

Multinational Finance and Global Financial Market Integration

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INTRODUCTION

Globalization has become a topic occupying the attention of many officials, academics, and market participants. The evidence can be seen from the foreign exchange market, which is the largest financial market in the world. Based on the most recent Bank of International Settlement (BIS) report in 2007, daily foreign exchange turnover is 3.2 trillion USD. This is a thousand times larger than the NYSE trading volume and in the same range of the annual economic output (GDP) of China and Germany in 2007.¹ Also, foreign trading volume has gone up 71 percent since 2004. Globalization is a dynamic of the *integration* of national economies, which has contributed to the increase in foreign exchange trading volume. Obstfeld and Taylor (2002) state, “Globalization is the phenomenon of an increasingly *integrated* and interdependent world economy, one that exhibits supposed free flows of *goods, services, and capital, albeit not of labor.*”

I focus in this chapter on financial market integration. Market integration encompasses similar prices, asset returns, risks, productivity, and a host of other indicia of economic activity. Financial market integration interacts with integration in other sectors of the economy; hence, there is not a clear demarcation. Therefore, it is appropriate to speak of integration generally even though the specific measures of integration depend entirely on financial market. I review the extant literature studying the impact of overall *financial* market integration.

Theoretically, markets are financially integrated when assets of identical risks have the same expected returns. Two markets are not integrated if the law of one price is violated across markets or when one can construct two portfolios, one from each market, that have the same payoff but different prices (Chen and Knez 1995). Baele et al. (2004) define financial market integration as “the market for a given set of financial instruments and/or services is fully integrated if all potential market participants with the same relevant characteristics (1) face a single set of

rules when they decide to deal with those financial instruments and/or services, (2) have equal access to the above-mentioned set of financial instruments and/or services, and (3) are treated equally when they are active in the market.” Their definition encompasses the law of one price. In this study, however, I use the definition of law of one price for market integration to be consistent with the extant literature in finance.

Bekaert and Harvey (2003) argue that market integration should increase economic welfare. Theoretically, liberalization leads one economy to *integrate* with the global capital market. They explain that foreign investors will raise the bid prices of local stocks that provide them with the benefit of diversification. In doing so, the cost of capital should decrease, which would eventually increase investment and economic welfare. Also, Bekaert et al. (2006) show that market integration leads to economic growth. Similarly, Rajan and Zingales (2003) find that liberalization, or market integration, leads to financial development when liberalization is defined as the openness to trade and capital flows. That is, financial development will flourish once an economy is opened to trade and capital flows. Incumbents cannot oppose financial development when foreign capital flows and cross-border trades are vibrant. Taken together, market integration is an additional step to financial development and to an increase in economic growth (Baele et al., 2004). A large literature shows financial liberalization is interrelated with market integration. Although liberalization leads to market integration, no country (developed or underdeveloped) has full market integration.

Market integration also has adverse impacts. Once the foreign capital inflow increases, it will drive up the real exchange rate and the volatility of the local stock market. Consequently, foreign capital may complicate monetary policy. It became a possible cause of the Mexican and Asian crises in 1994 and 1997, respectively. As the domestic market becomes more integrated with the world market, the correlation between domestic market returns and foreign market returns *may* increase and eventually decrease the benefit of diversification. The extant literature also shows market integration has different

¹ <https://www.cia.gov/library/publications/the-world-factbook/index.html>

impacts on countries with different degrees of financial development.

Financial market integration raises a number of intriguing questions. From the point of view of the investor or multinational corporation: What are the benefits of diversification in integrated markets? What is the cost of capital for investing in these countries? From the perspective of integrated countries: What are the effects of increasing market integration on domestic financial markets and economic growth? I summarize research findings from a body of literature that addresses these questions.² Most studies I review focus on *equity* market integration. Readers who are interested in financial market integration should read Baele et al. (2004), who provide a detailed analysis of measuring financial integration in the *euro area* and separate financial market integration measures into money, bond, bank credits, and equity markets.

Practitioners and policy makers will benefit from this chapter. They will learn how to measure the level of market integration. Practitioners will learn the impact of market integration on their hedging strategy and project evaluation, and can adjust them accordingly. Policy makers can devise policies that increase the degree of market integration.

THE IMPACTS OF MARKET INTEGRATION

I discuss the impacts of market integration in this section, some of which are interrelated.

Stock Return Volatility

It has been asserted that short-term capital flow increases volatility, whereas long-term capital does not. According to this view, any government policy that increases long-term capital flow should be supported, whereas any policy that increases short-term flow should be excluded. Errunza (2001) claims this statement is not absolutely true and any policy makers, especially those working in emerging markets, need to think carefully before devising policies based on this statement. Claessens et al. (1995) support Errunza's (2001) claim and conclude that short-term flow is not more volatile and unpredictable than long-term flows. Based on these two studies, policy makers should pay attention to both short-term and long-term capital.

