Review

A review on international portfolio diversification: The Middle East and North African region

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Over the last three decades, international portfolio diversification has been the integral feature of global capital markets. Several potential benefits have made investors to internationalize their portfolios. In this regards, emerging stock markets have been the subject of a large body of the international finance literature. It has also been more attractive for the practitioners in stock markets. This study provides an overview to the international portfolio diversification theory as well as a review on the evidence on this area. This review particularly focuses on the evidence from the Middle East and North African region; moreover, it suggests theoretical frameworks for further studies.

Key words: International portfolio diversification, emerging markets, Middle East and North Africa, review.

INTRODUCTION

Modern portfolio theory approved that diversification can reduce the portfolio's risk by not holding perfectly, the correlated assets; but for this favor, international assets are expected to offer investors with greater diversification benefits since their prices are often less correlated and determined by different fundamental economic factors. To test for the benefits obtained from diversification across different countries, Solnik (1974) used stock returns from eight different countries over six years. He used weekly data from Belgium (20 stocks), France (65 stocks), Germany (40 stocks), Italy (30 stocks), Netherlands (25 stocks), Switzerland (15 stocks), the United Kingdom (50 stocks) and from the United States (65 stocks). Similar to previous studies of domestic simple diversification, Solnik's investigation assumed that investor has no ability to select profitable investments. He implemented this no-skill assumption by selecting stocks randomly and assigning each stock an equal weight. He then calculated the proportion of variance that could be

eliminated from portfolios by increasing the number of randomly selected stocks.

To control the foreign exchange risk, Solnik assumed that only U.S. dollars were invested in the stocks from every country. Figures 1 and 2 summarize Solnik's diversification findings. To evaluate different ways of diversity, Solnik evaluated different random diversification strategies. He randomly selected (a) across countries, (b) across industries and (c) across countries with currency hedging to reduce foreign exchange risk. Selection across countries was superior to domestic diversification within the United States (Figure 1). He also found that the portfolios that were hedged against foreign exchange had slightly less risk than the un-hedged portfolio (Figure 2).

Solnik's experiments with random diversification suggest that a portfolio does not need more than about three dozen common stocks to achieve substantial benefits from either domestic or international diversification.

GAINS AND IMPEDIMENTS

There are several benefits that motivate investors to invest in international portfolios. International evidence on portfolio investment reveals that, through a greater percentage of capital, invested in foreign equities, investors

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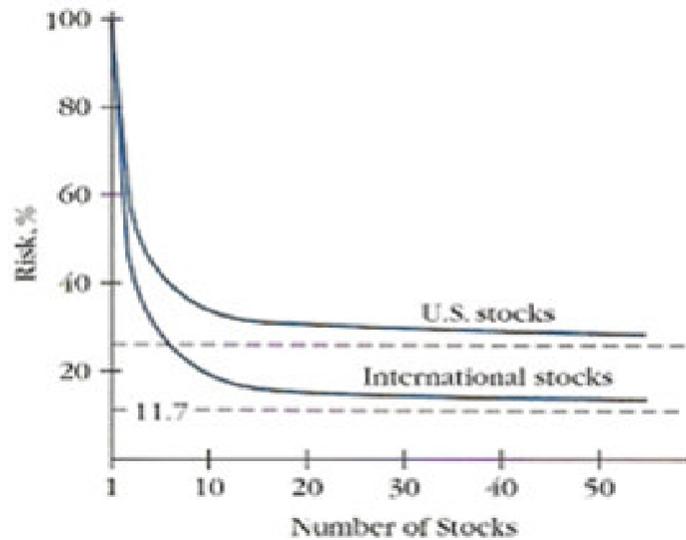*Corresponding author. E-mail: mansour325@yahoo.com.

Abbreviations: IPD; International portfolio diversification, **MENA;** Middle East and North Africa.

