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Benefits of diversification into emerging equity markets with changing correlations: An Australian perspective

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The benefits of international equity diversification have been discussed extensively in theoretical and empirical research. Recently the role of the emerging equity markets has attracted investors' interests who wish to hold an international equity portfolio. Much of the previous research has taken the viewpoint of an investor from a country with a significant economy in world terms and has assumed the correlations constant over time. This review focuses on research in the area from the perspective of an Australian investor. This review of research into international diversification indicates there are still benefits in diversifying internationally and all investors are expected to benefit from investing into emerging markets and, these benefits are expected to be more apparent for Australian investors. This study develops a theoretical framework for further research into the area and recommends using a time-varying correlation model, which can estimate the benefits of diversification more accurately.

Keywords: Emerging equity markets; Market integration; Market segmentation; Equity correlations; Changing correlations

Introduction

This study provides a review of academic research into the benefits of international diversification with a particular emphasis on the role of emerging equity markets in enhancing the benefits of international diversification. A key distinguishing characteristic of emerging markets compared to developed markets is the nature of the real economy; this paper considers evidence relating to the links between financial and real sectors of an economy. Of special interest recently is the effect of globalisation on the differences between emerging and developed markets. This issue is considered in this review because of the likely impact on future international diversification benefits of globalisation. Australian investors may differ in the size of the diversification benefits received from emerging market investments compared to investors from other major equity markets because of the nature of Australia's economic and financial markets.

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Research related to the benefits from international diversification for Australian investors is considered in this review to help clarify these distinctions. Some research has argued that international diversification may cause crisis. The evidence from the East Asian crisis is considered to see its likely impact on the diversification benefits for an Australian investor.

International Diversification

The objective of international diversification is to improve the risk/return trade-off for investors. The benefits of international diversification per se are well documented in the academic literature. Grubel (1968) find that between 1959 and 1966, US investors could have achieved superior risk and return opportunities by investing part of their portfolio in foreign equity markets. Levy and Sarnat (1970) analysed international correlations for the 1951-1967 period, and demonstrate the diversification benefits from investing in developed and developing equity markets. Investors are conscious of the fact that international stocks have different characteristics so that by diversifying between different countries or industries in countries, the performance of the portfolio can be improved. Investing in international markets differs from domestic market investment in three important ways (Lessard (1976)). Firstly, the co-variances among assets within a domestic market are much higher than the co-variances among different markets. Second, barriers imposed by taxation, currency controls or investor tradition may further segment national markets sufficiently such that assets are priced in a domestic rather than an international milieu. Finally, exchange rates between different currencies deviate from each other giving rise to currency exposure on international portfolios.

A key factor in the determination of the benefits from international diversification is country risk. Rajan and Friedman (1997) use a two-factor CAPM consisting of a world stock index and country risk factor to show that an international portfolio contains a statistically significant country risk premium. Clark and Tunaru (2001) measure the impact of political risk on portfolio investment when the political risks are multivariate and correlated across countries and find that individual political risks are not uncorrelated with each other. Harvey (2000) reassesses the relevance of variance and covariance, if markets were completely segmented then what matters is the country's variance and total skewness. If markets are completely integrated, it is the covariance and coskewness. Harvey (2000) suggest that in segmented markets expected returns are determined by non-diversifiable risk of each asset in the local national context, whereas in integrated markets expected returns are determined from the perspective of an integrated market portfolio and not with respect to individual national markets. Schmukler (2004), report similar findings that the world markets are not fully globalised.

These statistical characteristics of returns for emerging and developed markets arise from the underlying real and financial nature of these economies. Different countries are at a different stage of development that leads to the argument that there may be potential gains from diversification across countries because of these differences in development. Thus, the links between these sectors of the economy are important for an assessment of the likely future benefits from international diversification[i]. In addition it is important to see whether the

relationship between the economic factors and the resulting correlations between asset returns are constant.