Does capital flow have different impacts on the volatility of countries with different degrees of financial development? Volatility in emerging markets tends to be higher than volatility in developed markets because of the nature of the technological, political, and social changes in emerging markets that is more frequent than in developed markets. As a result, investors' expectation about returns and their portfolio adjustments change more frequently than for investors in developed markets.

²See Khanna and Yafeh (2007) for an excellent approach to organizing a survey, and Megginson and Netter (2001) for an effective way of organizing a literature review.

One will suspect that capital inflows should increase the volatility of emerging market returns. In contrast to this belief, Bekaert and Harvey (1997; 2000) control for various macroeconomic and microeconomic variables and find no impact of market integration on returns volatility of emerging markets. Also, Tesar and Werner (1995) conclude the volume of U.S. transactions in foreign equity is not related to volatility of stock returns in the emerging markets. Brooks and Del Negro (2002) and Carrieri et al. (2007) show that the impact on volatility is temporary because of the Internet bubble and technology stocks.

A more recent study by Bekaert et al. (2006) further demonstrates that the volatility of consumption and GDP growth is not significantly increased after market integration. In fact, they discovered that the volatility decreased after market integrations occurring before the Asian crisis. When they include the crisis years, the volatility does not significantly decrease. Future research should explain why emerging markets can absorb the impact of financial market integration on the volatility of stock returns. In the long run, the financial development and market diversification as a result of market liberalization decrease stock market volatility (Richards 1996; De Santis and Imrohorglu 1997; Aggarwal et al. 1999; Kim and Singal 2000).

Correlation

It is not surprising to find two integrated markets that are not highly correlated and market integration should not only be inferred from correlation (Pukthuanthong and Roll, 2009). Nevertheless, studying the impact of financial market integration on correlation is still important because correlation affects the diversification benefit and implies herding behavior between two markets. Errunza (2001) examines the impact of market integration on correlation by plotting correlations over time, covering the period of formal liberalization, the introduction of American Depositary Receipts (ADRs) or Global Depositary Receipts (GDRs) and Country Funds (CFs), and an increase in net U.S. capital flow. He finds that correlation does not increase after the introduction of ADRs, formal liberalization, and net U.S. capital flow, but increases after the introduction of CFs. He indicates that these results are not conclusive because he did not control for other factors that may be relevant. Controlling for asset concentration, microstructure effects, macroeconomic influences and political risk, and stock market development, Bekaert and Harvey (1997; 1998; 2000) suggest that correlation increases after market integration events; their study in 2000 also finds an increase in beta.³ They note, however, that the increase in correlation after

³They use (1) the number of stocks in each of the country indexes followed by the International Finance Corporation (IFC) to control for asset concentration, (2) standard deviation of the stock returns within each index to control for stock market development and microstructure effect, (3) standard deviation of exchange rate changes, average inflation rates, and the Institutional Investor country credit rating to control for macroeconomic condition and political risk, and (4) the stock market capitalization to GDP and the size of the trade sector to GDP to control for stock market development.

financial integration is too small and should not have any impact on investors' decisions on hedging strategy.

Recent studies find an increase in correlation. First, Solnik and Roulet (2000) find the average correlation of 15 stock markets with the world market increases from 66 percent in 1971 to 75 percent in 1998. Further, Goetzmann et al. (2005) examine world equity markets from 1850 to 2000. They compute correlation for four major markets such as Germany, France, the United Kingdom, and the United States and for the other 40 markets, including developed and emerging markets and find that the correlation of these countries had declined from 1993 to 1998 and increased after 1998 until 2000. Eiling and Gerard (2007), studying 24 developed and 26 emerging markets from 1973 to 2005, show an increase in cross-country time-varying correlations among the developed European markets and Asia-Pacific markets. Overall, they do not find any significant time trends in cross-country correlations in Eastern Europe, the Asian, and Latin American emerging markets. Since diversification benefit is related to correlation, Eiling and Gerard's results show that the benefits of international diversification across developed markets have decreased over time. Their results suggest investors still have ample opportunities to diversify the risk of their portfolios by allocating their wealth into emerging markets. The most recent study by Bekaert et al. (2009), examining the data from January 1980 to December 2005, finds significant correlations only for the European equity market, but not for the North American and Far East markets. The difference of results for the developed Far East markets between Bekaert et al. (2009) and Eiling and Gerard (2007) can be explained by the difference in model that both studies apply. Bekaert et al. (2009) compute correlations from the factor models such as the APT model while Eiling and Gerard (2007) apply a model with global and regional factors. Although the exact magnitude of the increase in correlation across countries depends on the time period and sample composition, the extant literature shows a strong evidence of an increase in international stock market correlation over time.

