

Cross-listing and Firm Growth*

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Abstract. Extant research posits that cross-listing improves firms' access to lower cost external financing. But so far, there is scarce evidence that improved access to external funds through cross-listing contributes to higher firm growth. Documenting the relation between firm growth and cross-listing is critical because the presumption in prior research is that funds raised via cross-listing will be channeled towards potentially profitable projects. Using a sample of firms from thirty-seven countries that are cross-listed in the USA, we find a positive association between cross-listing and subsequent externally financed firm growth rates. However, we do not find that increases in externally financed firm growth after cross-listing vary systematically as a function of the home-country attributes of the cross-listed firms. Overall, our results provide new and direct evidence on the impact of cross-listing on the firm growth rates.

JEL Classification: G15

1. Introduction

Extant research posits that market imperfections create a wedge between a firm's internal and external cost of financing and thus constrain a firm's ability to invest in potentially profitable projects. These problems, however, created by market imperfections, differ across countries; studies have shown, in fact, that the magnitude of these problems is a function of a country's underlying legal and financial systems.¹ Given this backdrop, extant research points to

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¹ For example, La Porta et al. (1997) document that countries with stronger investor protection have less concentrated ownership, higher levels of outside (minority) ownership, and more developed financial markets, as evidenced by the number of publicly listed firms and initial public offerings. Rajan and Zingales (1998) show that financial development facilitates growth and they attribute this result to the fact that financial development reduces the cost of external finance to firms.

cross-listing as a mechanism through which firms can improve their access to lower-cost external financing and consequently can invest in potentially profitable projects. In this paper, we empirically evaluate this proposition by examining the relation between cross-listing in the USA and subsequent externally financed firm growth rates. Furthermore, we examine whether this relation varies with a cross-listed firm's home-country characteristics.

Prior research offers several reasons why cross-listing in a financially developed country such as the USA will improve firms' access to lower-cost external financing. A US cross-listing enables greater investor recognition, enhances liquidity, and mitigates the costs due to market segmentation (Merton, 1987; Foerster and Karolyi, 1999; Lang et al., 2003). Moreover, a US cross-listing serves as a bonding mechanism that positively affects a firm's corporate governance and thus improves the protection afforded to a cross-listed firm's outside shareholders (Karolyi, 2006). The implication of these studies is that cross-listing will improve firms' access to lower-cost external financing and have a positive impact on firm growth.

In examining the effects of cross-listing, empirical studies have largely focused on whether cross-listing improves a firm's access to external funds (e.g., Pagano et al., 2001; Reese and Weisbach, 2002).²

Our paper, however, enlarges this focus, for although access to external funding is clearly important, there is still only limited evidence that firms actually channel their increased external funds towards the profitable investments that contribute to higher firm growth. Our paper considers this question to be especially important in light of Siegel's (2004), and Licht's (2003) recent studies, for these studies express skepticism about the bonding hypothesis (which contends that cross-listing in a developed market like the USA will result in a firm having better corporate governance). They argue that cross-listing in the USA does not, in fact, improve a firm's corporate governance, and that external funds can be diverted toward the private benefit of managers. While these criticisms do motivate our inquiry, the present study should not be viewed as a test of the bonding hypothesis. Rather, we examine the general proposition of whether or not cross-listing affects the portion of firm growth achieved through external financing.

To test whether cross-listing in the USA is positively related to a firm's externally financed growth rate, we first identify a sample of 476 firms from thirty-seven countries which cross-listed in the US stock exchanges for the first time during the years 1995–2004, and have financial data available on Global Vantage database. We then pool data over time and compare externally

² More recent research by Foucault and Gehrig (2006) also points to the positive influence of cross-listing on stock price informativeness, and in turn, its effect on investment efficiency.

financed growth rates in the years before and after cross-listing. We follow the approach developed by Demirguc-Kunt and Maksimovic (1998, 2002) to measure the extent to which a firm's growth is externally financed. Specifically, we calculate for each sample firm the maximum rate at which it can grow, using (1) only its internal funds and short-term borrowing, or (2) its internal funds, short-term borrowing, and long-term debt. We then compute the extent to which a firm's actual growth rate exceeds each of these two estimated rates and test whether the observed excess growth rates for our sample firms subsequent to cross-listing are higher even after controlling for factors that may affect the demand for and availability of capital.

Consistent with the external financing channel argument, we find a positive relation between our measures of firm growth and cross-listing. Specifically, we find that the difference between firms' realized growth rates and the growth rates attainable using constrained sources of finance is larger in the period following cross-listing in the USA. However, we are unable to detect an association between the increase in externally financed firm growth after cross-listing and any characteristics of the home country of the cross-listed firms such as financial development or a common- or code-law dichotomy. Lastly, when we distinguish the cross-listing effects across different types of listings, we find that compared to the Level II American Depositary Receipt (ADR) and Over the Counter (OTC) listings, Canadian listings exhibit higher growth from external equity financing.

In summary, our paper contributes to extant literature on cross-listing by exploring the link between cross-listing and the portion of firm growth obtained through external financing. In part, our paper extends prior research by Pagano et al. (2001), Reese and Weisbach (2002), and Lins et al. (2005), all of whom note the role of cross-listing in improving firms' access to lower-cost external financing. More recently, Doidge et al. (2004) argue that cross-listing in the USA contributes to firm value because it limits the ability of controlling shareholders to extract private benefits of control.³

Consequently, they argue that cross-listed firms have a better ability to raise capital at a lower cost and to pursue potentially profitable projects. The implication of these studies is that cross-listing will increase firm growth. In this paper, we verify this prediction. We find that cross-listed firms do indeed exhibit higher growth rates. However, we find only mixed evidence of

³ Doidge et al. (2004) focus on Tobin's Q. Differences in Tobin's Q across firms can reflect differences both in the magnitude of different firms' growth opportunities and in the market's discounting of these firms' value because the ability of controlling shareholders to expropriate firm resource varies across firms. By focusing on externally financed growth, we provide direct evidence on whether a firm's improved access to external funds through cross-listing is actually related to higher firm growth.

a connection between the externally financed growth/cross-listing relation and the attributes of the cross-listed firm's home country. Our paper also speaks to the recent criticism that cross-listing may not result in improved corporate governance for a cross-listed firm. While we do not directly measure changes in corporate governance, we show that cross-listing is positively associated with a cross-listed firm's realized growth rate achieved through external financing.

The remainder of this paper is organized as follows: In the following section, we elaborate on the relation between cross-listing and firm's growth, and we develop our testable hypothesis. Section 3 describes our methodology and data. Section 4 presents our empirical findings, and Section 5 concludes the paper.

2. Development of Testable Hypothesis

The objective of this paper is to examine the relation between cross-listing and the portion of firm's growth that is externally financed. Additionally, we also examine whether the cross-listing/firm-growth relation varies with the attributes of a cross-listed firm's home country.

Extant research offers several arguments as to why cross-listing can contribute to lower-cost external financing. First, cross-listing may serve to counter the effects of market segmentation. Frictions in the form of taxes, information asymmetry, and foreign ownership restrictions may serve as barriers to foreign investment in local capital markets (Alexander et al., 1987). Stulz (1999) points out that these barriers serve to segment domestic capital markets. The upshot here is that domestic investors in segmented domestic capital markets require a risk premium for bearing all the risk of the economic activities of that country. However, Stapleton and Subrahmanyam (1977) show that firms can adopt policies, such as cross-listing a firm's stock in a foreign market, to offset the negative effects of market segmentation.⁴

For example, cross-listing may reduce information costs: particularly if a firm is cross-listed in the USA, it may be required to disclose more information (Lang et al., 2003). Furthermore, cross-listing may trigger greater analyst following and hence greater information production.⁵

Cross-listing a firm's shares in a foreign capital market also allows foreign investors to trade shares in their own currency. This allows foreign investors

⁴ Other effective policies to overcome market segmentation include foreign direct or portfolio investments. Stapleton and Subrahmanyam (1977) also point to the role of foreign mergers to alleviate (or offset) the negative effects of market segmentation.

