Ownership Restrictions toward Foreign Investors in Emerging Economies and International Financial Market Integration

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Abstracts: This paper looks at ownership restrictions toward international investors in emerging stock markets and its impact on the degree to which they move with more mature markets. Surprisingly, the results show that while emerging markets are positively correlated with industrial markets, the strength of such market comovement is weakened by lower levels of capital restrictions, implying the role capital flight plays in emerging economies.

Introduction

Emerging stock markets have attracted attention from academics, practitioners and policy makers due to their high returns, high volatility, high growth, and high portfolio diversification potentials. Empirical studies have shown that both risks and returns have been higher for emerging stock markets relative to developed markets (Errunza, 1983,Wilcox, 1992; Claessens, Dasgupta and Glen, 1993; and Harvey, 1995), although emerging markets have not done as well in recent years. Harvey (1995) and De Santis (1993), among others, outlined the benefits of holding a globally diversified portfolio over a domestically diversified portfolio as a result of the low correlations of emerging markets with developed markets (Errunza, 1983, Chaudhuri, 1991; Brown, 1991; Divecha, Drach and Stefek, 1992; and Speidell and Sappenfeld,1992).

Divecha, Drach and Stefek (1992) examined emerging market stock returns during 1986-1991 with an industry factor model to determine the forces that drive these markets. They discovered that emerging market returns are driven primarily by a local country factor. The industry factor, which is found to be influential in developed markets, is considered relatively unimportant. The authors further found that although emerging markets are more volatile than developed markets, they are relatively uncorrelated with each other and with developed markets. One possible explanation for the strong influence of the local market factor and consequently low correlation with developed equity markets might be insulation of emerging markets from the rest of the world. Some argue that policy makers in the developing world are genuinely concerned about the impact of international investment on local market turnover and the volatility of equity returns. The possibility of "herding"

by foreign investors is worrisome to them because it can make security prices volatile and cause rapid portfolio switching between markets. Wary of this "hot money" flowing across national borders, some developing countries have established regulatory and institutional investment barriers that restrict outsiders participating in their equity markets in order to insulate their markets from worldwide patterns in stock market returns. It is therefore suspected that the low correlation of stock index returns in emerging markets, with respect to developed markets, may reflect the lack of openness in their capital markets or the lower liquidity in developing countries in contrast with those in developed countries, although most emerging markets have undergone various degrees of financial liberalization toward capital flows. Further exploration of the source of the low correlation between emerging equity markets and developed markets is of important practical significance because all the diversification benefits found in the literature regarding investment in emerging markets rest solely on this correlation feature in these markets. Unfortunately, empirical evidence is not conclusive as to whether there is any association between degree of openness and stock price movement. This research is intended to explore possible empirical evidence in this area by focusing on the extent of investment barriers of capital markets and stock price movement in emerging markets.

Research Methodology

Concept of investment barriers

The concept of investment barriers or openness used in this research focuses on direct foreign ownership restriction in an emerging market. Ownership restrictions may stipulate that certain sectors are closed to foreign investment or direct equity participation limits. The proportion of IFC's

Investable Index to IFC's Global Index is used to measure the degree of these barriers in individual emerging markets. The Global indexes are intended to be a broad indicator of the market performance. The Investable indexes, on the other hand, measure the performance of stocks in emerging markets that are actually attainable to international investors, or in other words, they represent equities in the IFC Global Indexes for which ownership restrictions are not legally binding.