Erb et al. (1994) study time variation of correlation and show that the ranking of correlations seldom changes, but the correlations of equity returns for the G7 countries have varied over time, for example, correlation changes through time between the United States and the United Kingdom and the United States and Japan. The correlation between the United States and the United Kingdom, however, is always higher than that between the United States and Japan. Similarly, the correlations between the United States and Canada and the United States and the United Kingdom vary over time, but the correlation between the United States and Canada is always higher than that of the United States and the United Kingdom.

Thus far, researchers have examined the effect of market integration on correlation in pairs of countries but not many studies have examined market integration effect on intracountry correlation. It is shown that capital inflows from foreign markets should reduce the cost of capital (see the section on expected returns or cost of capital); hence, the entrance of young firms going public should increase, and the degree of market concentration should decrease. Also,

the influx of foreign capital should cause domestic stocks to be less sensitive to local news but more to global markets. Taken together, financial market integration should have an effect on correlation among stock returns in a domestic market. This is an interesting topic for future studies.

Diversification Benefits

De Santis (1993), Divecha et al. (1992), and Harvey (1995) examine the benefit of diversification across time; nevertheless, this methodology does not control for the other factors that contribute to diversification gain. These researchers show diversification benefits from allocating wealth into emerging markets. They employ data from *International Finance Corporation* indexes (IFC), which may bias the results because IFC ignores high transaction costs, financial constraints, and low liquidity in these emerging markets. Consequently, De Roon et al. (2001) and Li et al. (2003) do not only employ IFC indexes but also take transaction costs and short-sales restrictions into account. De Roon et al. (2001) show an insignificant benefit of diversification from investing in emerging markets and disclose that their study may be subject to a bias in an asymptotic spanning analysis or small-sample bias in the asymptotic test. Li et al. (2003), on the other hand, apply Bayesian analysis that incorporates the limitation of finite samples and shows the existence of a diversification benefit from investing in emerging markets.

Another strand of research avoids using the IFC indexes, as they ignore higher transaction costs. Recent studies such as Bekaert and Urias (1996; 1999), measuring diversification benefits only in the emerging equity markets from 1986 to 1993, use closed-end funds (country and regional funds) and ADRs because they are accessible to investors and, therefore, have lower transaction costs like U.S.-traded stocks. They reveal that there is no significant diversification benefit by holding closed-end funds (country and regional funds). Open-end funds, on the other hand, yield the best diversification benefit in Bekaert and Urias's studies. In contrast, Bailey and Stulz (1990), Bailey and Lim (1992), and Chang et al. (1995) find larger diversification benefits in closed-end fund investments; they do not take small sample biases, however, into account. Studying a larger sample of seven developed markets and nine emerging markets from 1976 to 1993, Errunza et al. (1999) show that diversification benefits can be achieved by investing in domestically traded foreign stocks (country funds and ADRs.)

Taken together, the benefit of diversification is still large, as financial market integration increases (Heston and Rouwenhorst 1994; Griffin and Karolyi 1998; Baele and Inghelbrecht 2007). Heston and Rouwenhorst (1995) examine this subject further as to whether portfolio managers should allocate their assets based on industrial or geographical composition. They conclude that international equity portfolio managers gain benefits of diversification more from tilting their assets geographically than on the industrial composition because stocks from the same geography but different industries are closer substitutes than stocks from different geographies but the same industry. Overall, they find that the country

effect on international equity stock returns is larger than the industry effect. On the other hand, recent studies such as Rouwenhorst (1999), Brooks and Del Negro (2002), and Adjaoute and Danthine (2003) show that benefits from sector diversification dominate those from country diversification. This is consistent with an intuition that global markets have become integrated. However, the most recent study by Baele and Inghelbrecht (2007), who employ the data of 21 countries, shows the benefits from industry and country diversification are not significantly different. Their model is different from other previous studies in that they take the effect of both structural and temporary changes in the economic and financial condition on both country and industry into account. They also allow both market betas and volatilities to vary over time. They argue unit and constant beta studies overstate the benefit of country diversification in the early 1970s and between 1985 and 1995 and overstate the benefit of industry diversification at the end of 1990s.

The literature thus far has shown that there is a plenty of room to benefit from diversification. Future research can fill the gap by investigating the benefits of diversification from various types of substitute assets, such as any assets that allow investors to trade foreign stocks in the domestic market. The other types of assets that have questionable diversification benefits include multinational firms or exchange traded funds (ETFs) of foreign stocks.