⁵ This relation between cross-listing and analyst following is empirically documented by Lang et al. (2003).

to save any transaction costs associated with dealing in a foreign currency as well as to effectively circumvent any existing foreign exchange regulations (Alexander et al., 1987). Given that cross-listing serves to overcome barriers to foreign investment, theory anticipates that cross-listing should effectively reduce the costs related to market segmentation, and hence, to lower the cost of external financing.⁶

Another reason that cross-listing may reduce the cost of external financing lies in Merton's (1987) investor recognition hypothesis. Merton (1987) posits that incomplete information affects investors' stock trading behavior and, consequently, the related stock price. Given incomplete information, Merton argues, investors who are unaware of certain stocks cannot include these stocks in their investment portfolios. As a result, investors will require a risk premium for holding this nondiversifiable risk, causing a stock's required rate of return to depend on its investor base. Merton's hypothesis relies on the particular characteristics of an information environment in which, due to different information structures, the awareness of a firm's securities may be limited to a subset of the potential investors. However, if a firm's stock increases its investor base by enhancing visibility, there should be a reduction in a firm's cost of capital and a concomitant increase in its market value.

A closely related argument is that cross-listing will enhance firm liquidity. Amihud and Mendelson (1986) have shown that liquidity risk is priced by the market. Hence, an improvement in liquidity is anticipated to lower the required rate of return. Improved access to more investors and lower information asymmetry due to higher disclosure requirements are factors that contribute to higher liquidity. Consistent with this prediction, prior research has documented that spreads decrease and trading volume increases following cross-listing (Tinic and West, 1974; Smith and Sofianos, 1997; Domowitz et al., 1998).⁷

A relatively more recent argument advanced by Coffee (1999), and Stulz (1999) posits that cross-listing will contribute to a lower cost of external financing by serving to reduce the risk due to wealth expropriation. This is accomplished when a firm cross-lists in a country such as the USA, whose institutions provide greater investor protection than those afforded in the cross-listed firm's home country. As Reese and Weisbach (2002) note, cross-listing in the USA "obligates the firm to conform to generally accepted accounting principles (US GAAP), to file reports with the SEC, to comply with the requirements of the exchange on which it lists, and at least to some

⁶ Errunza and Miller (2000) argue that removal of these barriers lowers the cost of capital because of foreign portfolio investment and increased sharing of investment risk.

⁷ Furthermore, Foerster and Karolyi (1999) provide evidence that an improvement in liquidity is one of the factors that contributes to a lower cost of capital associated with cross-listing.

extent conform to US securities laws.” In short, the implication here is that cross-listing effectively improves a firm’s corporate governance, and that this is particularly true for firms that originate from less developed countries with weaker institutions.⁸ While this reasoning is intuitive, recent research raises several doubts about it. First, Licht (2003), and Siegel (2004) argue that SEC enforcement is not uniform, for enforcement action is seldom brought forward against cross-listed firms. Second, Licht (2003) notes that while US stock exchanges impose requirements on the nominations of boards of directors as well as on audit and compensation committees, cross-listed firms are exempted from these requirements. While these criticisms largely focus on the extent to which laws are enforced for cross-listed firms, it is worth noting that cross-listed firms are also subject to other forms of monitoring. For example, cross-listed firms in the USA are subject to an active takeover market. Cross-listing in the USA also improves the ability of investors to take low-cost corrective action against a firm. Finally, cross-listed firms “become subject to the scrutiny of reputational intermediaries such as U.S. underwriters (for firms that list via Level III ADRs), debt rating agencies, auditors, and analysts” (Doidge et al., 2004). In light of these arguments and counter-arguments, it is still far from clear whether cross-listing improves a firm’s corporate governance.

In summary, cross-listing, for a variety of reasons, improves firms’ ability to raise lower-cost external funds, which should in turn allow cross-listed firms to pursue potentially profitable projects, and hence, realize higher growth rates. We empirically evaluate this prediction. We also examine whether the cross-listing/firm-growth relation is sensitive to a cross-listed firm’s home-country attributes. According to arguments that refer to the bonding hypothesis and other benefits of cross-listing, such as market segmentation, the benefit of cross-listing should be greater for firms from countries that

⁸ Extant evidence provides several pieces of evidence consistent with the predictions that stem from this bonding hypothesis (Doidge, 2004; Doidge et al., 2004; Dyck and Zingales, 2004; Miller, 1999; Nenova, 2003; Reese and Weisbach, 2002). For example, Miller (1999) examines ADRs and finds that the benefits of cross-listing are evident only for ADRs that are subject to the highest levels of disclosure and regulatory supervision. Reese and Weisbach (2002) examine the frequency and location of equity offerings following cross-listing and find equity issues increase following all cross-listings, but the increase is larger for firms from jurisdictions with weak investor protection, and those firms raise more equity in the firm’s home country than in the USA. Other studies testing the bonding hypothesis using cross-listed firms include Nenova (2003), Dyck and Zingales (2004), and Doidge (2004), who examine the private benefits that accrue to majority shareholders, proxied by the premium on changes in controlling blocks of shares, or the difference in valuation between voting and nonvoting shares for firms with multiple classes of shares. Doidge (2004) finds, for example, that the premium between voting and nonvoting shares declines following cross-listing, an indication that minority investors are better protected and benefit more from cross-listing.

are financially underdeveloped or that, in general, have weaker institutions in place. Alternatively, it could be argued that cross-listing benefits firms, irrespective of their home-country characteristics, in terms of their access to lower-cost external funds. Thus, an empirical question remains as to whether or not the characteristics of the cross-listed firm's home-country influence the relation between cross-listing and firm growth.

3. Methodology and Data

3.1 METHODOLOGY

To test the relation between externally financed growth and cross-listing, we estimate the following model:

$$EFG_{it} = \alpha + \beta_1 DIV_{it}/TA_{it} + \beta_2 NI_{it}/NS_{it} + \beta_3 NS_{it}/NFA_{it} + \beta_4 SIZE_{it} + \beta_5 LTD_{it}/TA_{it} + \beta_6 NFA_{it}/TA_{it} + \beta_7 POST_{it} + e_{it} \quad (1)$$

where i and t are firm and time subscripts, respectively, and the variables are defined as follows:

EFG = measure of growth made possible by external financing,

DIV/TA = total dividends/total assets,

NI/NS = earnings before interest and taxes/net sales,

NS/NFA = net sales/net fixed assets,

$SIZE$ = natural log of total assets,

LTD/TA = long-term debt/total assets,

NFA/TA = net fixed assets/total assets,

$POST$ = indicator variable equal to 1 after the listing year, 0 otherwise.

Model (1) uses a firm's externally financed growth rate as a dependent variable, and regresses it on a set of firm-specific indicator variables, firm characteristics related to external financing needs as identified by Demirguc-Kunt and Maksimovic (1998, 2002), and an indicator variable, $POST$, to test for pre- and post- cross-listing effects.

In the absence of an explicit theoretical model that links firm characteristics to externally financed growth (Demirguc-Kunt and Maksimovic, 1998, 2002), the firm-specific control variables in model (1) attempt to control for factors which can influence externally financed growth, our dependent variable. Specifically, we include several variables (DIV/TA , NI/NS , NS/NFA , $SIZE$,

LTD/TA, *NFA/TA*, and *SIZE*) in regression model (1). All these variables are measured as of the year for which the dependent variable is computed.

Firms that pay more dividends to total assets (*DIV/TA*) have more cash than they need to invest (Demirguc-Kunt and Maksimovic, 1998). In our context, the implication is that externally financed growth is likely to be smaller for firms with higher values of *DIV/TA*; hence, we expect the coefficient on the variable *DIV/TA* to be negative.

Firm performance is another source of internal funds. Firm performance is often measured as return on assets, which can be expressed in terms of profit margin (*NI/NS*) and asset turnover (*NS/NFA*). Firms can increase their return on assets by increasing *NI/NS* or *NS/NFA*, although competition limits their ability to do so simultaneously. In other words, firms tend to face a trade-off between profit margin and turnover. A higher return on a firm's assets will result in less dependence on external financing to fund its potentially profitable projects. Consequently, theory predicts a negative relation between a firm's externally financed growth, and both, profit margin (*NI/NS*) and asset turnover (*NS/NFA*). Hence, the coefficients on the variables *NI/NS* and *NS/NFA* are expected to be negative.

Almeida et al. (2004) note that larger firms are less financially constrained. The implication is that larger firms are likely to fund growth through internal funds and are more likely to exhibit lower externally financed growth rates. Hence, the coefficient on the variable *SIZE* is expected to be negative. In contrast, firms with greater reliance on external long-term capital proxied by long-term debt divided by lagged total assets (*LTD/TA*) are likely to exhibit more externally financed growth. Hence, we expect the coefficient on *LTD/TA* to be positive.

Financially constrained firms with more growth opportunities tend to utilize external financing to pursue potentially profitable projects. To the extent that this is true, financially constrained firms with more growth opportunities should exhibit more externally financed growth. Smith and Watts (1992) argue that the higher the ratio of assets in place to firm value, the lower the ratio of investment opportunities to firm value. We measure growth opportunities as the ratio of net fixed assets to total assets (*NFA/TA*). The higher the *NFA/TA*, the smaller the externally financed growth. Hence, the expected sign for the variable *NFA/TA* is negative.