Changing correlations

The objective of diversifying across international markets is to achieve better returns at the given level of risk or lower risk without sacrificing the returns. Investors attempt to achieve this by using a portfolio optimization model, such as the Markowitz model. Three components, which go into constructing an optimal portfolio, are average return of assets, risk of the asset as measured by its standard deviation of returns and the way the asset returns move with each other as measured by correlation coefficient of the pair of assets. Accurate estimation of the correlations is important in estimating optimal portfolio weights to achieve the best risk-return relationship in the portfolio. For convenience most multivariate time series techniques used in analysing returns and volatilities assume the correlations constant, e.g. Bollerslev (1990) assumes the constant correlation assumption to simplify the conditional correlation matrix. If the correlations were changing over time, the models that assume the correlations constant are miss-specified. Following studies show correlations in equity returns change over the business cycles; Erb, Harvey and Viskanta (1994) and Longin and Solnik (1995). The variation of correlations in equity returns across markets is further supported in the recent studies by Tse (2000) and Tse and Tsui 2002.

Links between Financial and Real Sectors.

Different countries are at a different stage of development, which leads to the argument that, there may be potential gains from diversification across countries because of differences in the stages and nature of development in different countries. The following section addresses the importance of the real economy for diversification strategies. There is a correlation between output growth and stock returns in countries, including both advanced countries with highly developed markets and developing countries with emerging stock markets. The presence of this association in a variety of countries at different stages of economic and financial development suggest that an understanding of stock market differences and therefore the international diversification possibilities may be gained by understanding this association. The earliest studies establishing links between the financial and real sectors were based on arguments by Schumpeter (1911), and were formally developed and expanded in the contributions of Goldsmith (1969), McKinon (1973) and Shaw (1973).The existence of correlations between economic growth and stock returns has prompted debate on the causal direction of the underlying relationship. Morck, Shleifer and Vishny (1990) review five existing theories providing explanations for this link and summarise the relevant empirical literature. In turn these are:

- Passive informant hypothesis.
- Accurate active informant.
- Faulty active informant.
- The financing hypothesis

- Stock market pressure on managers.

In terms of market integration and the mechanism through which the segmented market effect is removed, Pagano (1993) survey three additional theoretical channels of causation that have emerged: first, better screening of fund-seekers and monitoring of recipients can lead to more efficient resource allocation. Second, the provision of financial services can encourage the mobilization of otherwise idle resources; and finally, improvements in risk sharing and reductions in origination costs can enhance the savings rates and promote the start of innovative, high quality projects. Many macro-economists have argued that well functioning equity markets can raise long term growth rates by mobilising savings and improving the efficiency with which resources are delivered to productive uses (see Levine and Zervos (1998); Rousseau and Wachtel (1998)).

With capital markets becoming more integrated, the scope for exploiting any "inefficiencies" may be rapidly diminishing as the analysts identify excess returns and then arbitrage them away (Fraser, Helliar and Power (1992)). Kalra, Stoichev and Sundaram (2004) argue that benefits of international diversification are exaggerated (page 211). On the contrary, Li, Sarkar and Wang (2003) demonstrate statistically significant benefits for US equity investor in diversifying into emerging markets. Schmukler (2004) report similar findings and argue that there still are gains to be made in diversifying into emerging markets. Further, there may be a theoretical justification for potential gains from international diversification as investors gain access to shares in industries, which are not represented or are thinly represented in the investor's domestic market. This expansion in the menu of shares in all kinds of companies and or industries would lead to an advantage by expansion of the feasible set and a change in the shape of the mean variance efficient frontier even if the capital markets were fully integrated and market returns were highly correlated.

East Asian Crisis and International Diversification

East Asian markets form a substantial part of the emerging market sample and the recent crisis of the late 90's have led many people to question the justification of investing in the East Asian markets. Stiglitz (2000) has argued that liberalization may lead to increased volatility. Recent sharp economic declines, mainly during the East Asian crisis, have led many people to argue that liberalization may lead to increased volatility in a country's economic growth (ibid). However, Bekaert, Harvey and Lundblad 2002 do not find evidence of significant increase in volatility after liberalisation and Kaminsky and Schmukler 2002 do not find evidence of increased volatility in equity markets after liberalisation. Krugman (1998) find the moral hazard as the main contributory factor in the East Asian financial crisis.

In a review of liberalisation literature in the emerging market economies Das (2004, page 887) argues:

"…Some believed that it was the liberalisation of the equity markets, which was to be blamed for their volatility. Empirical studies showed that the equity markets volatility

was not intensified by financial liberalisation. If anything, the opposite is the truth. Equity market cycles become smoother after liberalisation. .."