Expected Returns or Cost of Capital

By nature, the volatility of developing market returns is higher than that of the world market returns; as a result, to keep variance and covariance constant, the prices of the market index should increase and expected returns should decrease. As the developing markets become more integrated with the world, the sensitivity of their market returns increases and so does the covariance of their markets with the world. When the increase of covariance is smaller than the increase in local stock variance, the prices are typically higher.

Another explanation developed by Errunza (2001) states that the cost of capital or expected return of any securities in the integrated market is lower because the securities traded on any segmented market are mostly held by local investors, and their expected returns depend on the local price risk and national covariance risk. When the market becomes more integrated with the world market, the expected return depends on the global price risk and global covariance risk. The global price risk is lower than the local price risk, and the global covariance risk is lower than the local covariance risk. As a result, the expected return of an integrated market is lower. Also, a decrease in the cost of capital is a result of a decrease in information asymmetry. When markets become integrated or firms issue ADRs or GDRs or country funds, foreign investors will demand a larger quantity and better quality of disclosed information through security regulations and financial reports. Hence, information asymmetry decreases and the cost of capital is reduced. Lastly, as the market becomes more integrated, the securities will be priced by global systematic risk, and the local risk premium will be zero.

Empirically, Bekaert and Harvey (2000) investigate the impact of market integration on the cost of capital directly by applying a cross-sectional and time-series model on a sample of 20 emerging markets. They use dividend yield to measure the cost of capital and find a significant decrease in dividend yield from pre- to post-liberalization periods. In a similar vein, their study in 2003 shows that expected returns or costs of capital decrease in the integrated market and is particularly true for developing markets. Henry (2000a) and Kim and Singal (2000) find a consistent evidence of a decrease in average returns after financial liberalization. Henry's result is stronger than the other studies. He estimates the abnormal return during the liberalization period using the discrete price change directly, whereas Bekaert and Harvey (2000) measure the cost of capital changes using aggregate dividend yields. Edison and Warnock (2003b) also show the decrease in dividend yield is strong for countries that had a complete liberalization process. Errunza (2001) argues that studying market integration in the country level for a long period of time is difficult since there are many control variables, such as political, social, and economic factors that may affect long-term performance at a country level. As such, some studies show the effects of market integration on the cost of capital using the firm-level data such as American Depositary Receipts (ADRs), Global Depositary Receipts (GDRs), or Country Funds (CFs), which are forms of country liberalization. Errunza and Miller (2000) study 126 ADRs from 32 countries and find a significant decrease in the cost of capital and a positive market reaction from the first-time ADR offering announcement. They explain that ADRs allow investors to expand their investment sets. Lins et al. (2005) detect the same evidence and explain that the introduction of ADRs increases liquidity and decreases capital constraints, reducing the cost of capital. For readers interested in this subject, Chari and Henry (2001) and Patro and Wald (2005) document the integration effects using firm-specific data. Karolyi (1998) provides an excellent survey of this research area and Stulz (1999) provides an excellent survey of the globalization effect on corporate governance and cost of capital. A decrease in the cost of capital has an impact on international capital budgeting. Multinational corporations may decide to operate in countries that have high integration with the world in order to decrease the cost of capital.

Liquidity

Capital market integration typically leads to an increase in capital inflows and thus an increase in asset prices and liquidity, and eventually to an increase in bank credit (Bekaert and Harvey 2003). As there are more entrants from other markets, the local market, which is assumed to be competitive, will have lower transaction costs in the form of narrower bid-ask spreads. Furthermore, competition from international markets will improve the quality of products sold in the local market. All in all, consumers benefit from market integration. An increase of liquidity as a result of market integration is shown in Lins et al. (2005), who find that an increase in market integration through a greater access to external capital market

in the form of ADR increases the liquidity of emerging market firms. Overall, research shows benefits are more pronounced for emerging market firms. Ghysels and Cherkaoui (2003) use the data of the Casablanca Stock Exchange in Morocco (CSE) and find that the trading volume and liquidity exploded after 1989 when Morocco announced a privatization and economic liberalization program. Applying data from the Mexican equity market, Domowitz et al. (1996) show ADR introduction is related to an increase in variance of public information but is unrelated to the volatility from changes in liquidity and trading activity. These effects are concentrated on equities participated by foreign investors before cross-listing. Their findings suggest the cost of capital benefit of cross-listing is small. Future research should explore in detail how market integration affects various measures of liquidity or countries with different degrees of financial development. The impact of financial market integration on the whole area of market microstructure such as price discovery and trading cost should be examined.