To test whether cross-listing is accompanied by higher externally financed growth, we include in model (1) an indicator variable (*POST*) that takes on the value of 1 after the listing year, and 0 for the year prior to the listing year. To the extent that a firm's externally financed growth increases after cross-listing, the coefficient on the variable *POST* is expected to be positive.

3.2 MEASUREMENT OF EXTERNALLY FINANCED GROWTH

To empirically measure externally financed growth, we start with Demircug-Kunt and Maksimovic's (1998) implementation of a firm-based financial planning model to estimate the maximum rate of growth that can be financed internally. Specifically, we compute firm-constrained growth that can be achieved by relying either on internal cash flows and short-term borrowing, or on internal cash flows, short-term borrowing, and long-term debt. For each firm, we then compute the difference between the realized rate of growth and the two measures of constrained growth. These differences reflect the level of growth realized through external financing.

A firm's external financing need depends on both the availability of internal funds as well as investment opportunities.⁹ Therefore, a firm's need for external financing must take into account both these factors. Following Demircug-Kunt and Maksimovic (1998, 2002), we estimate a firm's externally financed growth using its "percentage of sales" approach to financial planning. Three points are worth noting about this approach. First, the ratio of assets used in production to sales is assumed to be constant. The upshot here is that the total investment required will be positively related to a firm's growth in sales. Second, the firm's profit rate per unit of sales is assumed to be constant. Finally, we assume economic depreciation to equal the depreciation amount reported in a firm's financial statements. As a consequence, the external financing needs of a firm at time t can be expressed as follows:

$$EFN_t = [g_t \cdot A_t] - [(1 + g_t) \cdot (E_t \cdot b_t)] \quad (2)$$

where

EFN_t = measure of external financing need,

g_t = growth in sales at time period t ,

A_t = assets at time period t ,

b_t = proportion of earnings retained for reinvestment at time t ,

E_t = earnings after interest and taxes at time t .

The expression on the right-hand side represents the difference between the required investment for a firm growing at g_t percent less than the internally available capital for investment. Using the model in (2) and assuming EFN

⁹ It should also be noted that a firm's internal cash flows and investment opportunities are endogenously determined. For example, a firm's internal cash flows depend on the profitability generated from its assets in place. With respect to investments, Demircug-Kunt and Maksimovic (1998) posit that firms in capital-intensive industries may require larger investments to grow.

to be zero, we compute two measures of constrained growth, denoted as the short-term financed growth rate (*SFG*), and the maximum sustainable growth rate (*SG*), of which *SG* represents the most conservative estimate of a firm's constrained growth rate.

SFG_t represents the maximum growth rate of a firm attained through both internal cash flows and short-term debt. The amount of short-term borrowing undertaken is restricted such that the short-term debt to assets ratio is maintained. The purpose of this restriction is to ensure that the growth estimate is feasible for the underlying firms involved. The shortcoming of this assumption is that it does not completely capture a firm's short-term borrowing capacity. The growth estimate, *SFG_t*, is obtained by first setting the variable *b_t* in Equations (2) to (1). This implies the payout ratio to be 0. Given that external financing is limited such that the short-term debt to asset ratio is constant and that the dividends payout ratio is 0, the implied growth rate of the firm is expressed in Equation (3) below:

$$SFG_t = ROLTC_t / (1 - ROLTC_t), \quad (3)$$

where *ROLTC_t* is the ratio of earnings after interest and taxes to long-term capital.¹⁰

We also estimate a second constrained growth measure, *SG_t*, which represents the maximum growth rate a firm can attain through internal cash flows, short-term debt, and long-term debt financing to maintain a constant ratio of total debt to assets. This estimate assumes that the payout ratio is 0, and that the firm does not issue equity or increase leverage beyond the realized level. The growth estimate *SG_t*, is obtained by setting the variable *b_t* in Equation (2) to (1) and by using the book value of equity in place of total assets. To estimate *SG*, we set *EFN_t* to 0 and solve for the variable *g_t*, to derive the implied growth rate of the firm expressed in Equation (4) below:

$$SG_t = ROE_t / (1 - ROE_t), \quad (4)$$

where *ROE_t* is the ratio of net income to equity.

Following Demircug-Kunt and Maksimovic (1998), we calculate two metrics to proxy for externally financed growth for each firm in a given year. The first metric is the difference between the annual realized sales growth rate and its predicted *SFG*. We denote it as *EXCESS_SFG*. The second metric is the difference between the annual realized sales growth rate and its predicted

¹⁰ Following Demircug-Kunt and Maksimovic (1998), we denote the assets of the firm not financed by short-term debt as "long-term capital." It is obtained by multiplying a firm's total assets by 1 minus the ratio of short-term liabilities to total assets.

growth rate financed through internal cash flows, short-term debt, and long-term debt financing (*SG*). We denote it as *EXCESS_SG*.

3.3 SAMPLE SELECTION AND DATA

We obtain information on ADR listings directly from the Bank of New York website (www.adrbny.com). This listing information contains listing dates, the listing firm's country of origin, the stock exchange that the firm lists on, and the type of listing.¹¹

We also obtain, from Compustat, Canadian firms that directly list on the three major US stock exchanges. We then restrict the sample to firms that cross-listed for the first time during 1995–2004 and have financial data on Global Vantage for at least 1 year on each side of the cross-listing year. We exclude the firm observations for the cross-listing year because of the pre- and post-interrupted time-series research design used in this study. These restrictions yielded a sample of 476 unique cross-listed firms and 3,001 cross-sectional and time-series firm-year observations.

Table I provides a breakdown of our sample by year of cross-listing, type of industry, and name of US stock exchange listed under. The table shows an increase over time in the number of US listings by non-US companies up to 2002. Given that our sample period covers the passage in July 2002 of the Sarbanes–Oxley Act (SOX), which increased the reporting, regulatory and legal costs of listing on a US exchange, the decrease in cross-listings after 2002 may be related to SOX. This finding is consistent with that of Piotroski and Srinivasan (2007), who show that SOX has led to a decline in US listings by foreign firms. Table I also shows that our sample observations come from different industries, with the manufacturing industry being most represented. A majority of our US cross-listed firms chose OTC, followed by NYSE, Nasdaq, and AMEX. Though not reported in Table I, the mean (median) market capitalization of our sample of cross-listed firms in the post-cross-listing period is US \$9,122 (US \$1,692) million.

Before testing the externally financed growth/cross-listing relation, we investigate whether our sample of cross-listed firms exhibit external financing patterns that are similar to those documented in prior research.¹²

¹¹ ADR listings differ in terms of capital raising and compliance with the U.S Securities and Exchange Commission's disclosure requirements. For example, Level II ADRs are exchange-listed securities without a capital-raising element. In contrast, Level III ADRs are exchange-listed with a capital-raising element. For a detailed discussion of different types of ADR programs, see Foerster and Karolyi (1999).

¹² We thank an anonymous reviewer for suggesting such an examination.

Table I. Sample characteristics

This table provides a breakdown of our sample by year of cross-listing (Panel A), type of industry (Panel B), and name of US stock exchange listed under (Panel C).

Panel A: Year of cross-listing in the USA

Cross listing year	Number of firms	Percentage (%)
1995	30	6.30
1996	35	7.35
1997	45	9.45
1998	49	10.29
1999	51	10.71
2000	81	17.02
2001	60	12.61
2002	62	13.03
2003	49	10.29
2004	14	2.94
Total	476	100

Panel B: Industry composition

Industry	Number of firms	Percentage (%)
Agriculture, forestry, and fishing	1	0
Mining	53	11
Construction	5	1
Manufacturing	225	47
Utilities	95	20
Wholesale trade	17	4
Retail trade	15	3
Finance, insurance and real estate	3	1
Services	62	13
Total	476	100

Panel C: Stock exchange listing

Listing exchange	Number of firms	Percentage (%)
New York	180	38
American	23	5
Nasdaq	90	19
OTC (portal)	183	38
Total	476	100

Specifically, we first measure the extent of external financing (Equity, which is the amount of equity issued (Global Vantage Item #187) and Debt, which is the amount of debt issued (Global Vantage Item #189)) for cross-listed firms after cross-listing, and then compare the values of these variables to those for

a sample of non-cross-listed firms matched on the country of origin, year of cross-listing, and firm size as measured by the book value of total assets.