National variables

The inclusion of national variables in this research is largely based on previous empirical research on stock price behavior in developed countries, due to the paucity of research on this phenomenon in emerging markets. Most of these variables are shown to have significant explanatory influence on stock market returns in developed markets. Firstly, real GDP was chosen to measure real economic activity. Empirical research has proven the significance of the interrelationship of stock returns and the real economic activities of an economy (Asprem, 1989). Secondly, CPI was selected to measure the changes in flation. Body (1976), Jaffe and Mandelker (1976), Nelson (1976), Fama and Schwert (1977) have all documented a negative relationship between stock returns and inflation. Thirdly, Real exchange rate movement, measured by the nominal exchange rate deflated by the general price level of an individual country, was used to proxy for exchange rate changes (Oyejide 1986, Harberger 1986, and Krueger et al. 1992). Lastly, export orientation was included in this model because they represent, at least partially, the economic and trade links between countries. Empirical research has confirmed the impact of exports on stock price movement in developed countries. Asprem (1989) found a positive relationship between stock indexes and exports in ten European countries.

Research question:

This empirical study is designed to access the impact of openness of an emerging equity market toward foreign investment on its stock market performance relative to that of developed markets. The research question addressed is then whether openness of emerging markets affects the interrelationship of their stock market movements with developed markets. Developed markets are represented by U.S. market measured by S&P500. It was chosen due to its influence in the world capital markets.

Statistical analysis:

Interactive multiple regression models are used to determine whether the interrelationship of stock index returns in emerging markets with respect to developed markets is influenced by their degrees of openness, or whether the relationship between the stock price movement in emerging markets and the stock price movement in developed markets is dependent on the degree of openness. Jaccard, Turrisi, & Wan (1990) defined the interaction effect as a moderated relationship in which the relationship between two variables X and Y is moderated by a third variable Z, in other words, the nature of the relationship between X and Y depends on the value of Z. A moderated relationship can be analyzed in the context of multiple regression. The interactive model used in this research is described as follows:

$$EMIR_{jt} = ß_0 + ß_1 DMIR_{kt} + ß_2 Open_{jt} + ß_3 DMIR_{kt*} Open_{jt} + ß_4(GDP_{jt}) + ß_5(INF_{jt}) + ß_6(EXRATE_{jt}) + ß_7(EXP_{jt}) + e_{jt}$$

(Model 1)

where

$EMIR_{jt}$ = Emerging market index at time t measured in US $
$DMIR_{kt}$ = Developed market index returns at time t [U.S. (S&P 500) and Japan (Nikkei)]
$Open_{jt}$ = Openness indicators at time t
(where k = 1,2, number of developed markets
j = 1,2, ...19, number of emerging markets)
$DMIR_{kt}$*$Open_{jt}$ = new product term that indicates the interaction effect
GDP = real GDP growth
EXRATE = Changes in real exchange rate movement;
INF = changes in inflation;
EXP = Changes in exports of goods and services;

The hypothesis would predict that $ß_3$ is significant net of the additive effect in the equation. The moderator variable is openness. The implication of the interaction effect is that the relationship between the stock returns of emerging markets and stock returns of developed markets differ, depending on how open the individual emerging market is toward foreign investment. The null hypothesis is therefore that there is no interaction effect between the openness factors and the stock market returns of developed markets, or, in other words, the relationship between the stock market returns of emerging markets and the stock returns of developed markets does not depend on the nature of openness in emerging markets toward foreign investment.

Research Findings

In this section the findings, of the impact of openness on the linkage between emerging and mature markets, are presented. In model 1, the independent variable: stock indexes of mature markets (X1), and the moderator variable: openness factors (Z), that form the product term, namely (1)the stock market index of the U.S. and Japan and (2) the openness variables, were centered (i.e. deviation score forms are used so that their means are zero) using the method recommended by

Cronbach (1987), Jaccard, Turrisi and Wan (1990) and Alken and West (1991). The centering of these variables prior to forming the product term was performed as a means to address the problem of multicollinearity in interactive models. If this adjustment was not made and the first order variables X and Z were not centered, the product term XZ would be highly correlated with variables X and Z.