Diversification without investing abroad

Holding shares in multinational companies (MNC) appears to provide an attractive and cost efficient vehicle for international portfolio diversification for the following reasons: First, there may be barriers, formal and informal, which prevent an investor from undertaking direct foreign investment. Second, investors may lack necessary expertise to invest selectively in the shares of foreign companies. These investors may have a better knowledge and understanding of the domestic stock market as opposed to the overseas market. Consequently with a seemingly better knowledge of the prospects of the MNC's, these investors may prefer to invest in the MNC's. Third, the purchase of shares in a MNC enables the investor to ignore the foreign currency risk, a problem for the MNC and not the investor. Finally, large MNC's are expected to benefit from financial economies of scale (Wright and McCarthy 2002).

The empirical evidence is mixed on the issue. Jacquillat and Solnik (1978) find the share price behaviour of MNC's is indistinguishable from that of the shares of the purely domestic companies. The returns from the shares of nine MNC's in different countries are more closely related to movements in the domestic equity index of the country in which their head offices are located than to changes in international equity markets. However, the results of Mikhail and Shawky's (1979) research provide evidence for the benefits of investing in MNC's. In their study, the average level of returns from their sample group of 30 MNC's is higher on both an absolute and a risk-adjusted basis than the aggregate return on the S&P 500 index. In addition, evidence of home country bias in the international portfolios have been documented from early 90's to as late as 2005; French and Poterba (1991) and Portes and Rey (2005).

Emerging markets diversification

Major capital markets of the world are considered nearly efficient and the correlations between these markets during the past years appear to have risen. Consequently, the expected gains from diversifying across these major markets are assumed to be minimal. To gain diversification benefits it would appear necessary to invest in the emerging markets, which are still assumed less efficient. The correlations between these markets and the major markets also appear to be lower.[ii]

The argument that the investors should increase the proportion of their portfolios committed to emerging country equities is developed by Divecha, Drach and Stefek (1992), Wilcox (1992), and Speidell and Sappenfield (1992). This research notes the higher volatility of the emerging market stock returns. In particular, Cheung and Ho (1991) find that although the correlations between returns in developing markets and the returns in Asian emerging markets are smaller than amongst developed markets, the most recent three years examined (1986-88) were characterised by increased instability of the correlation matrix. In addition, research has highlighted the parochialism of the investors such that they limit their investment in the emerging markets and consequently they

do not maximize the risk return benefits from international diversification, (See Fredman and Sharma (1980), Errunza (1983), Gill and Tropper (1988), Clark (1991), Wilcox (1992), Solnik (1996)). A decision to include emerging markets' stocks in an international portfolio will depend theoretically on the differences in characteristics between the emerging markets and the more developed markets.

How are emerging markets differentiated from other markets?

Distinction between emerging markets and the developed markets should be based on the economic differences between the two. However, in the literature the distinction between the two has been adapted from the term as used by the World Bank. The term 'emerging market' arises from the description of emerging economies applied by the World Bank to low and middle income economies. If a country's GNP per capita did not achieve the World Bank's threshold[iii] for a high-income country, the stock market in that country was said to be emerging. More recently, this definition has proved to be less than satisfactory due to wide fluctuations in dollar-based GNP per capita figures. Dollar based figures have been significantly affected by swings in exchange rates, especially in Asia. And reported GNP figures are, since they take a significant time to prepare, are often out-of-date by the time they are released.

Emerging markets can be distinguished based on a number of financial, economic and structural characteristics for example; information efficiency and institutional infrastructure. A stock market's institutional infrastructure is characterised by the taxation of dividends and capital gains, restrictions on capital flows and the quality of available information.[iv] Some of the important characteristics identified in the literature in differentiating markets are:

- Discriminatory Taxation
- Capital flow restrictions and market regulation
- Liquidity
- Market activity
- Market Size
- Market Pricing

The key characteristics of the emerging markets of relevance to international diversification are institutional infrastructure, market regulation, liquidity, market size and market pricing. These differences between emerging and developed markets are expected to lead to gains to investors in the emerging markets depending on the degree of market integration. Here globalisation is an important factor in determining trends in the integration of equity markets and changes in the benefits from diversification into emerging markets.

