales offices for the California security door industry. Due to numerous acquisitions, the firm became the largest custom commercial and security door manufacturer in the industry. In 1995, the firm was sold to Ceco Door Products where Jorge continued as a hardware consultant and assistant international sales manager. Soon after his departure, Jorge established "Tax Services and Business Solutions". After the great recession, Jorge registered and completed his Master's in BA from the University of Texas Pan American, followed by a Master's in Accountancy, and most recently, a PhD in Finance. Jorge can be reached via email at jsmaldonado9@gmail.com.