The Rationale for Cross-Border Listings

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- *Cross-border listings have gained in importance over the past few decades as many companies have become more international in their orientation. As well, technological progress and the liberalization of capital flows have fostered considerable competition among global stock exchanges for equity listings and trades.*
- *The geography of cross-border listings has changed considerably since the mid-1980s, with U.S. exchanges attracting an increasing share of cross-listed firms.*
- *Empirical studies suggest that the cost of equity capital generally declines following a foreign listing. This can be explained by a decline in transactions costs or by an improvement in the quality and quantity of firm-specific information available to investors.*
- *Informational asymmetries across countries prevent simultaneous price discovery on foreign exchanges.*

The structure of global equity markets has changed considerably over the past few decades as technological progress and the liberalization of capital flows have lowered the barriers that insulated national markets from each other. However, while investors can now access foreign capital markets more easily, geography has not become irrelevant. Obstacles to international capital flows, such as legal restrictions on capital mobility and foreign ownership, the costs associated with trading and acquiring information on firms listed abroad, and concerns over investor protection in certain foreign jurisdictions, still exist. The segmentation of markets that results from these barriers is creating incentives for corporate managers to adopt financial policies such as international cross-listing, whereby a firm lists its shares for trading on at least two stock exchanges located in different countries.[1]

The object of this article is to explore the reasons for—and the consequences of—cross-listings, focusing specifically on the channels through which cross-listing affects the cost of equity capital. The extent to which national equity markets are integrated with one another will also be discussed. The evidence presented here consists mostly of empirical findings from the literature.

1. In the remainder of this article, the terms *international* and *cross-border* will be dropped. This practice will be referred to simply as cross-listing (or as interlisting, which is considered a synonym in the literature). The reader should note that while dual listings within a single jurisdiction are common, the rationale for these listings is not the subject of this article.

The Geography of Cross-Listings

Canadian firms have been listing shares abroad in increasing numbers over the past two decades. As of November 2003, there were 181 Canadian listings in the United States, an increase of almost 100 per cent in 20 years.[2] A small number of Canadian firms (21) are listed on the London Stock Exchange, which is generally considered to be the most international of European stock markets. The rise in Canadian-based interlisted issues is more modest when the numbers are scaled by the total number of stocks listed on the Toronto Stock Exchange (TSX). The proportion of Canadian-based interlisted shares has increased from about 10 per cent in the late 1980s to roughly 15 per cent in recent years (Chart 1). These listings represent a broad range of industries from such sectors as natural resources, technology, transportation, and communications. For most of the past 20 years, trading of Canadian-based issues has been fairly evenly split between Canadian and U.S. exchanges. The percentage of the value of U.S. trading has fluctuated in a range of 40 to 50 per cent (Chart 2).

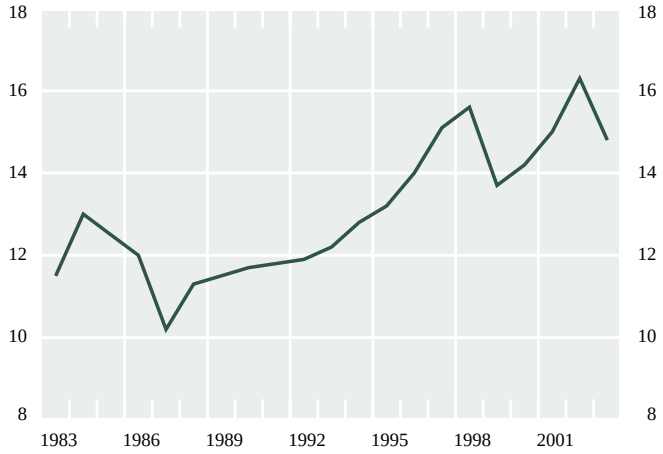
While there is evidence that U.S. exchanges have become more global in character in the past two decades, European exchanges have tended to narrow their focus. Although the number of European firms listing their shares abroad increased considerably between the mid-1980s and the mid-1990s, most of them gravitated towards U.S. exchanges as opposed to those in other European countries. During that period, the number of U.S.-based firms listing in Europe fell by a third (Pagano et al. 2001, 2002). This is believed to be a direct consequence of the competitive advantage of U.S. exchanges, which are generally considered to be better positioned to lure larger global firms that require deep and liquid markets to accommodate their funding needs and acquisition strategies. Evidence that will be discussed later shows that firms also try to associate themselves with the U.S. regulatory system.