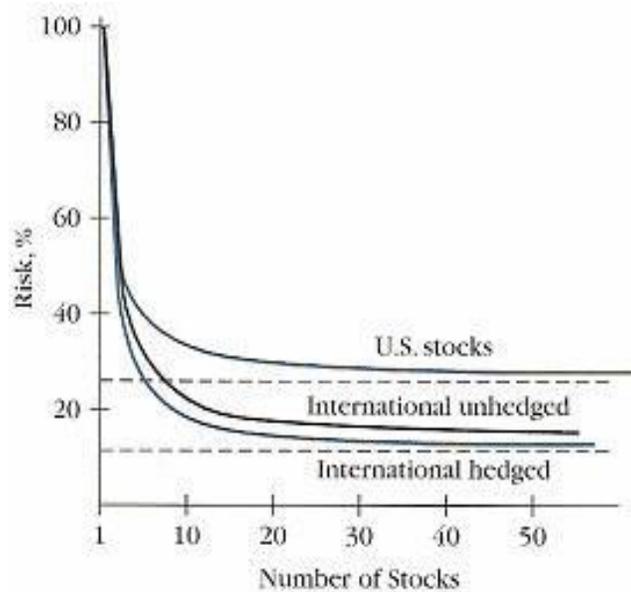**Figure 1.** International diversification. Source: Solnik (1974).

Figure 2. International diversification with and without exchange risk. Source: Solnik (1974).

investors will benefit from "increasing their expected return", "decreasing the variation of their returns" and "lowering the return correlations of foreign securities with domestic securities" (Grubel, 1968; Levy and Sarnat, 1970; Solnik, 1974).

Bartarm and Dufey (2001) revealed that the attractions of investing internationally are based on "diversification effects", "participation in the growth of other foreign markets" and "abnormal returns due to market segmentation".

The fact that returns on cross- border markets do not move exactly in the same way all the times, will result in diversification gains. However, understanding whether the country factors or the importance of industry factors cause this low correlation are still subjects of great arguments among researches (Campa and Fernandes, 2006; Griffin and Karolyi, 1998; Rouwenhorst, 1999; Sean et al., 2000; Serra, 2000).

The opportunity of participating in the fast developing economies of emerging markets and consequently, gaining

tremendous values in a few years can be considered as other benefits of international investments. However, being stable with respect to political risks is the salient advantage of capital markets in industrialized countries such as Netherland or Japan (Solnik and McLeavey, 2003).

Nevertheless, there are some barriers for international portfolio investments. Correlation coefficients of market returns not only within developed stock markets, but also between some mature emerging markets that tend to increase slowly over time. It also varies over time for obvious reasons (Longin and Solnik, 1995). Besides, correlation coefficients increase dramatically in the periods of crises, which denote that diversification becomes useless in the exceptional times when there is a huge loss on domestic investments. Furthermore, issues such as: "unfamiliarity with foreign markets", "political risk", "market inefficiency", "regulations", "transaction costs", "taxes" and "currency risk" might be considered as examples of serious problems in respect to international investment, particularly in less developed countries (Solnik and McLeavey, 2003).

EMPIRICAL EVIDENCE

Worldwide

For the first time, Grubel (1968) applied modern portfolio theory to explore the potential benefits of holding long-term international assets. He found that if US investors allocate a part of capital to foreign stock markets, they could achieve a significant reduction in portfolio risk and better portfolio return opportunities. Followed by Grubel, international portfolio diversification (IPD) benefits were examined by Levy and Sarnat (1970), Solnik (1974) and Lessard (1976). For instance, Solnik (1974) verified that IPD in the US, Germany or Switzerland, could reduce almost half of the risks of well-diversified domestic stock portfolios.

Besides these classic works, the gains from IPD are highlighted in various studies, and in most of them, the issues have been examined from the US investors' viewpoint. Although, during the last decades, the degree of integration among the US and foreign markets have dramatically increased, there is evidence indicating that US investors can still benefit from diversifying their port-folio in international markets (for example, Bekaert and Urias, 1996; Britten-Jones, 1999; Harvey, 1996; Li et al., 2003). Rezayat and Yavas (2006) examined the short-term co-movements among five leading stock markets of: the US, the UK, Germany, France and Japan, to evaluate the benefits of IPD. They reported the main finding of their study as follows:

"Despite the significant interdependencies among the markets studied, there appears to be still-room for international portfolio diversification. In particular,

American investors can realize diversification benefits in Japan. On the other hand, diversification benefits are minimal for American and European investors who would like to invest exclusively in Europe or in the US" (p. 457).

In the presence of regime-switching volatility, Flavin et al. (2008) evaluated the mechanism of cross-country shocks' transmission and found the consistent risk reduction benefit for the US domestic investors who hold foreign equity from G7 countries.