Panel A of Table II presents mean statistics for these external financing variables for both cross-listed sample firms and matched non-cross-listed sample firms after the year of cross-listing. We find that the mean values of the level of external financing for the cross-listed sample firms after cross-listing are higher than those for the non-cross-listed sample, and that these differences are statistically significant at the 0.01 level. However, these tests do not control for systematic differences in firm characteristics that may also affect the level of external financing.

Panel B of Table II reports the results of the ordinary least squares regressions (OLS) with the level of external financing as the dependent variable. Specifically, the dependent variables in columns (1), (2), and (3) are the natural logarithm of total financing, equity issuance, and debt issuance, respectively. We include firm-fixed effects and all of the six control variables (*DIV/TA*, *NI/NS*, *NS/NFA*, *SIZE*, *LTD/TA*, and *NFA/TA*) in model (1), measured as of the fiscal year in which a firm is cross-listed. The test variable is *CROSS*, which takes the value of 1 for a US cross-listed firm, and 0 otherwise. The adjusted- R^2 ranges from 0.32 to 0.50. Our main interest, in terms of the testable prediction, is the coefficient on the *CROSS* variable. The coefficients on *CROSS* are positive and statistically significant at the 0.05 level in all three regressions, suggesting that on average, the level of external financing for our sample of cross-listed firms is higher in the post-cross-listing period than that for a matched sample of non-cross-listed firms. These results are consistent with Reese and Weisbach (2002), who show that cross-listing in the USA leads to an increase in the amount of external financing raised. Overall, this analysis adds confidence to the representativeness of our sample compared with other samples used in prior cross-listing studies.

Panel A and B of Table III provide descriptive data for the variables in regression model (1) for the cross-listed sample firms before and after cross-listing, respectively.¹³ The sample contains observations from thirty-seven countries, with Canada and the United Kingdom being the most heavily represented countries. For our sample, we find that firms from Denmark, on average, exhibit the highest externally financed growth rate before cross-listing, implying that the actual sales growth of these firms exceeds the maximum growth that can be achieved through relying solely on either short-term financing and internal cash flows, or internal cash

¹³ We winsorize outliers (top and bottom 1 percent) for *EXCESS_SFG*, *EXCESS_SG*, and all firm-level control variables. Our results are substantially unchanged if we delete these firm outliers in our multivariate tests.

Table II. Descriptive statistics and regression results for the extent of financing

This table presents the mean, median, and standard deviation of the extent of external financing for both cross-listed sample firms and matched non-cross-listed sample firms after the year of cross-listing (Panel A) and ordinary least squares regression results (Panel B) of the following regression: $\text{Log}(\text{Extent of Financing}_{it}) = \sum \alpha_i + \beta_1 \text{DIV}_{it}/\text{TA}_{it} + \beta_2 \text{NI}_{it}/\text{NS}_{it} + \beta_3 \text{NS}_{it}/\text{NFA}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{LTD}_{it}/\text{TA}_{it} + \beta_6 \text{NFA}_{it}/\text{TA}_{it} + \beta_7 \text{CROSS}_{it} + e_{it}$. *Total* is the sum of equity issuance and debt issuance, *Equity* is the issuance of equity (\$ in millions), and *Debt* is the issuance of debt (\$ in millions), *DIV/TA* is total dividends divided by total assets, *NI/NS* is earnings before interest and taxes divided by net sales, *NS/NFA* is net sales divided by net fixed assets, *SIZE* is the natural log of total assets, *LTD/TA* is long-term debt divided by total assets, *NFA/TA* is net fixed assets divided by total assets, and *CROSS* is 1 if a firm is a cross-listed firm, 0 otherwise. Country-fixed effects are not reported. Note: *, **, *** indicate significance at 10, 5, and 1% levels (two-tailed except for cross-dummy), respectively.

Panel A: Univariate analysis: Extent of financing variables

Variable	Cross-listing firms				Non-cross-listing firms				<i>P</i> -values of mean difference	<i>P</i> -values of distribution equality
	<i>N</i>	MEAN	MEDIAN	STD	<i>N</i>	MEAN	MEDIAN	STD		
<i>Total</i>	2,704	102	0	497	2,270	37	0	218	0.000	0.000
<i>Equity</i>	2,704	19	0	154	2,270	8	0	61	0.002	0.001
<i>Debt</i>	2,704	84	0	429	2,270	29	0	191	0.000	0.001

Panel B: Multivariate analysis: Dependent variable is the natural log of the extent of external financing

Parameter estimates (<i>t</i> -statistics in parenthesis)			
Variable	Total	Equity	Debt
Intercept	0.6814 (5.44)***	1.7475 (20.50)***	-2.5453 (-12.84)***
<i>DIV/TA</i>	0.0021 (0.05)	-0.0002 (-0.01)	0.0094 (0.14)
<i>NI/NS</i>	0.1111 (1.97)**	-0.0111 (-1.29)	0.2669 (2.99)***
<i>NS/NFA</i>	0.0099 (4.14)***	0.0025 (1.54)	0.0187 (4.95)***
<i>SIZE</i>	0.1315 (17.26)***	0.0431 (8.04)***	0.1985 (16.48)***
<i>LTD/TA</i>	0.6004 (7.22)***	0.0761 (1.35)	1.2842 (9.76)***
<i>NFA/TA</i>	0.5488 (8.53)***	0.2181 (5.01)***	0.9929 (9.77)***
<i>CROSS</i>	0.0086 (3.58)***	0.0524 (3.20)***	0.0681 (1.78)**
Adjusted <i>R</i> ²	0.50	0.32	0.43
<i>N</i>	4,974	4,974	4,974

flows and debt financing. In contrast, firms from Singapore exhibit the lowest externally financed growth rate, -0.64, which suggests that the actual sales growth of these firms is less than the maximum growth that can be achieved through either short-term financing and internal cash flows, or internal cash flows and debt financing. After cross-listing, firms from Taiwan exhibit the highest excess growth, and firms from New Zealand exhibit the lowest excess growth.

Panel C of Table III reports the descriptive statistics for the firm-level variables for the entire sample of cross-listed firms in the pre- and post- cross-listing period together with univariate tests comparing the mean values of the variables between the pre- and post- cross-listing period. Both *EXCESS_SFG* and *EXCESS_SG* are larger during the post-listing period than the pre-listing period. The differences in mean values of each of the two externally financed growth metrics are statistically significant ($P < 0.01$), suggesting that cross-listed firms grew faster through external financing in the post-listing period than in the pre-listing period. This univariate result is consistent with the argument that cross-listing in the USA allows firms to grow through improved access to lower-cost external financing.

Tests for differences in the mean values of other firm characteristics during the two time periods indicate that cross-listed firms are not significantly different in the pre- and post- listing period with respect to two of the six variables (*SIZE* and *LTD/TA*) reported in Table III. However, there are statistically significant differences in the remaining four firm characteristics. Specifically, the mean value of dividends to total assets, earnings before interest and tax to sales, and net fixed assets to total assets in the post-listing period is significantly lower ($P < 0.10$) than that in the pre-listing period. However, the mean asset turnover for the sample cross-listed firms in the post-listing period is significantly larger ($P < 0.01$) than in the pre-listing period.

Table IV presents correlations between pairs of key variables. As expected, the two externally financed growth metrics, *EXCESS_SFG* and *EXCESS_SG*, are highly positively correlated (0.97), which suggests that the two metrics of external growth capture similar constructs. In addition, both *EXCESS_SFG* and *EXCESS_SG* exhibit correlations of the same sign (but different magnitudes) with the control variables.

The correlations among the firm-specific control variables in Model (1) are relatively low, ranging from -0.55 to 0.38, suggesting that multicollinearity is not likely to be a concern in the regression estimations. Overall, the correlations reported in Table IV suggest some potential interrelationships among the control variables. Of particular interest are the correlations between the *POST* and various firm-level characteristics reported in the bottom row of Table IV. Consistent with the univariate results reported in Table III, *POST* is positively related to *SIZE* and negatively correlated with *NI/NS* and *NFA/TA*. The correlations between our externally financed growth metrics (*EXCESS_SFG* and *EXCESS_SG*) and the *POST* variable are positive and statistically significant at $P < 0.01$, indicating that higher externally financed growth occurred for our sample of cross-listed firms in the post- cross-listing period. While these univariate results support the predicted externally financed growth and cross-listing relation, they do not control for systematic differences

Table III. Descriptive statistics—cross-listed sample

Panels A and B of Table III provide country-level mean values for the variables in regression model (1) for the cross-listed sample firms in the pre- cross-listing and post- cross-listing periods, respectively. Panel C of Table III reports the descriptive statistics for the firm-level variables for the entire sample of cross-listed firms in the pre- and post- cross-listing periods together with univariate tests comparing the mean values of the variables between the pre- and post- cross-listing periods. *EXCESS_SFG* is a firm's actual sales growth rate which exceeds its predicted short-term financed growth rate. For each firm, predicted short-term financed growth rate is defined as $ROLTC/(1-ROLTC)$ where *ROLTC* is the ratio of earnings after tax and interest to long-term capital. *EXCESS_SG* is a firm's actual sales growth rate which exceeds its predicted sustainable growth rate. For each firm, predicted sustainable growth rate is defined as $ROE/(1-ROE)$ where *ROE* is the ratio of net income to equity. *DIV/TA* is total dividends divided by total assets. *NI/NS* is earnings before interest and taxes divided by net sales. *NS/NFA* is net sales divided by net fixed assets. *SIZE* is the natural log of total assets. *LTD/TA* is long-term debt divided by total assets. *NFA/TA* is net fixed assets divided by total assets. *N* is the number of firm-year observations.