Despite a higher cost, listing in the United States has become a way for high-quality, innovative firms to distinguish themselves from others. Pagano et al. find that the characteristics and performance of European companies differ sharply depending on whether they cross-list in the United States or within Europe. If they list in the United States, they tend to be high-tech, export-oriented companies, and are pursuing rapid expansion with no significant reliance on debt. Pagano's results also suggest that companies tend to list in countries that share similar cultural or linguistic characteristics with the country in which they are based.

Chart 1

Proportion of Canadian-Based Interlisted Shares on the TSX

Per cent

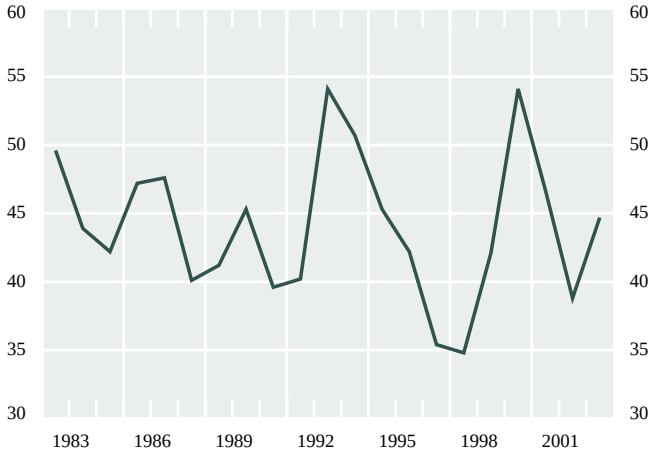


Source: *TSX Review*

Chart 2

Share of Trading Value for Canadian-Based Firms on U.S. Exchanges

Per cent



Source: *TSX Review*

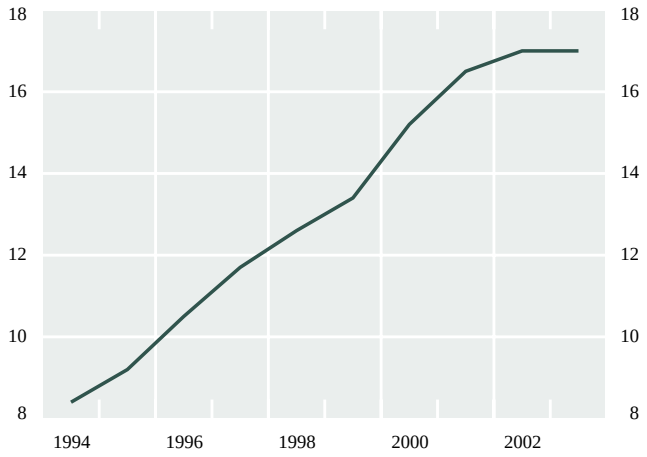
2. Most of the Canadian companies listed in the United States are trading on either the NYSE (80 of 181) or the NASDAQ (78). The remaining 23 companies list on regional exchanges or on the American Stock Exchange (AMEX).

The proportion of non-U.S. listings on the New York Stock Exchange (NYSE) has doubled in the past decade, rising steadily from about 8.5 per cent in 1994 to 17 per cent at the end of 2003 (Chart 3). During the same period, the proportion of the value of trading accounted for by non-U.S. firms fell slightly, from around 10 per cent to 8 per cent (Chart 4).