Emerging Markets and Market Integration

The emphasis in early research into diversification benefits arising from less integrated markets is on the impact of market integration on security prices (Stulz (1981a, 1981b), Errunza and Losq (1985), Eun and Janakiramanan (1986), Alexander, Eun and Jankiramanan (1988), Errunza, Senbet and Hogan (1998), Bekeart and Harvey (1995)). In the context of Sharpe (1964) and Linter's (1965) capital asset pricing model (CAPM), a simple intuition suggests in a completely segmented market, assets will be priced in relation to the local market return. The local expected return is a function of the local beta of the asset and the local market risk premium. In the event of high volatility of local returns, it is likely that local expected returns will be high. If the capital markets are integrated, expected returns are determined by the beta with respect to the world market portfolio multiplied by the world risk premium. In this situation, expected returns are lower. Consequently, as integration proceeds in segmented markets, prices should rise and expected returns should decrease. This theoretical effect is confirmed by recent empirical evidence that demonstrates, after controlling for other economic and financial events, returns do decline (Bekaert and Harvey (2000), Henry (2000), Kim and Singal (2000)).

Market integration has an ambiguous impact on volatility. While it may be argued that foreigners tend to abandon markets when risk increases, leading to higher volatility, the empirical evidence do not indicate significant changes in volatility in the transition from a segmented to an integrated capital market (Bekaert and Harvey (1997, 2000), Richards (1996), Kim and Singal (2000), Aggarwal, Inclan and Leal (1999)). In addition, it would be expected that market integration is associated with higher correlations between local returns and returns for other markets (Bekaert and Harvey, 2002). However, a country with an industrial or economic structure substantially different to world's 'average structure' may have a lower correlation with world equity returns, even after liberalization. When correlations increase, the benefits of diversification decrease. Evidence suggests that the correlation associated with emerging market returns is still sufficiently low to provide portfolio diversification benefits (ibid).

Temporary changes in correlations are possible due to short-term local effects. For example, a reduction in barriers to trade induces foreign capital inflow and initial capital flows bid up prices and help create a 'return to integration'. But these flows level out in the three years post-liberalization (Bekaert, Harvey and Lumsdaine 2002, Griffin, Nardari and Stulz 2002). Also, contagion (abnormally high correlation between markets during crisis period) can have a substantial effect on the gains from diversification. There have been many economic crises during the period 1992 to 2002 in emerging markets: Mexico in 1994-95, East-Asia 1997-98, Russia 1998, Brazil 2000 and Argentina in 2002. These crises are associated with abnormal correlations between markets. Abnormal correlations are extreme correlations, determined by comparing correlations with expected correlations (possibly derived from a factor model). In defining contagion in this manner, there is evidence of contagion during the Asian crisis but no evidence of contagion during the Mexican crisis (Tang 2002).

Another relevant characteristic distinguishing emerging markets is the nature of the return distribution. In finance applications, a common assumption is the equity returns follow a

normal distribution. However, emerging market returns are not normally distributed (Harvey (1995). The author finds similar results for both post and pre-liberalization returns. While liberalization events impact on expected returns and correlations, emerging market return distributions are skewed and have fat tails. Emerging market equity returns are also found to have higher serial correlation than developed equity markets. This serial correlation is symptomatic of infrequent trading and slow adjustment to current information (Harvey (1995), Kawakatsu and Morey (1999)). Emerging market returns are less likely to be impacted by company specific news announcements than developed market returns. There is further evidence that insider trading occurs well before release of information to the public (Bhattacharya et al (2000)).[v]

Market integration is a major development from the segmented market for the emerging markets, inducing a structural change in the capital markets of the country. Hence, it is important to identify the dates of these structural changes for any empirical analysis. A number of different strategies have been pursued to determine the timing of integration of the world capital markets, (see Bekeart and Harvey, (2000 and 2002) for a comprehensive review) The date of regulatory liberalization does not necessarily define an event time for market integration. Care should be taken to differentiate between the concepts of liberalization and integration. A country may pass laws, which appear to drop all barriers to foreign participation in local markets. The act involves liberalization but this may not lead to effective market integration. The market may have been integrated before this event, because the foreign investors could have had access to the market through other means. The other possibility is that the liberalization has little or no effect because either foreign investor thinks these regulatory reforms will not be long lasting or other market imperfections exist (Bekeart and Harvey 2002).

Moreover, market integration is a gradual process and the speed of process will be determined by the situation in each individual country. There are numerous barriers to integration when one country starts the process. Bekaert (1995) lists three main categories of barriers to the emerging market investments: legal barriers, indirect barriers that arise from information asymmetries, accounting standards and investor protection and risks that are especially significant in emerging markets such as liquidity risk, political risk, economic policy risk and currency risk. These barriers discourage foreign investments and it is unlikely that these barriers will disappear immediately. Empirical models have been developed which allow the degree of market integration to change through time (Bekaert and Harvey (1995, 1997), Adler and Qi 2002).