Home Equity Bias

Home equity bias has been one of the enduring puzzles in the finance literature. One would expect a decrease in home equity bias after markets become integrated. Baele et al. (2004) examine the asset allocation of pension funds and insurance companies in the euro area and find the evidence of a decrease in equity home bias after the emergence of the euro. Sorensen et al. (2007) employ the data of 23 OECD (the Organization for Economic Cooperation and Development) countries from 1993 to 2003 and examine international home bias in debt and equity holding. Baele et al. (2007) study home bias in the equity of 19 European and 6 non-European countries from 1973 to 2004. Both studies show home bias has eroded by a different extent across time periods. After controlling for trade links, transaction costs, risk-adjusted returns, and capital controls, Ahearne et al. (2004) find U.S. holdings of a country's equities are positively related to the share of that country's stock market that is listed in the U.S. stock exchange. Typically, foreign firms that are listed in the United States have to comply with U.S. disclosure regulations. Foreign firms that do not alleviate information costs to local investors are more underinvested by local investors.

Capital Flows

A growing body of literature studies the relationship between international flow, and domestic and foreign equity price. Researchers show international flow has a positive impact on current and future equity returns in developed and emerging markets. Their findings imply mixed evidence of local investors' information advantage over foreign investors. Applying quarterly intervals, Tesar and Werner (1994; 1995) and Brennan and Cao (1997) find stock prices fall (rise) when there are cross-border equity outflows (inflows). Their finding implies foreign investors purchase foreign assets when the return on foreign assets is high and sell when the return is low, confirming investors being less well informed about foreign

markets than locals. Some studies support local investors' superior information. First, Bhattacharya et al. (2000) find that stocks trading in the Bolsa Mexicana de Valores, where insider trading is not regulated, do not react to any corporate news announcements. They explain that this is due to superior information of insiders incorporated in stock prices through their trades before the announcement. Next, Choe et al. (2005) provide the evidence that domestic investors have an edge over foreign investors in trading domestic stocks. Third, Dvorak (2005) applies data from Indonesia and show that domestic investors have higher profits than foreign investors. He suggests the combination of local information and global expertise yields higher profits.

Another strand of literature shows foreign investors know more. Froot et al. (2001) study 28 emerging markets while Clark and Berko (1997) focus on Mexican markets. Both studies show some increases in price occur *after* capital inflows. Their finding suggests flows into emerging markets predict positive equity returns, implying the superior information of international investors to local investors in emerging markets. Froot and Ramadorai (2008) show institutional flows forecast movements in country closed-end fund NAV returns and price returns in emerging markets supporting foreign investors' superior information. They argue contradictory findings of the extant literature can be explained by the situation that foreign investors are better at forecasting equity premium in local markets while local investors have an informational advantage in predicting cross-section differences in equity prices. All in all, the extant literature provides evidence showing transactions of international investors increase current and future stock returns in developed and emerging markets.

Bekaert and Harvey (2003) question whether the effects are temporary or permanent. If the effect is temporary, there will be no change in the cost of capital and it may reflect just price pressure evidenced by mutual fund flow and stock indexes in developed markets (Warther 1995; Shleifer 1986). If the effect is permanent, capital inflows will cause a long-lasting decrease in the cost of capital.

How does market integration affect capital flow? Bekaert and Harvey (2003) argue that the study of market integration on capital inflow needs to carefully control for endogenous structural breaks. Bekaert et al. (2002) conduct a test using breakpoint analysis for different periods. They find that market integration increases capital flow. They also include a world interest rate, as do Froot et al. (2001), and dividend yield as control variables because an increase in world interest rates leads to an increase in capital flow. After controlling for the world interest rate, Bekaert et al. (2002) still find a significant positive relation between market integration and capital flow. They also show dividend yield decreases, which lead to a *permanent* decrease in the cost of capital. Furthermore, they find a *short-lived* increase in pressure to change the prices of goods in the nation. Taken together, research shows that market integration increases capital flow, inducing a permanent decrease in cost of capital and a temporary increase in pressure to change goods prices. Applying firm-level data, Edison and Warnock (2003a; 2003b) find the emerging market does not benefit from widespread

foreign buying; foreign investment in the cross-listed firm does not increase. They also suggest that the listing effect is applied only to the cross-listed firm but not to other firms in the country.