Chart 3

Proportion of Non-U.S. Listings on the NYSE

Per cent

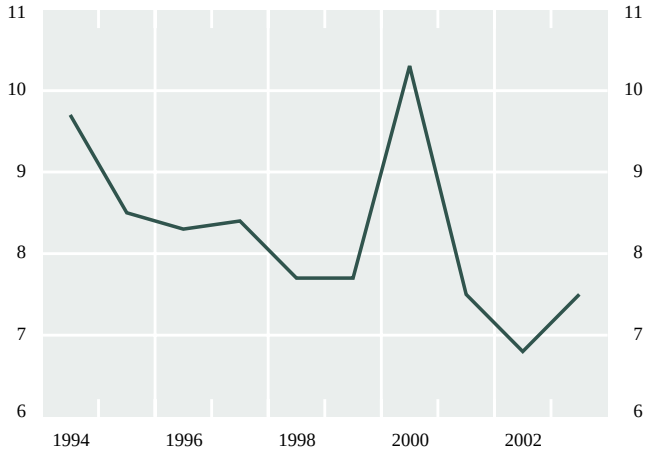


Source: New York Stock Exchange Web site at http://www.nyse.com

Chart 4

Share of Trading Value on the NYSE: Non-U.S. Listings

Per cent



Source: New York Stock Exchange Web site at http://www.nyse.com

The share of international stocks in the NASDAQ listings also increased in the 1990s, but to a lesser extent, rising from 7 per cent at the end of 1992 to slightly less than 10 per cent in 2003. Non-U.S. listings on the NASDAQ reached a peak in 2001 before declining, as technology stocks went through a severe correction following their rapid price appreciation in the late 1990s. Table 1 provides a breakdown by region of the number of firms cross-listed on the NYSE and the NASDAQ.

Table 1

Cross-Listings on the NYSE and the NASDAQ, by Region

As of 31 December 2003*

	NYSE	NASDAQ
Asia / Pacific	80 (17.1)	50 (14.7)
Europe	189 (40.3)	95 (27.9)
Middle East / Africa	13 (2.8)	76 (22.3)
South America / Caribbean	106 (22.6)	42 (12.3)
Canada	81 (17.3)	78 (22.9)
Total	469	341

* Figures in brackets are expressed in per cent.

Source: New York Stock Exchange Web site at http://www.nyse.com and the NASDAQ Web site at http://www.nasdaq.com

The Costs of Cross-Listing

Cross-listing offers many advantages for the listing firms, but there are also costs. These relate to enhanced disclosure requirements, registration costs with regulatory authorities, and listing fees (Karolyi 1998). To accommodate a wide variety of firms, exchanges have designed several different listing categories, each with a different set of requirements and, to the extent that investors are knowledgeable about this structure, varying potential benefits.

At one end of the spectrum is the ordinary listing. This is the most prestigious type of listing, but also the one for which requirements are the most stringent. A firm seeking a listing must meet certain criteria set by the exchanges. These usually relate to minimum levels of market capitalization and of certain accounting variables, such as income. Firms must also satisfy the requirements of regulators, who usually demand that financial statements be restated according to the principles and standards mandated by the local accounting authority. They must also make arrangements for the clearing and settlement of trades in the foreign country in which they wish to list.

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Firms wishing to list in the United States have the option of participating in an American Depository Receipts (ADR) program. ADRs are negotiable certificates issued by a bank to represent the underlying shares of stock, which are held in trust at a foreign custodian bank. The sponsoring bank provides all stock transfer and agency services, such as maintaining registration of holders and settling broker trades. The issuing banks exchange the foreign currency dividends for U.S. dollars and send the dollar dividend to the ADR holders. A number of listing options, each with different reporting requirements, are available to firms interested in issuing ADRs.[3]

Why List Abroad?

According to survey results, Canadian corporate managers generally believe that access to a broader investor base and increased marketability of a firm's securities are the main benefits of pursuing cross-listing, while compliance with foreign reporting requirements is cited as a major cost. The majority of survey respondents consider the net benefits of cross-listing to be positive, although not necessarily substantial. Whether benefits outweigh costs depends on whether total trading volume increases subsequent to listing abroad (Mittoo 1992).