Panel A: Pre-listing period country mean

Country	<i>N</i>	<i>EXCESS</i> <i>_SFG</i>	<i>EXCESS</i> <i>_SG</i>	<i>DIV/</i> <i>TA</i>	<i>NI/</i> <i>NS</i>	<i>NS/</i> <i>NFA</i>	<i>SIZE</i>	<i>LTD/</i> <i>TA</i>	<i>NFA/</i> <i>TA</i>
Argentina	15	-0.0472	-0.0980	0.0148	0.0436	0.8615	7.4557	0.1714	0.7091
Australia	40	0.3685	0.3241	0.0227	0.0116	2.0947	6.5484	0.2049	0.4372
Austria	12	-0.3130	-0.3936	0.0126	0.0538	6.4448	9.2693	0.2399	0.4633
Belgium	4	0.0346	-0.0910	0.0120	0.0266	5.3556	8.7451	0.1912	0.4639
Brazil	86	0.1006	0.0450	0.0064	0.0246	1.7670	8.7661	0.1884	0.5437
Canada	357	-0.0768	-0.1314	0.0062	-0.0252	3.9145	5.9160	0.1649	0.4430
Chile	26	-0.1224	-0.1848	0.0075	0.0528	1.4137	8.5140	0.2311	0.5328
Colombia	6	0.0844	-0.1524	0.0072	-0.0200	9.6724	7.9352	0.0013	0.1498
Denmark	13	0.4276	0.3762	0.0056	-0.0223	1.5164	7.7393	0.1845	0.4056
Egypt	2	-0.4021	-0.4809	0.0000	0.0063	1.8909	11.9544	0.1161	0.3378
Finland	8	0.1183	0.0033	0.0225	0.0658	3.0255	10.0384	0.2157	0.4190
France	71	-0.0381	-0.0890	0.0025	-0.0015	8.4558	9.3477	0.1596	0.2131
Germany	74	-0.1319	-0.2073	0.0138	0.0503	6.2016	8.2061	0.0828	0.2669
Greece	10	-0.0163	-0.0798	0.0261	0.0546	1.3190	9.0954	0.2148	0.5244
Hong Kong	64	-0.1026	-0.1578	0.0274	0.0065	4.3289	7.8982	0.1087	0.3770
India	29	-0.1724	-0.2829	0.0106	0.0844	2.0313	9.9711	0.2786	0.4826
Ireland	11	0.1111	-0.0528	0.0157	-0.0859	4.2743	5.9297	0.1706	0.3295
Italy	28	0.0570	0.0081	0.0078	0.0285	4.5512	8.1103	0.1795	0.2555
Japan	69	0.0456	0.0305	0.0078	0.0309	4.2418	10.0080	0.1722	0.3263
Malaysia	13	-0.0913	-0.1253	0.0130	0.0410	1.9337	9.0901	0.0957	0.5173
Mexico	38	0.0912	-0.0143	0.0000	0.0530	2.9674	9.6301	0.2157	0.5241
Netherlands	28	-0.1903	-0.2774	0.0147	0.0308	5.9066	7.2353	0.1690	0.3246
New Zealand	4	-0.3600	-0.7397	0.0368	0.1258	0.8571	8.8064	0.4147	0.6291
Norway	18	0.0251	-0.0573	0.0091	0.0345	1.2919	9.9770	0.3374	0.6012
Peru	2	-0.7800	-0.8900	0.0000	0.0342	4.4250	6.1699	0.2458	0.1901
Philippines	8	0.0562	0.0181	0.0136	0.0341	0.3694	10.8701	0.3060	0.5634
Portugal	5	-0.4324	-0.5060	0.0009	0.0141	0.8253	9.9295	0.2134	0.6257
Singapore	6	-0.6410	-0.7328	0.0092	0.0431	2.8533	5.2228	0.1007	0.3971
South Africa	52	0.1388	0.0224	0.0195	0.1021	2.9943	8.6044	0.1471	0.5538
Spain	10	-0.0221	-0.1870	0.0078	0.0797	1.5257	10.2367	0.2377	0.6181
Sweden	8	-0.3283	-0.4323	0.0196	0.0343	3.2032	9.3798	0.1344	0.3664
Switzerland	25	-0.1157	-0.1877	0.0124	0.0522	3.9744	9.4981	0.1913	0.2807
Taiwan	85	0.1498	0.1043	0.0051	0.0598	4.6068	10.1509	0.1730	0.3975

Table III. (Continued)

Panel A: Pre-listing period country mean									
Country	<i>N</i>	<i>EXCESS</i> <i>ΔSFG</i>	<i>EXCESS</i> <i>ΔSG</i>	<i>DIV/</i> <i>TA</i>	<i>NI/</i> <i>NS</i>	<i>NS/</i> <i>NFA</i>	<i>SIZE</i>	<i>LTD/</i> <i>TA</i>	<i>NFA/</i> <i>TA</i>
Thailand	17	0.2391	0.1708	0.0097	0.0338	2.1972	9.7483	0.2739	0.3126
Turkey	14	0.3652	0.2291	0.0000	0.0614	3.8774	6.5337	0.2540	0.4210
United Kingdom	159	0.0518	−0.0265	0.0308	0.0066	3.3961	6.7984	0.1432	0.3907
Venezuela	3	−0.1935	−0.2349	0.0000	0.0525	0.5244	8.7483	0.0862	0.7369
Panel B: Post-listing period country mean									
Country	<i>N</i>	<i>EXCESS</i> <i>ΔSFG</i>	<i>EXCESS</i> <i>ΔSG</i>	<i>DIV/</i> <i>TA</i>	<i>NI/</i> <i>NS</i>	<i>NS/</i> <i>NFA</i>	<i>SIZE</i>	<i>LTD/</i> <i>TA</i>	<i>NFA/</i> <i>TA</i>
Argentina	9	0.1137	0.0878	0.0000	0.0074	0.8475	8.0045	0.1321	0.6200
Australia	43	−0.0572	−0.1209	0.0144	0.0504	3.7976	6.8328	0.1668	0.3855
Austria	27	−0.1341	−0.1801	0.0117	0.0074	7.6695	7.1203	0.1736	0.3681
Belgium	3	−0.0813	−0.1143	0.0070	0.0190	5.7264	9.2003	0.3497	0.3376
Brazil	76	0.2198	0.1103	0.0027	0.0475	2.4341	9.1669	0.2020	0.4470
Canada	486	0.2075	0.1997	0.0051	−0.0680	3.7949	6.4972	0.1741	0.3969
Chile	19	−0.0555	−0.1009	0.0022	0.0311	1.6389	7.6243	0.2878	0.4208
Colombia	1	−0.0413	−0.0466	0.0084	0.0318	4.4211	9.4581	0.0000	0.1557
Denmark	8	−0.0813	−0.2090	0.0336	−0.0231	1.5360	7.9374	0.1828	0.3968
Egypt	8	−0.0441	−0.2772	0.0308	0.0871	0.9474	9.5643	0.1955	0.4683
Finland	8	−0.0088	−0.0586	0.0131	0.0385	3.2670	8.9692	0.2447	0.3720
France	69	0.1103	0.0952	0.0020	−0.0191	7.3907	8.9794	0.1871	0.1853
Germany	73	−0.0675	−0.1618	0.0111	0.0470	6.9609	8.3199	0.0774	0.2441
Greece	14	−0.0841	−0.1443	0.0068	0.0388	1.3979	8.4455	0.2884	0.5377
Hong Kong	92	0.1508	0.1296	0.0180	0.0099	3.7042	7.9841	0.1330	0.3361
India	34	−0.0512	−0.0683	0.0206	0.1173	3.1117	10.8859	0.1217	0.3510
Ireland	8	0.1080	0.0802	0.0136	−0.0092	6.5309	6.2796	0.2253	0.3144
Italy	36	0.0277	0.0092	0.0025	0.0217	5.3732	8.1393	0.2023	0.2703
Japan	52	0.1664	0.1304	0.0086	0.0319	4.1899	10.0235	0.1472	0.3002
Malaysia	14	0.1250	0.0934	0.0167	0.0518	1.8358	8.5312	0.1632	0.5084
Mexico	29	0.0285	−0.0988	0.0030	0.0475	2.5314	9.7095	0.2198	0.4563
Netherlands	39	0.0739	0.0343	0.0086	−0.0104	5.8536	7.7891	0.2280	0.2773
New Zealand	3	−0.1478	−0.5879	0.0000	0.1051	1.0522	8.9303	0.4725	0.5833
Norway	16	0.0711	−0.0352	0.0292	0.0600	1.2291	9.9936	0.3349	0.5821
Peru	8	0.0973	0.0963	0.0000	0.0002	3.2651	6.7847	0.1929	0.2690
Philippines	9	0.2754	0.1144	0.0015	−0.0067	0.2763	9.8077	0.2615	0.5013
Portugal	8	0.0121	−0.0224	0.0041	0.0179	3.6977	8.8103	0.3046	0.4685
Singapore	20	0.1258	0.1483	0.0124	−0.0674	1.9890	5.6967	0.1468	0.4442
South Africa	53	0.0071	−0.0581	0.0143	0.0782	3.4835	9.7393	0.1851	0.5801
Spain	12	−0.0434	−0.1424	0.0065	0.0242	1.3038	9.1071	0.2631	0.5245
Sweden	10	0.1205	0.0938	0.0187	−0.1532	10.3750	7.5563	0.0579	0.1814
Switzerland	33	−0.0092	−0.0821	0.0190	0.0642	8.3348	9.4078	0.1342	0.2027
Taiwan	71	0.3097	0.2917	0.0000	0.0277	4.2304	10.5791	0.1434	0.3510
Thailand	24	0.2846	0.1441	0.0018	0.0527	3.0378	9.7275	0.3222	0.3378
Turkey	10	0.0614	0.0282	0.0006	0.0571	3.5669	7.6206	0.1226	0.4134
United Kingdom	152	0.1282	0.0747	0.0253	−0.0041	5.2068	7.4988	0.2064	0.3580
Venezuela	4	−0.0658	−0.0728	0.0472	0.0217	0.8914	8.2952	0.0407	0.6741