Country Credit Rating

An increase in market integration leads to an improvement in country rating and a decrease in political risk (Bekaert and Harvey, 2000). Erb et al. (1996a; 1996b) show a relation between credit rating and expected returns. Bekaert et al. (1997), on the other hand, find political risk is one of the significant factors in the international capital asset pricing model. They show political risk is priced and an increase in country rating reduces the cost of capital. Applying a Brady bond yield spread as a measure of market integration between the United States and Mexico, Adler and Qi (2002) find evidence consistent with the existing literature that the Brady bond yield spread is significantly related to expected returns. Taken together, a large body of literature shows market integration improves credit ratings and decreases political risk, inducing a decrease in the cost of capital.

Resource allocation

When markets are integrated, capital flows from one country to another and resources are better allocated. The capital flow complements domestic sources of financing and improves both the quantity and quality of financing. Rajan and Zingales (1998), Love (2003), and Wurgler (2000) show strong evidence that capital allocation is improved when financial constraints are relaxed. In a similar vein, Galindo et al. (2007) supports this finding showing a relaxation of financial constraints improves the efficiency of capital allocation in individual firms from 12 developing markets. Forbes (2007) also finds capital controls by the Chilean government increased financial constraints of small firms. The improved resource allocation is evident from the emergence of American Depositary Receipts (ADRs) and Global Depositary Receipts (GDRs), which allow foreign firms to raise funding in the U.S. public financial market, country funds (CFs), and exchange traded funds (ETFs). Furthermore, there has lately been a rapid growth of sovereign wealth funds (SWF) (see the glossary for the definition). The size of SWF is over 3 trillion USD in 2007, which is twice that of global hedge funds. It is expected to grow to over 5 trillion USD within the next 5 years and over 10 trillion USD within the next 10 years (Kern 2007). Some estimate the total of SWF will grow to 12 trillion USD in 2015 (Jen 2007). Although SWF has existed for many decades, the tremendous change in its scale, the emergence of new players, such as emerging countries, and the potential influence of SWF as a global investor may have significant impacts on the global economy. The emergence of SWF has changed the picture of the investment world in which private investors from wealthy developed countries were major shareholders, to the one in which emerging market governments become major shareholders in Western companies. The growing size of SWF indicates the potential influence of the state on the private sector.

Economic Growth

Bekaert and Harvey (2000), Bekaert et al. (2005), and Henry (2000b) show an increase in foreign investment after market integration, implying more foreign investors taking advantage of diversification. As a result, local equity prices decrease permanently and also bring down the cost of equity capital. What is the impact of market integration on economic growth? Errunza (2001) plots real economic growth before and after liberalization periods and finds an increasing trend. He does not, however, control for other factors that affect economic growth. Bekaert et al. (2001), on the other hand, consider economic growth by controlling the determinants of long-run steady state per capita GDP, secondary school enrollment, trade openness, government size, and inflation. Using these measures, they find an increase in economic growth from 0.7 percent to 1.4 percent after liberalization periods.

Other Impacts

We have reviewed a large body of literature showing several impacts of financial market integration, some of which are interrelated. Still, there are other potential impacts that future research should examine. First, market integration may encourage young firms to go public because of a decrease in the cost of capital. Local firms have options to raise money in other countries. Foreign firms, on the other hand, have an option to go public in the local market. For instance, data show that over 50 percent of large cap firms listed on the Toronto Stock Exchange (TSE) are also listed in the U.S. stock exchanges, which may be attributed to the high degree of market integration between the United States and Canada. Furthermore, market concentration should decrease as a result of new foreign entrants in the market. Lastly, the sensitivity of local stocks to local news decreases while the sensitivity of local stocks to world news increases.

Overall, a few robust findings emerge. The financial market integration results in a small increase in correlation with the global market, a small decrease in the cost of capital, and an improvement in economic growth. The extant literature has shown that the benefits of market integration outweigh the costs.

Table 46.1 shows a summary of research on impacts of market integration.

CONCLUSIONS

As the world becomes more globalized, it is of interest to everyone to learn the impacts of market integration. In this chapter, I examine both advantages and disadvantages of market integration. Overall, market integration increases everyone's welfare and economic growth. Policy makers should devise policies that accelerate the degree of market integration. On the other hand, market integration has some adverse impacts. Lower barriers to capital flows in to or out of the integrating countries may cause a sudden drop of capital flow and thus induce a currency crisis.