Although some corporate managers may be partly motivated by such considerations as enhancing their firm's prestige or increasing the visibility of its products, the primary objective of cross-listing is the financial goal of reducing the cost of the firm's equity capital. Listing a company's stock abroad should have no impact on its price when domestic and foreign equity markets are fully integrated. If barriers exist, however, a firm's share value may be affected by the cross-listing announcement. Empirical evidence suggests that shares of cross-listed firms tend to experience abnormally high returns prior to their foreign listing and shortly thereafter. Longer-term performance varies greatly across companies. For many firms, the initial increase in performance dissipates over the next year.

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This post-listing performance, which is generally more pronounced for smaller, less mature firms, is often considered to be related, not to the event of listing, but to firm-specific factors. For example, managers may have timed the foreign listing to occur just as the firm's value was peaking. It is also believed that smaller firms may have difficulty adjusting to their new environment, where disclosure requirements are usually higher than in their home market. Another possible explanation is that the firm may have issued too much equity at the time of listing relative to what the investors were willing to support (Karolyi 1998; Foerster and Karolyi 1999). Recent evidence suggests that, for Canadian firms, the magnitude of the price reaction declined significantly in the 1990s. This is explained by the increasing integration of the Canadian and U.S. economies (Mittoo 2003).

This post-listing performance may also be linked to a reduction in the underlying sensitivity to the company's share price among domestic investors, which results in lower required returns. A corporation that decides to list its shares abroad may benefit from investor heterogeneity, since a widening of the shareholder base improves the ability of investors to share risk. Specifically, investors would require lower expected returns to hold the stock, given that some of its pre-listing systematic risk can now be diversified. Empirical studies suggest that the cost of equity

3. Level 1 ADRs trade over-the-counter (OTC) as Pink Sheet issues with limited liquidity and require only minimal Securities and Exchange Commission (SEC) disclosure and no compliance with U.S. Generally Accepted Accounting Principles (GAAP). Level 2 ADRs are exchange-listed securities, but do not allow new capital to be raised. Level 3 ADRs, the most prestigious and costly type of listing, require full SEC disclosure and compliance with the exchange's own listing rules.

capital declines following a foreign listing (Karolyi 1998; Stulz 1999; Errunza and Miller 2000).

Transactions costs and informational considerations are two channels through which interlisting may lead to a drop in expected returns.

Transactions costs

Cross-listing reduces transactions costs through an improvement in market liquidity following the foreign listing (Karolyi 1998). A market is considered to be liquid if transactions can be executed rapidly and with little impact on prices.

The relationship between liquidity and interlisting is largely attributed to the global competition for order flow (i.e., trading volume). This competition causes exchanges to continuously look for ways to improve their trading processes in order to enhance market quality and maintain or attract order flow.[4] Improvements to trading processes relate, for example, to trade execution, disclosure of trading information, and to the presence and activities of market-makers.[5]

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In theory, when a security trades on multiple markets, traders who do not have superior information regarding future returns will base their trading decisions largely on transactions costs. If one exchange has lower transactions costs than the other(s), order flow emanating from these so-called liquidity traders will gravitate towards that exchange. Other traders who wish to profit from information in their possession that has either not been disseminated to, or properly assimilated by, the whole trading community will then have incentives to trade on that market as well in order to better conceal their trading intentions. This exchange would eventually reap most of the trading volume for the stock and dominate the market (Chowdhry and Nanda 1991; Huddart, Hughes, and Brunnermeier 1998).

Empirical evidence, much of it derived from Canadian data, suggests that bid-ask spreads tend to narrow on the domestic market following interlisting, particularly for stocks that experience an increase in domestic trading volume. The improvement in quotes can be interpreted as a response of domestic market-makers to competition from their foreign counterparts. An increase in total trading volume and in market depth has also been documented. The extent to which liquidity is enhanced is related to the proportion of total trading volume that the new market captures and to the trading restrictions imposed on foreigners prior to listing (Karolyi 1998; Foerster and Karolyi 1998). Liquidity improves the most when the domestic market retains a significant portion of its trading volume and when restrictions on pre-listing cross-border trading are stringent. Another condition favouring the enhancement of liquidity, mostly in situations where the listing firm is based in an emerging market, is the existence of informational links between markets. If informational links were poor, e.g., for emerging markets, cross-listing would actually reduce liquidity and increase volatility on the domestic market as informative trades were directed to other markets (Domowitz, Glen, and Madhavan 1998).