Table III. (Continued)

Panel C: Firm-level descriptive statistics in the pre- and post- cross-listing period

Variable	Pre-listing period				Post-listing period				<i>P</i> -values of mean difference
	<i>N</i>	Mean	Median	STD	<i>N</i>	Mean	Median	STD	
<i>EXCESS_SFG</i>	1,420	−0.0026	−0.0236	0.8177	1,581	0.1237	0.0182	0.6886	0.000
<i>EXCESS_SG</i>	1,420	−0.0694	−0.0804	0.8356	1,581	0.0826	−0.0098	0.7051	0.001
<i>DIV/TA</i>	1,420	0.0121	0.0000	0.0206	1,581	0.0098	0.0000	0.1500	0.002
<i>NI/NS</i>	1,420	0.0184	0.0403	0.1475	1,581	−0.0035	0.0318	0.2900	0.000
<i>NS/NFA</i>	1,420	3.8357	1.8263	6.0311	1,581	4.2283	1.9815	8.4100	0.075
<i>SIZE</i>	1,420	7.8664	8.2513	2.4863	1,581	7.9595	8.2007	2.1500	0.291
<i>LTD/TA</i>	1,420	0.1701	0.1474	0.1479	1,581	0.1756	0.1641	0.1900	0.409
<i>NFA/TA</i>	1,420	0.4153	0.3866	0.2541	1,581	0.3721	0.3275	0.2600	0.000

in firm- and country-characteristics that may also affect externally financed growth.

4. Empirical Results

Table V reports the OLS pooled regression results of estimating model (1) for our two excess growth metrics (*EXCESS_SFG* and *EXCESS_SG*). The first two columns include firm-fixed effects, and the last two columns include country- and time-fixed effects. Given that the inferences with respect to our test variables are the same irrespective of the type of fixed effects used in the models, we simply discuss the results of the models with firm-fixed effects. The adjusted- R^2 for the firm-fixed effects models are approximately 0.16 and 0.17, respectively. Given that the models estimated in Table V include firm-fixed effects, which capture the effect of firm-specific, time-invariant characteristics on firm growth, it is not surprising that the firm-specific control variables (except *SIZE*) are not statistically significant at the 0.10 level. Our main interest, in terms of the testable prediction, is the coefficient on the *POST* variable. The coefficient on *POST* is positive and statistically significant at the 0.01 level, suggesting that our sample of cross-listed firms exhibits higher externally financed growth rates in the post-cross-listing period than in the pre-cross-listing period. Overall, our finding that cross-listing is related to firm growth is consistent with the notion that cross-listing provides access to lower-cost external financing, and that these funds are channeled into profitable projects.

4.1 SUBSAMPLE ANALYSIS

We next examine whether the positive association between cross-listing and externally financed firm growth holds across different types of listings. To

Table IV. Pearson correlations

This table reports Pearson Correlations for the variables in regression model (1) for the cross-listed sample firms. *EXCESS_SFG* is a firm's actual sales growth rate which exceeds its predicted short-term financed growth rate. For each firm, predicted short-term financed growth rate is defined as $ROLTC/(1-ROLTC)$, where *ROLTC* is the ratio of earnings after tax and interest to long-term capital. *EXCESS_SG* is a firm's actual sales growth rate which exceeds its predicted sustainable growth rate. For each firm, predicted sustainable growth rate is defined as $ROE/(1-ROE)$ where *ROE* is the ratio of net income to equity. *DIV/TA* is total dividends divided by total assets. *NI/NS* is earnings before interest and taxes divided by net sales. *NS/NFA* is net sales divided by net fixed assets. *SIZE* is the natural log of total assets. *LTD/TA* is long-term debt divided by total assets. *NFA/TA* is net fixed assets divided by total assets. *POST* is 1 if a firm observation belongs to the post-listing year and 0 if a firm observation belongs to the pre-listing year. Note: *, **, *** indicate significance at 10, 5, and 1% levels, respectively.

Variable	<i>EXCESS_SFG</i>	<i>EXCESS_SG</i>	<i>DIV/TA</i>	<i>NI/NS</i>	<i>NS/NFA</i>	<i>SIZE</i>	<i>LTD/TA</i>	<i>NFA/TA</i>	<i>POST</i>
<i>EXCESS_SFG</i>	1.00								
<i>EXCESS_SG</i>	0.97***	1.00							
<i>DIV/TA</i>	-0.11***	-0.12***	1.00						
<i>NI/NS</i>	-0.11***	-0.15***	0.25***	1.00					
<i>NS/NFA</i>	-0.03*	-0.02	-0.05***	0.01	1.00				
<i>SIZE</i>	0.02	0.01	0.11***	0.38***	-0.22***	1.00			
<i>LTD/TA</i>	0.01	0.01	-0.06***	0.05***	-0.23***	0.29***	1.00		
<i>NFA/TA</i>	-0.05***	-0.05***	0.02	0.11***	-0.55***	0.22***	0.35***	1.00	
<i>POST</i>	0.08***	0.09***	-0.05***	-0.06***	0.03*	0.01	0.02	-0.08***	1.00

Table V. Ordinary least squares regression results using externally financed growth as the dependent variable

This table reports ordinary least squares regression results for the model: $EXCESS_SFG_i$ ($EXCESS_SG_i$) = $\alpha + \beta_1 DIV_{it}/TA_{it} + \beta_2 NI_{it}/NS_{it} + \beta_3 NS_{it}/NFA_{it} + \beta_4 SIZE_{it} + \beta_5 LTD_{it}/TA_{it} + \beta_6 NFA_{it}/TA_{it} + \beta_7 POST_{it} + e_{it}$. $EXCESS_SFG$ is a firm's actual sales growth rate which exceeds its predicted short-term financed growth rate. For each firm, predicted short-term financed growth rate is defined as $ROLTC/(1-ROLTC)$, where $ROLTC$ is the ratio of earnings after tax and interest to long-term capital. $EXCESS_SG$ is a firm's actual sales growth rate which exceeds its predicted sustainable growth rate. For each firm, predicted sustainable growth rate is defined as $ROE/(1-ROE)$, where ROE is the ratio of net income to equity. DIV/TA is total dividends divided by total assets. NI/NS is earnings before interest and taxes divided by net sales. NS/NFA is net sales divided by net fixed assets. $SIZE$ is the natural log of total assets. LTD/TA is long-term debt divided by total assets. NFA/TA is net fixed assets divided by total assets. $POST$ is 1 if a firm observation belongs to the post-listing year and 0 if a firm observation belongs to the pre-listing year. Note: *, **, *** indicate significance at 10, 5, and 1% levels, (two-tailed except for the intercept), respectively.