There is no robust evidence that the volatility of equity returns increase with liberalization, the volatility of real economy is of greater importance. Recent sharp economic declines, mainly during the Asian crisis, have led many people to argue that liberalization may lead to increased volatility in a country's economic growth (Stiglitz, 2000). However, Bekaert, Harvey and Lundblad 2002 do not find evidence of significant increase in volatility. If the Asian crisis is excluded, the evidence suggests rather a decrease in economic growth volatility. The volatility of economic growth is related to the concept of globalisation leading to improvements in risk sharing. When the predictable components of consumption growth are stripped out, the evidence weighs in favour of risk sharing (decreased

idiosyncratic consumption growth volatility after liberalization).[vi] Das 2002 has argued that the volatility is more a cause of the weaker financial system and not the liberalization per se. The author argues that if there is a proper supervision of the regulatory framework and financial sector progress the negative impacts of the globalisation can be eliminated.

International diversification from an Australian investor's perspective.

The research on international portfolio diversification from an Australian investor's perspective is limited, especially in respect of the emerging markets. Studies quoted here are all based on diversification into developed economies. Allen and Macdonald (1995) assess the diversification benefits available to the Australian investor over the period 1970 to 1992 and find that for most pairwise portfolios there exist potential long-run portfolio diversification gains. Similar results are reported by Watson and Dickinson (1981), Mitchell, Wapnah and Izan (1988) and Izan, Jalleh and Ong (1991).

Wright and McCarthy 2002 consider investments in multi-national corporations and their international portfolio diversification benefits for Australian investors. The authors find the returns realised by an equity portfolio of Australian based MNC's are not significantly different to those realised by a portfolio of purely domestic Australian firms. It is suggested that this result may arise because Australian-based MNC's are small by world standards and do not themselves offer sufficient diversification to provide investors in them the benefits implied on theoretical grounds. The study also suggests that the low liquidity of the Australian Stock Exchange, coupled with the Australian investor's aversion to purchasing foreign shares, means that the Australian equity market lies closer to the segmentation end of the segmentation-integration continuum. This argument has an important bearing on the diversification opportunities available for Australian investors. As discussed earlier market segmentation arises from imperfections in national capital markets and causes the required rates of return on comparable assets, after adjusting for foreign exchange risk and political risk, to differ between national markets, (Wright and McCarthy, 2002, p. 80). Though many of these barriers have been reduced recently, investor perceptions continue to produce segmentation (Russel, 1998). Investors in the United States exhibit a strong home-country bias because of the perceived convenience and familiarity of the domestic stock exchange. Similarly, in Australia, investors prefer to purchase shares listed on Australian Stock Exchange, because of their lack of knowledge and/or perceived convenience and familiarity. Australian market has a market capitalisation of less than 4% of the New York Stock Exchange, (Wright and McCarthy, 2002, p. 80)

The Australian share market is small compared to the major overseas markets. And country size per se may be important in two ways (Bernstein and Weinstein (1998)). First economic activity in a small country may be geographically localized, so the nearby geographical activity, e.g. monsoons or other local "acts of God" might have local market-wide effects that would not be as evident in a larger economy. Second, economic specialisation is predicted by standard international trade theory across geographical units of similar size, but not across countries. This is consistent with larger countries having less uniform factor endowments, and implies that the stocks of firms in large economies should respond less. The effect of the size on the Australian market on the benefits from the inclusion of emerging markets stocks in an Australian portfolio is yet to be determined.

However, based on the literature, the nature of the Australian market, significant liberalization in many developing countries and the segmentation of the emerging markets it appears that there are likely to be gains for Australian investors from diversification into the emerging markets.

Methodologies used

Whether there are benefits in diversifying or not can be answered by testing if additional assets provide investors with significant benefits. Huberman and Kandel (1987) provide a formal tool to analyse this question. They develop a regression-based test for whether the introduction of some new assets significantly expands the mean-variance frontier spanned by existing assets. Kan and Zhou (2001) provide a comprehensive review of the literature in this area and refine the regression-based mean-variance spanning test by deriving both the asymptotic and small sample properties of this test.