All else being equal, greater liquidity should translate into a lower cost of equity capital, since liquidity is valued by shareholders. The required rate of return for a security has been shown to be an increasing and concave function of the spread between the quotes of interested buyers and sellers (Amihud and Mendelson 1986).

A closer look at foreign firms listing on the NYSE shows that foreign stocks are typically less liquid than those of firms based in the United States. They have wider bid-ask spreads and less market depth, and their prices are more volatile. The difference tends to be greater for companies from emerging markets than for those from industrialized economies. Specialists also appear to be less willing to maintain non-zero positions in their closing inventory of foreign stocks (Bacidore and Sofianos 2002). These results are attributed to informational asymmetry and to the increased

4. There is no precise definition of market quality, but liquidity is considered to be an important aspect. Other key considerations are operational and informational efficiency, transparency, and volatility.

5. The role of market-makers is to maintain a liquid, fair, and orderly market. While most stock exchanges have introduced some form of market-maker, their responsibilities and the proportion of stocks with a market-maker can vary across markets.

risk of adverse selection of foreign stocks, which are discussed in the next section.

Informational considerations

Informational considerations are another source of market segmentation that can be overcome through cross-listing. These considerations relate mainly to the cost of acquiring and processing relevant information about foreign firms, and to the reliability of that information. Several authors argue that interlisting reduces the cost of equity capital by making information on the listing firm more easily accessible.

While there is evidence that analysts tend to be less optimistic about the prospects of foreign firms compared with domestically based firms, cross-listings tend to improve the accuracy of their earnings forecasts.

Cross-listing is believed to increase a firm's visibility as well as investor recognition, based on evidence that both media coverage and the number of analysts following the firm rise subsequent to the foreign listing. While there is evidence that analysts tend to be less optimistic about the prospects of foreign firms compared with domestically based firms, cross-listings tend to improve the accuracy of their earnings forecasts. Since investors have to incur a lower cost to follow a corporation's affairs, its investor base expands, and demand for its stock will rise (Lang, Lins, and Miller 2003; Baker, Nofsinger, and Weaver 2002; Das and Saudagaran 1998).

Disclosure requirements for trading and accounting information, as well as the degree of protection of minority shareholders' interests, all have implications for the valuation of a firm. Empirical work suggests that cross-listing in a country with better disclosure requirements and investor protection might create value (Doidge, Karolyi, and Stulz 2003) because superior accounting and disclosure standards reduce investors' costs for researching information. Listing in a country with stricter standards than at home also reduces the potential for managers to benefit from private information in their possession. These lower information and agency costs allow firms to reduce their equity risk premium (Reese and Weisbach 2002). Some authors believe that firms based in countries with poor standards may also benefit from the signalling effect of listing in a country with stricter requirements. According to them, cross-listing could signal a credible commitment to enhanced corporate governance. Firms would then try to list in countries with higher disclosure standards and a greater standard of enforcement than in their own jurisdiction (Coffee 2002). This so-called "bonding hypothesis" has been tested empirically with Canadian data. The results suggest that Canadian firms can increase their valuation by bonding themselves to the U.S. regulatory environment through cross-listing (King and Segal 2003).

The notion of a "race to the top" in disclosure requirements has been formalized by Huddart, Hughes, and Brunnermeier (1998). In their theoretical model, the actions of non-informed traders, who have strong incentives to gravitate towards exchanges with better disclosure, prevent corporate insiders from listing the company on an exchange with low disclosure requirements—and profiting from the private information in their possession. Their model contradicts the notion that, without regulators, exchanges could be tempted to be lax about disclosure requirements in order to increase listings.