Parameter estimates (<i>t</i> -statistics in parenthesis)				
Variable	<i>EXCESS_SFG</i>	<i>EXCESS_SG</i>	<i>EXCESS_SFG</i>	<i>EXCESS_SG</i>
<i>Intercept</i>	-1.4478 (-3.52)***	-1.4931 (-3.55)***	-0.0449 (-0.14)	0.0721 (0.25)
<i>DIV/TA</i>	-1.0855 (-1.06)	-1.0893 (-1.04)	-3.9716 (-5.18)***	-4.0332 (-5.17)***
<i>NI/NS</i>	-0.0806 (-0.65)	-37411 (-2.68)***	-0.4355 (-4.49)***	-0.6298 (-6.38)***
<i>NS/NFA</i>	-0.0073 (-1.55)	-0.0066 (-1.36)	-0.0071 (-2.55)***	-0.0072 (-2.52)***
<i>SIZE</i>	0.2612 (13.37)***	0.2676 (13.64)***	0.0368 (4.39)***	0.0362 (4.25)***
<i>LTD/TA</i>	0.1764 (1.10)	0.1328 (0.81)	0.0413 (0.40)	0.0631 (0.60)
<i>NFA/TA</i>	0.0869 (0.51)	0.0687 (0.42)	-0.3147 (-4.49)***	-0.3274 (-4.39)***
<i>POST</i>	0.0615 (2.15)**	0.0751 (2.57)***	0.1337 (4.69)***	0.1525 (5.26)***
Firm fixed effects	Yes	Yes	No	No
Country-fixed effects	No	No	Yes	Yes
Calendar-year fixed effects	No	No	Yes	Yes
Adjusted R^2	0.16	0.17	0.04	0.09
<i>N</i>	3,001	3,001	3,001	3,001

Table VI. Subsample regression results using externally financed growth as the dependent variable

This table reports ordinary least squares regression results for subsamples of US cross-listed firms. The dependent variable in Panels A and B are *EXCESS_SFG* and *EXCESS_SG*, respectively. The regression model is: $EXCESS_SFG_i$ ($EXCESS_SG_i$) = $\alpha + \beta_1 DIV_{it}/TA_{it} + \beta_2 NI_{it}/NS_{it} + \beta_3 NS_{it}/NFA_{it} + \beta_4 SIZE_{it} + \beta_5 LTD_{it}/TA_{it} + \beta_6 NFA_{it}/TA_{it} + \beta_7 POST_{it} + e_{it}$. *EXCESS_SFG* is a firm's actual sales growth rate which exceeds its predicted short-term financed growth rate. For each firm, predicted short-term financed growth rate is defined as $ROLTC/(1-ROLTC)$, where *ROLTC* is the ratio of earnings after tax and interest to long-term capital. *EXCESS_SG* is a firm's actual sales growth rate which exceeds its predicted sustainable growth rate. For each firm, predicted sustainable growth rate is defined as $ROE/(1-ROE)$, where *ROE* is the ratio of net income to equity. *DIV/TA* is total dividends divided by total assets. *NI/NS* is earnings before interest and taxes divided by net sales. *NS/NFA* is net sales divided by net fixed assets. *SIZE* is the natural log of total assets. *LTD/TA* is long-term debt divided by total assets. *NFA/TA* is net fixed assets divided by total assets. *POST* is 1 if a firm observation belongs to the post-listing year and 0 if a firm observation belongs to the pre-listing year. Note: *, **, *** indicate significance at 10, 5, and 1% level, (two-tailed except for the intercept), respectively.

Panel A: <i>EXCESS_SFG</i> as dependent variable								
Parameter estimates (<i>t</i> -statistics in parenthesis)								
Variable	Canadian	Level III	Level II	OTC	Canadian	Level III	Level II	OTC
Intercept	−0.2691 (−0.72)	−2.5645 (−2.41)**	−4.9199 (−4.75)***	−1.3454 (−2.85)***	−0.4487 (−2.21)**	0.0911 (0.16)	−0.1443 (−0.37)	0.0465 (0.27)
<i>DIV/TA</i>	−2.7963 (−1.10)	−2.6378 (−0.75)	0.0045 (0.01)	−2.7137 (−1.58)*	−2.3081 (−1.01)	−3.7568 (−1.11)	−3.5339 (−2.69)***	−3.3071 (−2.64)***
<i>NI/NS</i>	−0.1652 (−1.13)	1.5957 (2.80)***	−0.3673 (−0.98)	−0.1803 (−0.71)	−0.1859 (−1.28)	0.6951 (1.24)	−0.8564 (−2.52)***	−0.8073 (−4.53)***
<i>NS/NFA</i>	−0.0096 (−1.57)	−0.0055 (−0.20)	0.0021 (0.14)	−0.0053 (−0.73)	−0.0055 (−1.00)	0.0036 (0.16)	−0.0072 (−1.05)	−0.0073 (−1.69)**
<i>SIZE</i>	0.0368 (1.96)**	0.2719 (3.81)***	0.4011 (8.50)***	0.2631 (8.92)***	0.0397 (2.26)**	0.0675 (1.68)*	0.0409 (2.11)**	0.0482 (3.29)***
<i>LTD/TA</i>	−0.5928 (−2.58)***	1.4237 (2.48)***	0.3206 (1.03)	0.1907 (0.71)	−0.4426 (−2.23)**	0.4577 (1.04)	0.2031 (0.93)	0.1509 (0.79)
<i>NFA/TA</i>	−0.3108 (−1.89)*	−0.1091 (−0.16)	0.6326 (1.64)*	−0.1028 (−0.36)	−0.1999 (−1.56)*	−0.5653 (−1.31)	−0.3572 (−2.14)**	−0.2459 (−1.75)**
<i>POST</i>	0.2416 (4.24)***	0.1053 (1.38)*	0.0679 (1.64)**	0.0521 (1.24)	0.2476 (4.29)***	0.1258 (1.45)*	0.0989 (1.91)**	0.0618 (1.18)
Firm-fixed effects	Yes	Yes	Yes	Yes	No	No	No	No
Country-fixed effects	No	No	No	No	Yes	Yes	Yes	Yes
Calendar-year fixed effects	No	No	No	No	Yes	Yes	Yes	Yes

Table VI. (Continued)

Panel B: *EXCESS_SG* as dependent variable

Variable	Parameter estimates (<i>t</i> -statistics in parenthesis)							
	Canadian	Level III	Level II	OTC	Canadian	Level III	Level II	OTC
Adjusted R^2	0.16	0.27	0.32	0.13	0.06	0.02	0.04	0.06
<i>N</i>	842	269	750	1,140	842	269	750	1,140
Intercept	−0.3626 (−0.94)	−2.5861 (−2.44)***	−5.0127 (−8.03)***	−1.3389 (−2.76)***	−0.5554 (−2.55)***	−0.0341 (−0.06)	−0.1036 (−0.26)	−0.0167 (−0.09)
<i>DIV/TA</i>	−3.6812 (−1.42)	−3.0495 (−0.87)	0.0285 0.02	−2.7131 (−1.54)*	−3.4399 (−1.47)*	−3.3218 (−0.99)	−2.9915 (−2.25)**	−3.4772 (−2.71)***
<i>NI/NS</i>	−0.3314 (−2.20)**	1.0961 (1.93)**	−0.7711 (−2.05)**	−0.5145 (−1.96)**	−0.3512 (−2.36)	0.3374 (0.63)	−1.2529 (−3.64)***	−1.0238 (−5.26)***
<i>NS/NFA</i>	−0.0088 (−1.40)	−0.0058 (−0.21)	0.0042 (0.28)	−0.0048 (−0.63)	−0.0047 (−0.84)	−0.0025 (−0.11)	−0.0054 (−0.78)	−0.0084 (−1.89)**
<i>SIZE</i>	0.0381 (1.98)**	0.2832 (3.98)***	0.4121 (8.65)***	0.2637 (8.70)***	0.0405 (2.26)**	0.0737 (1.84)*	0.0385 (1.96)*	0.0469 (3.41)***
<i>LTD/TA</i>	−0.4413 (−1.83)*	1.0931 (1.91)**	0.2416 (0.77)	0.0829 (0.30)	−0.3011 (−1.49)*	0.3425 (0.78)	0.2795 (1.27)	0.0587 (1.50)
<i>NFA/TA</i>	−0.2612 (−1.55)	−0.1999 (−0.29)	0.5834 (1.49)*	−0.1308 (−0.45)	−0.2068 (−1.59)*	−0.6321 (−1.48)*	−0.3623 (−2.14)**	−0.2318 (−1.61)*
<i>Post</i>	0.2746 (4.70)***	0.1107 (1.65)**	0.0699 (1.66)**	0.0703 (1.42)*	0.2803 (4.75)***	0.1582 (1.73)**	0.1028 (1.96)**	0.0741 (1.50)*
Firm-fixed effects	Yes	Yes	Yes	Yes	No	No	No	No
Country-fixed effects	No	No	No	No	Yes	Yes	Yes	Yes
Calendar-year fixed effects	No	No	No	No	Yes	Yes	Yes	Yes
Adjusted R^2	0.16	0.27	0.34	0.13	0.07	0.02	0.06	0.07
<i>N</i>	842	269	750	1,140	842	269	750	1,140