Motivated by the duality between mean-variance frontiers of asset returns and Hansen-Jagannathan (1991) bounds on stochastic discount factors, Ferson, Forester, and Keim (1993), and De Santis (1995) propose a series of GMM tests for mean-variance spanning. Bekaert and Urias (1996) show the equivalence between these two types of tests and apply the latter to test the diversification benefits of closed-end country funds. Recently, Hentschel and Long 2002 have developed a numeraire portfolio test of market integration based on non-arbitrage principle and have applied it to evaluate the diversification benefits of emerging markets.

Another method of estimating correlations is to use multivariate GARCH models. The initial models in this group were based on the Constant Correlation Coefficient model of Bollerslev (1990). These models assumed that the correlations coefficients are constant over time; this unrealistic assumption was the main weakness of the models of this class. A second set of the GARCH models were introduced by Kroner and NG (1998). Though theoretically appealing these models were computationally complex because of the need for estimation of too many coefficients at the same time. Engle 2002 introduced multivariate GARCH models called "Dynamic Conditional Correlation Models" (DCC GARCH), which combined flexibility of the univariate models with theoretical appeal of time varying correlations. This model is used by Jithendranathan (2004) in his study on changes in correlations between the US and Russian equity markets. Chandra (2003) used it for estimating correlations in Asia-Pacific markets equity returns, and Lanza, Manera and McAleer (2004) for estimating correlations in oil forward and futures returns.

The DCC GARCH model is theoretically more accurate as it does not assume correlations being constant over time. The model is computationally easier to estimate, as the number of parameters to be estimated is independent of number of series to be correlated. As a result, there is no need to restrict the number of assets in the portfolio for computational ease. The research into international diversification benefits has assumed the correlations among equity returns to be constant over time; hence ignoring the factors, that may cause these correlations to vary over time.

Conclusion

Despite increasing globalisation, there are still unrealised gains to be made by investors holding stocks listed in other countries. These benefits arise, in part, from differences between countries in the nature of their real economies. And the greatest differences in real economy structures arise when comparing the emerging markets with the developed markets. Thus, on theoretical grounds, emerging market investments should provide a means by which an investor can achieve higher risk-adjusted returns for a diversified portfolio. Empirical research indicates that there are still benefits to be realised in diversifying internationally, because world financial markets are still not fully integrated (globalised), Schmukler (2004) and Li, Sarkar and Wang (2003).

This review of the theoretical and empirical research into international diversification indicates that the correlations between equity returns have been changing. The research into diversification benefits so far has widely accepted these correlations to be constant over time, which is not supported by either theory or empirical evidence. Study of changing correlations has an important bearing on the future of research on diversification benefits. A multivariate GARCH model, e.g. Engle 2002 or a model that allows correlations to vary over time will be more appropriate for the study of diversification benefits.

Research into the benefits of international diversification from the perspective of major equity markets is well established. Further, the research has looked in to the specific benefits of investing in to emerging equity markets owing to the special characteristics of the emerging equity markets. However, research from the perspective of an Australian investor is limited. The research indicates Australian investors will continue to benefit from investment in emerging markets. First, all investors are likely to gain from the greater segmentation of the emerging markets compared to that of the developed markets despite the trend towards globalisation. Second, the Australian market is small by comparison with other markets such that international diversification benefits are more apparent for local investors. Finally, differences in the real economies of Australia, the emerging markets and other developed markets provide a theoretical basis for the selection of emerging market stocks by Australian investors.

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[i] Lessard (1974) looked at portfolios of stocks from 16 developed countries and concluded that national risk factors were more important than industry factors. He further argued that diversification across countries, even if with in the same industry, yields in greater risk reduction than diversification across industries. Several studies document the importance of country specific factors in determining stock returns (Heston and Rouwenhorst (1994), Rouwenhorst (1998) Serra (2000)).

[ii] Solnik (1996, p. 61) has suggested the type of asset diversification that portfolio manager should seek is "one with high volatility and low correlation with the portfolio".

[iii] Based on 1997 data, economies with a GNP per capita of $ 9,656 and above were classified as high-income countries

[iv] See Mobius (1995, p. 15)

[v] Choe, Kho and Stulz, (2002) examine the informativeness of domestic versus foreign investors..

[vi] See Lewis (2000), Athanasoulis and van Wincorp (2001) for tests of risk sharing. Bekaert, Harvey and Lundblad (2002) link international risk sharing with equity market liberalisation.