An additional advantage of cross-listing is that, in the case of stocks trading on markets located in different time zones, it facilitates the process of assessing a stock's value at the beginning of the trading session. At the opening of trading, prices are less volatile for shares that traded overnight on another exchange than for those that did not. Pricing errors are thus reduced (Yamori 1998; Lowengrub and Melvin 2002).

Price Interactions

An emerging stream of the literature on cross-listings is concerned with analyzing the fluctuations in the price of a stock on different markets. If equity markets were fully integrated, price gaps would be minimized when prices were converted into the same currency. In addition, all markets would incorporate new information almost simultaneously. Integration of market prices should favour market efficiency and liquidity by ensuring that orders are matched with the best offsetting orders from all trading venues.

Informational links between markets, however, are rarely strong enough for perfect market integration to take place and for concurrent price discovery to occur on multiple markets.[6] Informational asymmetries and transactions costs cause a certain degree of market segmentation, allowing one market to become from time to time a price leader for a given stock. While arbitrage forces necessarily drive prices on other markets to adjust so as to maintain an equilibrium of no arbitrage, the exchange acting as a price leader could attract a substantial portion of order flow if the adjustment takes time.

This type of misalignment is expected to arise, for example, when trading hours do not overlap. In such an environment, an advantage is gained by the firm's domestic equity market, since firm-specific news relevant to prices is likely to be produced in its home country during regular business hours. Another example of an informational asymmetry that may cause market segmentation occurs with firms that may be classified as "blue chip" in their home markets, because they have a relatively large investor base and analyst following, but have less visibility abroad. In these cases, it is reasonable to assume that price discovery will tend to occur primarily on the firm's national exchange. However, it could also be argued that price discovery will occur on the foreign exchange if its market quality is superior.

6. Price discovery refers to the process through which new fundamental information is reflected in prices.

Does price discovery on the firm's home market lead that in exchanges from abroad, or is the opposite true? Empirical evidence suggests that prices on Canadian and U.S. exchanges are mutually adjusting for Canadian-based cross-listed stocks. The contribution of each market varies greatly across stocks. The extent to which the foreign market will act as a leader is related to its share of total trading volume, its relative advantage in terms of liquidity, and the economic ties between the listing firm and the country in which the exchange is located (Eun and Sabherwal 2003).

Conclusions

While financial markets worldwide have become more integrated, geography still matters in finance. Stock exchanges are trying to circumvent barriers to international capital flows by creating strategic alliances that reach across borders. Firms are also constantly striving to overcome market segmentation by adopting financial policies such as cross-listing. Interlisting allows firms to reduce the cost of their equity capital by reducing the systematic riskiness of their shares for investors, by increasing the liquidity of their shares, and by improving the information environment.

Global competition for order flow among stock exchanges and the resulting enhancement in market quality not only improve the financial conditions of firms, but are also beneficial for investors. Empirical evidence suggests that prices on Canadian and U.S. exchanges are mutually adjusting for Canadian-based cross-listed stocks.

Literature Cited

Amihud, Y. and H. Mendelson. 1986. "Asset Pricing and the Bid-Ask Spread." *Journal of Financial Economics* 17 (2): 223–49.

Bacidore, J. and G. Sofianos. 2002. "Liquidity Provision and Specialist Trading in NYSE-Listed Non-U.S. Stocks." *Journal of Financial Economics* 63 (1): 133–58.

Baker, H.K., J.R. Nofsinger, and D.G. Weaver. 2002. "International Cross-Listing and Visibility." *Journal of Financial and Quantitative Analysis* 37 (3): 495–521.

Chowdhry, B. and V. Nanda. 1991. "Multimarket Trading and Market Liquidity." *Review of Financial Studies* 4 (3): 483–511.

Coffee, J.C. 2002. "Racing Towards the Top?: The Impact of Cross-Listings and Stock Market Competition on International Corporate Governance." *Columbia Law Review* 102 (7): 1757–1831.