The focus on only US investors' perspective has been specified in the large body of studies. However, several studies have considered the international diversification issue from the viewpoint of investors in other developed countries. For example, Odier and Solnik (1993) examined whether a global investment was beneficial for Japanese, British and German investors as well as American investors. Liljeblom et al. (1997) investigated the IPD benefits from the Nordic investors' viewpoint. Ho et al. (1999) reported that reducing shortfall risk through IPD would be substantially beneficial for Canadian investors. Rowland and Tesar (2004) and Gerke et al. (2005) examined the potential benefits of IPD from a German investor's perspective. Kearney and Poti (2006) employed both methods of conditional and unconditional estimation and examined the correlation dynamics on the five leading European equity market. Egret and Kocenda (2007) analyzed the issue among Central and Eastern Europe stock markets and stated that there is no long-term linkage between Central and Eastern Europe stock markets.

Another group of studies explores the benefits of portfolio diversification among emerging markets. Theoretically, these benefits are a negative function of the correlation of the returns of the underlying assets (Naranjo and Porter, 2007). Therefore, emerging markets that are less integrated than developed markets should result in superior benefits if they are included in an internationally diversified portfolio. With this respect, for example, Markellos and Siriopoulos (1997) found that diversified portfolios across the European emerging stock markets will lead to significant potential benefits. Worthington et al. (2003) examined price linkages among three developed markets (Japan, Hong Kong and Singapore) and six Asian emerging markets (Malaysia, Indonesia, Korea, Thailand, the Philippines and Taiwan) in the period surrounding the Asian financial crises. Dunis and Shannon (2005) investigated equity markets of South-East Asia (Malaysia, Indonesia and the Philippines) and Central Asia (China, Korea, Taiwan and India) and found that in both samples, international diversification would be beneficial for investors from the US market. In another research, it is reported that the beneficial opportunities from investing in Central and Eastern European emerging markets were still sizeable, even during times of financial crisis (Middleton et al., 2008).

In spite of the well documented gains from IPD, investors

continue to have a strong preference for domestic assets. Foreign ownership of shares is much small and extremely limited in most of the countries. For example; by the end of 2003, only 14% of equity portfolios of US investors were held in foreign stocks, whilst the US stocks market accounted for almost 54% of world market capitalization (Campbell and Kraussl, 2007). Many authors documented the puzzle of home asset bias, the preference for domestic investment over foreign assets, in several countries (Amadi and Bergin, 2008; Baele et al., 2007; Cooper and Kaplanis, 1994; Driessen and Laeven, 2007; Kang and Stulz, 1997; Liljeblom and Loflund, 2005; Rowland, 1999; Tesar and Werner, 1995). However, Warnock (2002) and Baele et al. (2007) indicated that in Europe areas and the US, the equity home bias has significantly lessened over the past two decades.

The potential gains from international diversification are mitigated by making investment in foreign securities, which expose the investments to exchange rate risk (de Roon et al., 2003; Dunis and Shannon, 2005; Eun and Resnick, 1988). International portfolio investors who are categorized into passive and active investors (Eun and Resnick, 1997) mainly focus on the ways and the means of reducing foreign exchange risk (Papadamou and Tsopoglou, 2002) . However, empirical evidence of hedging strategies shows mixed results with regards to investors' perspective. It is mostly argued that currency hedging would significantly improve the performance of an internationally diversified portfolio through reducing the portfolio risk (Bekaert and Harvey, 2002; Eun and Resnick, 1988, 1997; Solnik, 1993). However, Walker (2008) indicated that for investors emerging from equity markets, there is not a free lunch by currency hedging as it increases volatility on the average. Walker (2008) found that when global equity returns are negative, emerging market currencies tend to depreciate and vice versa. Therefore, hard currencies[1] can be considered as natural hedges against negative returns in international investments.

With respect to the methodologies, studies on testing the IPD benefits can be generally classified into three main groups. The first group includes those of studies, which have utilized international CAPM model and its derivatives to assess the segmentation of capital markets (for example, Ferson and Harvey, 1994; Grauer et al., 1976; Solnik, 1983; Wheatley, 1988). In all of these studies, it is assumed that the degree of segmentation does not vary over time. In the second group of studies, the issue of capital markets' integration is evaluated by testing for the stability of correlation coefficients of markets return; meaning that in the presence of increasing correlation coefficients between markets' return, the homogeneity of stock markets can be understood (for example, Fischer and Palasvirta, 1990; Longin and Solnik, 1995; Madura and Soenen, 1993; Panton et al.,

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[1] Hard currency or strong currency, in economics, refers to a globally traded currency that can serve as a reliable and stable store of value.