The results of the regression analysis of ownership restrictions in the form of IFCI/IFCG are presented in Table 1: Analysis of Openness Factor Measured in terms of IFCI/IFCG. ß$_3$ is statically significant, suggesting the presence of an interaction effect for the U.S. market and emerging stock markets. The regression equation is

$$EMIR_{jt} = 659.23 + 2.63(S\&P500) - 926.54(IFCI/IFCG)_{jt} - 1.95(S\&P500)(IFCI/IFCG)_{jt} \quad \text{(Equation 1)}$$

Insert Table 1 here

While emerging stock market indexes are positively related to S&P 500 (x1), the strength of this relationship weakens as the level of openness in the form of ownership restraints (Z:IFCI to IFCG) increases. The degree to which emerging markets are linked to the US market movement (S&P 500) is significantly modified by the openness variable (Z, represented by IFCI/IFCG). This can be illustrated more clearly by rearranging Equation 1 through some simple algebraic manipulation.

$$EMIR_{jt} = [2.63 - 1.95 (IFCI/IFCG)_{jt}] (S\&P500) + (659.23 -$$

$926.54(IFCI/IFCG)_{jt}$)

Or Y = (2.63- 1.95Z)X + (659.23-926.54Z)

(Equation 1.1)

The relationship between X and Y is weakened by the moderator variable Z. Or, in other words, the effect of S&P 500 on the emerging stock markets was significantly weakened by the openness factor, in this case, the ownership restraints.

Given that a significant interaction effect was obtained, procedures recommended by Jaccard, Turrisi and Wan (1990) and Alken and West (1991) were performed to further probe this interaction and clarify its meaning. In the case of Equation 1.1:

Y = (2.63- 1.95Z)X + (659.23-926.54Z)

where Y = stock market indexes of emerging markets
Z = openness variable in the form of ownership restrictions
X = US stock market index, namely, S&P 500

The slope of regression of Y on X depends on the particular value of Z. The selection of Z values normally depends on the theory, measurement consideration, or previous research. If neither of the above applies, Cohen and Cohen (1983) suggested that researchers use the values of Z_M (medium), Z_H (high) and Z_L (low), corresponding to the mean of Z, one standard deviation above the mean, and one standard deviation below the mean, respectively. Then each value of Z

selected is substituted into Equation 4.2 to generate a series of simple regression equations of Y on Z at specific values of Z. In this manner, values of Z (moderator variable) were chosen to be one standard deviation below the mean (Z_L =-0.3731), at the mean (Z_M =0), and one standard deviation above the mean(Z_H =0.3731). The results of the comparison of simple regression equations for Z_M (medium), Z_H (high) and Z_L (low) are given below:

At Z_H =0.3731: Y = 1.9022X + 313.54

At Z_M =0.00: Y = 2.6280X + 659.23

At Z_L =-.3731: Y = 3.3538X + 1004.92

(Equations 1.2)

Where Y = emerging stock market indexes
X = developed stock market index (S&P 500)
Z = openness factor measured here in the form of ownership restrictions

As is evident from the above, all equations show a positive regression of Y on X for values of Z. However, this positive relationship is moderated by variable Z. The lower the openness or the higher the ownership restrictions imposed on foreign investors, the higher the association in price movement between the US market and emerging markets.

Conclusions and Implications of the Research

The openness factor in terms of ownership restrictions is significant in affecting the degree to which emerging markets move in reaction to changes in developed markets. Surprisingly, the impact of advanced markets is smaller when the openness factors are higher. Specifically, increases

in mature stock markets, represented mostly by the US market, result in smaller increases in emerging markets with higher levels of openness toward foreign investment than emerging markets with lower levels of openness. This seems rather puzzling at first. However, a closer look offers some intriguing implications about how foreign capital flows affect equity markets in emerging economies. The "weakening" effect may reflect potential shifts of capital flows between advanced and emerging markets in reaction to political, economic and financial news. The "weakening" feature of the openness factors can be explained by the fact that if the level of capital control is low, or if the degree of openness is high, when there is an increase in advanced markets and when this increase is convincingly attractive enough, capital will flow out of emerging markets and back to the advanced markets, therefore, reducing the upward pressure on the stock market movement of these emerging economies.