Das, S. and S.M. Saudagaran. 1998. "Accuracy, Bias, and Dispersion in Analysts' Earnings Forecasts: The Case of Cross-Listed Foreign Firms." *Journal of International Financial Management and Accounting* 9: 16–33.

Doidge, C., G.A. Karolyi, and R.M. Stulz. 2003. "Why Are Foreign Firms That List in the U.S. Worth More?" *Journal of Financial Economics*. In press, corrected proof. Available at sciencedirect.com.

Domowitz, I., J. Glen, and A. Madhavan. 1998. "International Cross-Listing and Order Flow Migration: Evidence from an Emerging Market." *Journal of Finance* 53 (6): 2000–2027.

Errunza, V.R. and D.P. Miller. 2000. "Market Segmentation and the Cost of Capital in International Equity Markets." *Journal of Financial and Quantitative Analysis* 35 (4): 577– 99.

Eun, C. and S. Sabherwal. 2003. "Cross-Border Listings and Price Discovery: Evidence from U.S.-Listed Canadian Stocks." *Journal of Finance* 58 (2): 549–75.

Foerster, S.R. and G.A. Karolyi. 1998. "Multimarket Trading and Liquidity: A Transaction Data Analysis of Canada-U.S. Interlistings." *Journal of International Financial Markets, Institutions and Money* 8 (3–4): 393–412.

———. 1999. "The Effects of Market Segmentation and Investor Recognition on Asset Prices: Evidence from Foreign Stocks Listing in the United States." *Journal of Finance* 54 (3): 981–1013.

Huddart, S., J.S. Hughes, and M. Brunnermeier. 1998. "Disclosure Requirements and Stock Exchange Listing Choice in an International Context." *Journal of Accounting and Economics* 26 (1–3): 237–69.

Karolyi, G.A. 1998. "Why Do Companies List Shares Abroad?: A Survey of the Evidence and Its Managerial Implications." *Financial Markets, Institutions and Instruments* 7 (1): 1–60.

King, M.R. and D. Segal. 2003. "Corporate Governance, International Cross-Listing and Home Bias." *Canadian Investment Review* 16 (4): 8–19.

Lang, M.H., K.V. Lins, and D.P. Miller. 2003. "ADRs, Analysts, and Accuracy: Does Cross Listing in the United States Improve a Firm's Information Environment and Increase Market Value?" *Journal of Accounting Research* 41 (2): 317–45.

Lowengrub, P. and M. Melvin. 2002. "Before and After International Cross-Listing: An Intraday Examination of Volume and Volatility." *Journal of International Financial Markets, Institutions and Money* 12 (2): 139–55.

Mittoo, U.R. 1992. "Managerial Perceptions of the Net Benefits of Foreign Listing: Canadian Evidence." *Journal of International Financial Management and Accounting* 4 (1): 40–62.

———. 2003. "The Value of U.S. Listing: Does a U.S. Listing Improve Stock Performance in the Long Run?" *Canadian Investment Review* 16 (3): 31–37.

Pagano, M., O. Randl, A.A. Röell, and J. Zechner. 2001. "What Makes Stock Exchanges Succeed? Evidence from Cross-Listing Decisions." *European Economic Review* 45 (4–6): 770–82.

Pagano, M., A.A. Röell, and J. Zechner. 2002. "The Geography of Equity Listing: Why Do Companies List Abroad?" *Journal of Finance* 57 (6): 2651–94.

Reese, Jr., W.A. and M.S. Weisbach. 2002. "Protection of Minority Shareholder Interests, Cross-Listings in the United States, and Subsequent Equity Offerings." *Journal of Financial Economics* 66 (1): 65–104.

Stultz, R. 1999. "Globalization, Corporate Finance and the Cost of Capital." *Journal of Applied Corporate Finance* 12 (3): 8–25.

Yamori, N. 1998."Does International Trading of Stocks Decrease Pricing Errors? Evidence from Japan." *Journal of International Financial Markets, Institutions and Money* 8 (3–4): 413–32.