Past research shows that market integration has increased across countries around the world. Correlation has also increased over time as a result of an increase in

Table 46.1: Summary of Research on Impacts of Market Integration

Stock Return Volatility	
Errunza (2001)	Arguing it is not true that only short-term capital flow increases volatility; policy makers should pay attention to both short-term and long-term capital.
Claessens, Dooley, and Werner (1995)	The same arguments as those in Errunza (2001).
Bekaert and Harvey (1997; 2000), and Tesar and Werner (1995)	Finding no impact of market integration on returns volatility of emerging markets.
Brooks and Del Negro (2002), Carrieri, Errunza, and Hogan (2007)	Showing impact on volatility is temporary because of the Internet bubble and technology stocks.
Bekaert, Harvey, and Lundblad (2006)	Finding no impact of market integration on the volatility of consumption and GDP growth.
Calvo, Izquierdo, and Talvi (2003)	Finding an impact of global market integration through short-term versus long-term capital flows on a special form of volatility, <i>currency crisis</i> .
Aghion, Bachetta, and Banerjee (2004a)	Economies at a middle level of financial development are destabilized the most by full capital account liberalization.
Richards (1996), De Santis and Imrohorglu (1997), Aggarwal et al. (1999), and Kim and Singal (2000)	In the long run, the financial development and market diversification as a result of market liberalization decrease stock market volatility.
Correlation	
Bekaert and Harvey (1997; 1998; 2000)	Finding an increasing correlation after market integration events but no impact on hedging strategies. Their study in 2000 also finds beta increases.
King, Sentana, and Wadhvani (1994)	The average correlation among these markets increased around the 1987 global crash but with no clear trend.
Kaplanis (1988), Longin and Solnik (1995), Solnik and Roulet (2000), and Goetzmann, Li, and Rouwenhorst (2005)	Finding an increase in correlation across countries.
Eiling and Gerard (2007)	Showing an increase in cross-country time-varying correlations among the developed European markets and Asia-Pacific markets.
Bekaert, Hodrick, and Zhang (2008)	Showing significant correlations only for the European equity market, but not for the North American and Far East markets.
Erb, Harvey, and Viskanta (1994)	The ranking of correlations seldom changes, but the correlations of equity returns for the G7 countries have been shown to vary over time.
Diversification Benefit	
De Santis (1993), Divecha, Drach, and Stefek (1992), and Harvey (1995)	Applying IFC indexes; finding diversification benefits from allocating wealth into emerging markets.
De Roon et al. (2001)	Not applying IFC indexes; finding an insignificant benefit of diversification from investing in emerging markets.
Li, Sarker, and Wang (2003)	Not applying IFC indexes; showing a significant benefit of diversification from investing in emerging markets; correcting for the limitation of finite samples.
Bekaert and Urias (1996 and 1999)	Finding no significant benefit from investing in closed-end funds (country funds and regional funds) and ADRs but a diversification benefit from investing in open-end funds.
Bailey and Stulz (1990), Bailey and Lim (1992), and Chang, Eun, and Kalodny (1995)	Showing larger diversification benefits in closed-end fund investment; not controlling for small-sample bias.
Errunza, Hogan, and Hung (1999)	Diversification benefits can be achieved by investing in domestically traded foreign stocks and funds investing in foreign stocks such as country funds and ADRs.
Heston and Rouwenhorst (1995)	Showing benefits from country diversification.

(Continued)

Table 46.1: (Continued)

Diversification Benefit	
Rouwenhorst (1999), Brooks and Del Negro (2002), and Adjaoute and Danthine (2003)	Finding benefits from industry diversification.
Baele and Inghelbrecht (2007)	Finding indifference between the benefits of country versus industry diversification.
Cost of Capital	
Errunza (2001)	Market integration decreases cost of capital.
Bekaert and Harvey (2000), Henry (2000a), Kim and Singal (2000), and Edison and Warnock (2003a)	Finding a significant decrease in dividend yield from pre- to post-liberalization periods.
Bekaert and Harvey (2003)	Expected returns or costs of capital decrease in the integrated market, which is particularly true for developing markets.
Errunza and Miller (2000)	Studying 126 ADRs from 32 countries and finding a significant decrease in the cost of capital.
Lins, Strickland, and Zenner (2005)	Showing the same evidence as Errunza and Miller (2000).
Liquidity	
Bekaert and Harvey (2003), Lins et al. (2005), and Ghysels and Cherkaoui (2003)	Market integration increases in liquidity.
Domowitz, Glen, and Madhavan (1996)	Cost of capital benefit of cross-listing firms is small.
Home Equity Bias	
Baele, Ferrando, Hordahl, Krylova, and Monnet (2004), Sorensen, Wu, Yosha, and Zhu (2007), and Baele, Pungulescu, and Ter Horst (2007)	Showing a decrease in equity home bias after the emergence of the euro.
Ahearne, Grier, and Warnock (2004)	Foreign firms that do not alleviate information costs to local investors are more underinvested by local investors.
Capital Flow	
Tesar and Werner (1994 and 1995), and Brennan and Cao (1997)	Stock prices fall (rise) when there are cross-border equity outflows (inflows).
Clark and Berko (1997), and Froot, O'Connell, and Seasholes (2001)	Some of the increases in price occur <i>after</i> capital inflows.
Bekaert, Harvey, and Lumsdaine (2002)	Market integration increases capital flow. Finding a decrease in dividend yield after market integration, which leads to a <i>permanent</i> decrease in the cost of capital.
Edison and Warnock (2003a; 2003b)	Foreign investment in the cross-listed firm does not increase. Listing effect is limited to the cross-listed firm but not to other firms in the country.
Country Credit Rating	
Bekaert and Harvey (2000), Bekaert, Erb, Harvey, and Viskanta (1997), Erb, Harvey, and Viskanta (1996a; 1996b), and Adler and Qi (2002)	Finding an improvement in country rating and a decrease in political risk.
Bekaert, Erb, Harvey, and Viscanta (1997)	Political risk is priced; an increase in country rating reduces cost of capital.
Resource Allocation	
Rajan and Zingales (1998), Love (2003), and Wurgler (2000)	The relaxation of financial constraints improves capital allocation and increases growth.
Galindo, Schiantarelli, and Weiss (2007)	The relaxation of financial constraints improves the efficiency of capital allocation for firms from 12 developing countries.
Forbes (2007)	Chilean capital controls increase financial constraints of small firms.
Economic Growth	
Bekaert and Harvey (2000), Bekaert, Harvey, and Lundblad (2005), and Henry (2000b)	Finding an increase in foreign investment after market integration.
Errunza (2001), and Bekaert, Harvey, and Lundblad (2001)	Showing an increase in economic growth.