Capital flows in search of high yields in the world markets have brought emerging economies benefits and concurrent risks. The recent Asian financial crisis, and the Mexican crisis and its immediate aftermath a few years earlier --the so-called the "Tequila" effect, remind us of such risks. These crises surprised the world by demonstrating the perilous vulnerability in their financial and exchange rate systems. The Asian financial crisis showed many similarities with the financial crisis that Mexico faced in early 1995, but the spillover effect has been much greater in the region and throughout the world. These similarities include a rapidly rising level of demand-- manifest by a investment boom in these Asian countries rather than a consumption boom prior to Mexico's crisis, an expansion of credit, widening current account deficits, and fragility in the banking sectors. In both cases, the elements of currency, banking, and debt crisis were present simultaneously. Like

Mexico's financial crisis, the Asian crisis shocked the world because it happened to a group of countries (ASEAN-4 countries: Indonesia, Malaysia, Philippines, and Thailand, and Korea) that had tremendous economic growth during the past 20 years. For example, the annual growth for Indonesia, Malaysia, the Philippines, Singapore, and Thailand averaged nearly 8 percent. This strong economic growth was partly due to prudent macroeconomic stabilization policies that were aimed at strong growth with low inflation. In addition to such rational fiscal and monetary policies, these countries enjoyed very high savings in both public and private sectors, and were therefore able to accumulate needed capital for both public and private investment in their economies. Moreover, these countries had all adopted, though to varying degrees, more liberalized trade and investment policies. The degree of openness of these economies was much higher than other developing countries, in general. Prior to the eruption of the Asian crisis, Asia attracted almost half of total capital inflows to developing countries. Over the past decade, the share of emerging economies in Asia in world exports almost doubled.

Up to now, the benefits of open capital markets have been widely recognized and well publicized. They include: more access to international financial markets and freer capital movement, which is believed to be able to channel resources to more productive uses, and thereby increase economic growth and the welfare of all nations. In effect, it is perceived to be a win-win situation for everyone. For instance, foreign investors harvest high returns and diversification bonuses. In the case of emerging economies that have opened or liberalized their capital accounts, they gain more sources of finance, higher investment, higher economic growth, and higher living standards for their people. However, in practice, there has been ample evidence that opening capital accounts and increasing

integration with the global financial markets are also associated with significant risks. The increased access to international funds can be suddenly lost and the exchange rate can be suddenly subject to a bombardment of speculative attacks, especially when the sustainability of macroeconomic policies are clouded in doubt.

Logically, one of the most important challenges that face the emerging economies and international development institutions, is how to maximize the benefits of open capital accounts and minimize the associated risks. Obviously, this is easier said than done. While further study of this issue is by all means warranted, there are several major areas that emerging economies should watch closely. These suggestions are:

1. Adopt sound macroeconomic policies. Emerging economies need to pursue sustainable macroeconomic and financial policies to maintain the capital flows to their markets. In the 1990s, the increasing importance of portfolio flows has reflected one major structural change in international financial markets, that is the growing role of institutional investors. In search of high yields and diversification benefits in their portfolios, mutual funds, insurance companies, pension funds, and hedge funds have become increasingly important buyers of securities in emerging markets. They constitute an important part of the capital flows to emerging markets. With financial innovations and increased integration of international markets, such capital flows can be abruptly reversed. Having a sound alignment of macroeconomic and exchange rate

policies is an important precondition that needs to be in place for the continuation and stability of capital flows to the developing countries.

2. Strengthen the domestic banking and financial system. The importance of a healthy banking and financial sector to sustainable economic growth has never been demonstrated clearer than by the "Tequila" effect and the Asian financial crisis. Policy makers in emerging economies need to find ways to protect their markets from undesirable shifts of capital flows. Financial liberalization needs to be accompanied by an appropriate prudent regulatory and supervisory framework that covers capital adequacy, lending standards, asset valuation, transparency in operations, bankruptcy laws, and other aspects of governance so that an investment boom (as evident in the Asian crisis) or a consumption boom (in Mexico's financial crisis) can be prevented when unusual surges of capital inflows occur. A proper link needs to be made between opening capital markets and establishing better banking supervision. Deficiency in the banking sectors and poor banking oversight, including poor internal governance, a lack of transparency about banks' operations and conditions, connected lending, provoked some of the problems that led to the buildup of the Asian crisis and added to the severity of the crisis as it unfolded itself.