1976; Wahab and Lashgari, 1993). However, the trend of correlation coefficients shows only the short-run relationships among markets. In other words, though markets move together in short-run, they may diverge in the long-run. To overcome the weaknesses of correlation, the advanced techniques of co-integration are used by researchers (Chambet and Gibson, 2008; Égert and Kocenda, 2007; Flavin et al., 2008; Ibrahim, 2005; Lagoarde-Segot and Lucey, 2007a; Maneschiold, 2005; Marashdeh and Shrestha, 2010) . The basic idea behind the co-integration test is: a linear arrangement that two or more variables may be stationary though, they are not stationary individually. By the existence of such a linear combination, the non-stationary variables are said to be co-integrated. However, these classical models of co-integration do not take account of the time varying characteristics of risk premium. The third group of studies mainly focuses on this issue and evaluates the co-integration of stock markets in a dynamic framework (for example, Cheng and Glascock, 2005; Chiang et al., 2007; Smith and Swanson, 2008; Syriopoulos, 2007, 2008). Besides all these econometrical and statistical approaches, the benefits of IPD are analyzed by a variety of portfolio optimization methods (for example, Calafiore, 2008; Canela and Collazo, 2007; Lagoarde-Segot and Lucey, 2007b; Mansourfar et al., 2010; Stamos, 2008; Topaloglou et al., 2008).

MIDDLE EAST AND NORTH AFRICA

Despite numerous researches that are globally documented on different aspects of IPD, the Middle East and North Africa (MENA) remains as an under-investigated region regarding this issue.

Darrat et al. (2000) used Johansen-Juselius, Gonzalo–Granger and Granger-causality approaches to investigate the degree to which three MENA markets, that is, Morocco, Jordan and Egypt, are integrated both regionally and globally. They found that these markets are segmented globally, but appear highly integrated within the region which means that these markets offer potential diversification gains to the international investors.

Using Markowitz's mean-variance paradigm, Abraham et al. (2001) selected Bahrain, Kuwait and Saudi Arabian stock markets between 1993 and 1998 to evaluate the diversification potential of investing across the Middle East equity markets. An optimal allocation of a fund (20 to 30%) to the Middle East equities is reported in their findings. They also indicated that the low correlation between the Middle East and the US equity market returns, and the positive correlation between the Middle East market return with oil price changes, makes these markets to be valuable hedges against oil price risk.

Using vector auto regressive and Bayesian models, the dynamic linkage among stock market indexes in Israel, Turkey, Egypt, Oman, Jordan and Morocco for the period

from 1996 to 1999, is traced by Shachmurove (University of Pennsylvania, working paper). Shachmurove suggests that international investors should include stocks from these emerging stock markets to get benefits from further diversification.

A detailed examination of causality relationships among six Middle Eastern stock markets: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE showed that some decrease in the risk reduction benefits of regionally diversified portfolio had occurred due to integration among the Middle Eastern equity markets by Assaf (2003) . He also concluded that some of the Middle Eastern markets exhibit less linkage with others and might represent a better choice for risk reduction in regional portfolio investment.

In the context of 10 emerging markets of the Middle East and Africa, Hassan et al. (2003) explored three issues of portfolio diversification, stock market volatility and predictability. They proved that by diversifying into the stock markets of the Middle East and Africa, the benefit of international diversification would be more significant.

Neaime and Colton (2005) highlighted some important aspects of financial integration in the MENA region and between MENA and the UK, the US and the French markets. They used Johansen co-integration model to test the financial integration both at regional and international levels. Their results confirmed that the equity markets in Jordan, Egypt, Morocco and Turkey were co-integrated with the world financial markets. In addition, regional financial integration was weak except among the Bahrain, Kuwait and Saudi Arabia stock markets. These three equity markets, from Gulf Cooperation Council (GCC) appear to be segmented from the international financial markets; therefore, they can offer diversification potentials to regional and international investors in long-term. In another research, Neaime (2006) applied GARCH, TARCH and ARCH-M models and found:

"Bahrain seems to be the dominant market that is causing unidirectional changes in both the Saudi and Kuwait market and in both the mean and variance. In the non-GCC markets, Egypt's returns seem to cause changes in the markets of Jordan, Turkey and Morocco. The stock markets of Bahrain, Kuwait and Saudi Arabia can diversify regional and international portfolios. While the remaining non-GCC markets appear to offer little diversification potentials to international portfolios, they offer GCC rich financial markets significant portfolio diversification potential".