market integration; an increase in correlation, however, is too small to have any impact on investors' decisions on hedging strategies. While some countries, especially developed markets, are found to be more integrated, some emerging countries are less integrated. As a result, investors still have room to diversify their portfolios, although, the benefits may not be as high as before.

With respect to the impacts of market integration, they should be different among countries with different degrees of financial development. Second, most studies explore market integration only in the equity market. Researchers should address the issues of market integration in the other financial markets such as corporate bonds, government bonds, money, and bank credit or even in the other markets such as real estate and labor. Third, some researchers have examined the impact of market integration at the subcountry level but the body of this literature is still in an infant stage. Financial market integration should affect foreign hedging strategies, international portfolio management, financing international trade, international capital budgeting, and international taxation. Future research should investigate these issues because they are important for multinational corporations and eventually for the whole economy. There are still many questions that need to be answered regarding the consequences and dynamics of market integration at this microlevel. Because of a recent huge rise in oil prices, future research should examine how it affects the financial market integration process. Evidently, multinational corporations seem to suffer from a higher cost of outsourcing and importing products to the domestic market.⁴

GLOSSARY

ADRs (American Depositary Receipts) Based on the Bank of New York, the biggest trader of ADRs, an American Depositary Receipt is a negotiable certificate that usually represents a foreign company's publicly traded equity or debt. Depositary Receipts are created when a broker purchases the company's shares on the home stock market and delivers them to the depositary's local custodian bank, which then instructs the depositary bank to issue depositary receipts. Depositary receipts may trade freely, just like any other security, either on an exchange or in the over-the-counter market. They are also known as GDRs (Global Depositary Receipts.)

CEFs (Closed-end Funds) Closed-end funds (CEFs) are investment vehicles, actively managed by separate entities known as investment advisers, and are distinguished by their unique features and benefits. There are currently over 600 CEFs, each with its own investment objective, such as capital growth, current income, or a combination of the two. Shares of CEFs are created through an initial public offering (IPO), after which they trade on a major stock exchange, similar to common stocks. As a result of the trading, CEFs will have both a market price and a net asset value (NAV). Net asset value is the market

value of all securities in the fund portfolio. Market prices fluctuate based on supply and demand and typically trade above (premium) or below (discount) the fund's NAV. This characteristic differentiates CEFs from their open-end mutual fund counterparts.

Open-end Funds An open-end fund is similar to a mutual fund in the United States. There are four main differences between closed-end funds and open-end funds. First, shares of closed-end funds are sold at a discount or premium to NAV whereas shares of open-end funds are sold at their NAV. Second, shares of closed-end funds are traded in stock exchanges instead of being redeemed by open-end funds. Third, closed-end funds do not increase capital or sell more shares to raise new capital after launching. Third, shares of closed-end funds are traded throughout the day like stocks, while shares of open-end funds are traded at the closing time of the market and at the closing prices.

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⁴See www.time.com/time/specials/packages/article/0,28804,1819594_1819592,00.html.

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