3. Establish an orderly progression toward capital account liberalization. Capital market liberalization needs to be undertaken in a properly sequenced manner that is consistent with the macroeconomic and exchange rate policies and with the stage of development

of the financial system and institutions. When warranted by domestic economic conditions (including external account balances and the strength of the financial system), some prudential control over capital flows, especially on short-term capital flows, on a limited basis, may help to improve the management of foreign capital flows and reduce the vulnerabilities to swings of market sentiment. Rushing to full capital market liberalization without having the supporting preconditions of sound macroeconomic management and healthy development of financial systems and institutions may be an invitation to disaster. The authorities in developing countries should continue to maintain a very cautious attitude toward capital market liberalization. Appropriate management of foreign direct investment in emerging economies is another area that needs to be observed closely, as a good balance between short-term inflows and longer-term equity inflows may offset some of the disruptive effect derived from a sudden reversal of short-term capital flows.

Conclusions

This research empirically examined the impact of openness in emerging economies as a link with stock market movement in the developed world. This test of the impact of capital restrictions was performed using an interactive multivariate regression technique based on the framework of Jaccard, Turrisi and Wan (1990). The results demonstrate that openness in emerging markets provides a statistically significant effect on the degree to which emerging markets move with developed markets. The effect of developed markets was found to be greater on countries with lower

openness or higher restrictions in the above categories, and that an increase in mature markets generates a higher increase in emerging markets where the level of openness is lower than in those cases where the level of openness is higher. One plausible explanation of this outcome can be the possible capital outflows associated with liberalization of capital accounts. There has been ample evidence of shifts in capital flows between emerging and mature markets in reaction to political, economic and financial changes. The "Tequila" effect and the recent Asian crisis are just two examples. While the benefits of an open capital account are widely accepted, minimizing the risks and costs involved remains a great challenge for developing countries. Having a sustainable macroeconomic policy framework and a healthy financial system in place is an important precondition for liberalizing capital accounts. Fully opening a capital account without the support of sound polices and the strength of financial systems and institutions may prove to be extremely disruptive to economic growth.

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Appendix 1: The 19 countries covered in this study:

AR: Argentina
BR: Brazil
CE: Chile
CO: Colombia
GR: Greece
IN: India
JO: Jordan
KO: Korea
MA: Malaysia
MX: Mexico
NI: Nigeria
PH: Philippines
PK: Pakistan
PL: Portugal
TH: Thailand
TK: Turkey
TW: Taiwan (only on IFC)
VE: Venezuela
ZI: Zimbabwe

Table 1: Analysis of Openness Factor Measured in terms of IFCI/IFCG.

Equation (1)

$$EMIR_{jt} = \beta_0 + \beta_1 DMIR_{kt} + \beta_2 (IFCI/IFCG)_{jt} + \beta_3 DMIR_{kt*} (IFCI/IFCG)_{jt} + \beta_4 (GDP_{jt}) + \beta_5 (INF_{jt}) + \beta_6 (EXRATE_{jt}) + \beta_7 (EXP_{jt}) + e_{jt}$$

(N=1132)

β estimation	β_0	β_1	β_2	β_3	β_4	β_5	β_6	β_7	Model R^2	Model Adjusted R^2
	659.23	2.63	-926.54	-1.95	-3.24	-1.26	-1.24	-0.56		
T mean=0	20.59	10.21	-13.38	-2.94	-0.77	-1.10	-1.08	-0.49		
(Pr>|T|)	0.0001	0.0001	0.0001	0.0001	0.4436	0.2727	0.2805	0,6273	33.05	32.63