Although, some of the researches showed that stock markets like Egypt or Turkey had been integrated with developed markets, Maneschiold (2005) found that the diversification benefits through these countries are more noticeable in the long-term investments compared to the short-term investments. The same result was reported by Marashdeh and Shrestha (2010), who studied financial integration between four emerging countries: Egypt, Turkey, Jordan and Morocco and three developed markets: the US, the UK and Germany by using auto regressive distributed lag (ARDL) method.

Bailey et al. (2005) focused on GCC countries in the period of 2000 - 2004. Using co-integration test, they found that the low correlation between the GCC and developed markets of the UK and US would provide the diversification opportunities. Moreover, GCC intra-regional diversification would be more valuable due to the behavior of market returns, which is far from the world's financial integration.

Using four co-integration methods, Lagoarde-Segot and Lucey (2007a) significantly rejected the hypothesis of a stable linkage among each of Morocco, Tunisia, Egypt, Lebanon, Jordan, Turkey and Israel and European Monetary Union and the USA stock markets. Lagoarde-Segot and Lucey (2007b) also examined the issue of possible portfolio diversification benefits into stock markets. International portfolios were constructed in dollars and local currencies. Their results highlighted outstanding diversification benefits in the MENA region, both in dollar and local currencies.

Yu and Hassan (2008) evaluated the existence of the long and short-run interaction among MENA stock markets and the developed markets between 1999 and 2005. Using advance techniques of time-series tests among GCC, non-GCC and the US, UK and France, they found a long-run relation between the US and non-GCC stock markets, whereas the GCC markets were segmented from the developed stock markets.

More recently, using the multiple fitness function genetic algorithm method, the behavior of MENA oil and non-oil producing countries in optimum portfolios, was explored by Mansourfar et al. (2010). Their findings indicated that the equities of oil producing countries can be used to construct optimum portfolios not only by investors from the same countries, but also by investors from the other MENA markets. They also reported that the behavior of short-term efficient frontiers in the MENA region cannot be used to predict the behavior of long-term efficient frontiers.

CONCLUSION AND SUGGESTIONS

The review of documented literature on the IPD issues of MENA region shows that most of the studies have the problem of not only short period of data, but also the small sample of countries. There is not even enough justification of the sampling reasons of stock markets among the studies. Generally, it can be concluded that MENA region is an under-investigation region. This concern is in spite of:

(i) The well managed reforming process in regional capital markets.
(ii) Currency crisis experienced in mature emerging markets,

which decreased the return and increased the return volatility of portfolios diversified by, for example, East Asian or Latin American equities.

(iii) Market capitalization to GDP ratio in the oil producing countries of MENA region is much higher than most of the other emerging region.

This review of the empirical studies on IPD at MENA region indicates that there are several important avenues that need to be studied in the future. Some suggestions for new studies can be as follows. Most of the previous studies in MENA, have utilized the data of the last 10 years, which can be considered as the golden period for the oil producing countries in the region, due to the high prices of oil. Therefore, to what extent these markets can still provide diversification benefits when the oil prices are in low level is a crucial question which needs to be empirically investigated. It could be also interesting to test whether the regional and international segmentations of MENA markets are due to country factors or the importance of industry factors. Further studies can be done to examine the stock market efficiency in the region. This issue for itself and the relationship between liberalization, integration and the efficiency of stock markets can be considered as further studies. The issue of home bias in the area of international portfolio diversification has been attracting a great deal of interest, which can be studied at least in the MENA intra-regional portfolios. The long-run intra and inter-regional linkages markets MENA markets are explored by using Johansen-Juselius co-integration test. This test captures only the linear relationship between variables. It is possible that by using non-linear methods of co-integration analysis, different results could be obtained. IPD issues can be investigated using portfolio optimization methods. Further studies can be conducted by using and comparing the results of different measures of risk such as MAD approach or higher momentum approaches when non-normality distribution of returns exists. In addition, different optimization methods can be applied to investigate the behavior of optimum portfolios in dynamic frameworks.

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