this end, we re-estimate model (1) separately for Canadian firms that directly listed on stock exchanges, Level III ADRs, Level II ADRs, and OTC listings. One motivation for this analysis is that the level of scrutiny, visibility, and the financing channels may differ across the type of cross-listing. For example, it is argued that Level III ADRs are subject to greater monitoring by reputational intermediaries such as analysts, auditors, and investment bankers (Doidge et al., 2004). As such, these cross-listings may exhibit greater firm growth if the closer monitoring ensures that funds are directed towards profitable projects. Alternatively, there may not be any variation across the type of cross-listings if all cross-listed firms pursue higher growth through quality investments.

Table VI reports OLS regressions results with firm-fixed effects and with country- and time-fixed effects for several subsamples. The dependent variables in Panel A and B are *EXCESS_SFG* and *EXCESS_SG*, respectively. Again, our main interest is in whether cross-listing is associated with a realized rate of growth that exceeds the estimated rate of growth using either internal funds and short-term debt, or internal funds and debt. Hence, our focus is on the *POST* variable. If in fact cross-listing allows firms to better pursue potentially profitable projects using external funds, then we should observe a positive relation between *POST* and externally financed growth. The test variable *POST* is statistically significant, with the predicted positive sign for all subsamples (except for the OTC subsample, where *EXCESS_SFG* is the dependent variable), indicating that cross-listing is associated with more externally financed growth. Particularly, Canadian firms exhibit the higher growth benefit from cross-listing compared to Level II ADR and OTC listings.¹⁴

None of the other comparisons of *POST* coefficients across listings are statistically significant at the 0.10 level. Taken together, Table VI suggests that the cross-listing effects with respect to externally financed growth differ only across certain types of listings.

4.2 ROLE OF COUNTRY-LEVEL VARIABLES

As noted previously, we also examine whether or not the association between the increase in firm growth and cross-listing varies as a result of the home-country characteristics of cross-listed firms. Rajan and Zingales (1998) point

¹⁴ For example, in the firm-fixed effects models, differences in coefficients on *POST* for Canadian and ADR II subsamples (*t*-statistics are 2.11 and 2.53 when *EXCESS_SFG* and *EXCESS_SG* are the dependent variables, respectively), and between Canadian and OTC subsamples (*t*-statistics are 3.24 and 3.57 when *EXCESS_SFG* and *EXCESS_SG* are the dependent variables, respectively) are positive and statistically significant at the 0.05 level.

out that financial development hinders growth because firms in less financially developed markets, and in countries with weak legal systems do not have easy access to lower-cost external financing. Consistent with this argument, they find that industries which rely on external financing exhibit smaller growth rates in less developed financial markets. To the extent that cross-listed firms from less financially developed countries, and from countries with weak investor protection, are more financially constrained, the benefits of cross-listing are likely to be greater. Alternatively, cross-listed firms from these countries may not deter all expropriation or overcome all external financing barriers; such firms would, thereby, yield fewer benefits than those originating from more financially developed countries, and from countries with strong investor protection.¹⁵ Finally, it could be argued that if cross-listing benefits all firms in terms of their access to lower-cost external funds, then cross-listing benefits firms irrespective of their home-country characteristics. Given these conflicting viewpoints, it is useful to empirically evaluate the effects of home-country institutions on the firm-growth/cross-listing relation.

Table VII reports the results of this exercise. We focus on the level of financial development and on several other variables that capture the level of investor protection. Following Love (2003), we compute an index of financial development measured at the end of each year for each country for the period 1993–2004.¹⁶

The index is an average of five standardized indices: market capitalization over gross domestic product (*GDP*), total value traded over *GDP*, total value traded over market capitalization, the ratio of liquid liabilities to *GDP*, and the credit going to the private sector over the *GDP*. The sum of the first three indices is denoted by *STKMKT* and reflects stock market development. The sum of the last two indices is denoted by *FININT* and reflects financial intermediary development. *FD* is the sum of *STKMKT* and *FININT*. A higher value of *FD* indicates that a country's financial systems rely relatively more on market-oriented financing and financial intermediaries.

To proxy for the level of investor protection, we rely on the work of La Porta et al. (1998). Prior research documents that common-law countries have stronger investor protection than civil-law countries. Therefore, our first

¹⁵ For example, Ammer et al., (2004) find that US investors actually place a greater weight on cross-listed firms from countries providing stronger protections to minority shareholders, as if the investors viewed a US listing as a complement to such provisions, rather than a substitute for them.

¹⁶ Several variables used to compute the financial development index were not available on the World Bank database for certain countries (e.g., Taiwan).

Table VII. Regression results using externally financed growth as the dependent variable, and several country-specific variables as additional controls

This table reports ordinary least squares regression (with industry and calendar-year fixed effects) results using several country-specific variables as additional control variables. The dependent variable in Panels A and B are *EXCESS_SFG* and *EXCESS_SG*, respectively. *EXCESS_SFG* is a firm's actual sales growth rate which exceeds its predicted short-term financed growth rate. For each firm, predicted short-term financed growth rate is defined as $ROLTC/(1-ROLTC)$, where *ROLTC* is the ratio of earnings after tax and interest to long-term capital. *EXCESS_SG* is a firm's actual sales growth rate which exceeds its predicted sustainable growth rate. For each firm, predicted sustainable growth rate is defined as $ROE/(1-ROE)$, where *ROE* is the ratio of net income to equity. Firm-level variables are: *DIV/TA* is total dividends divided by total assets. *NI/NS* is earnings before interest and taxes divided by net sales. *NS/NFA* is net sales divided by net fixed assets. *SIZE* is the natural log of total assets. *LTD/TA* is long-term debt divided by total assets. *NFA/TA* is net fixed assets divided by total assets. *POST* is 1 if a firm observation belongs to the post-listing year and 0 if a firm observation belongs to the pre-listing year. Country-level variables are: *LAW* is 1 for countries with legal systems based on common law, 0 otherwise. *FD* is the sum of *STKMKT* and *FININT*; *STKMKT* is the stock market development index that equals the sum of (standardized indices of) market capitalization over gross domestic product (*GDP*), total value traded over *GDP*, total value traded over market capitalization; and *FININT* is the financial intermediary development index that equals the sum of (standardized indices of) the ratio of liquid liabilities to *GDP*, and the credit going to the private sector over *GDP*. *FD* is calculated based on time-series data from 1993 to 2004. *ANTIDIR* is an aggregate measure ranging from 0 to 6 (six implies higher minority shareholder rights), based on the "anti director rights index" developed by La Porta et al. (1998). *ENFORCEMENT* is a mean score, varying from 0 to 10, of three legal variables (efficiency of the judicial system, assessment of rule of law, corruption index), developed by La Porta et al. (1998). Industry and year fixed effects are not reported. Note: *, **, *** indicate significance at 10, 5, and 1% levels, (two-tailed except for the intercept), respectively.

Panel A: *EXCESS_SFG* as dependent variable

Variable	Parameter estimates (<i>t</i> -statistics in parenthesis)			
Intercept	-0.0493 (-0.26)	-0.2395 (-1.29)	-0.1964 (-0.99)	0.0804 (0.36)
<i>DIV/TA</i>	-2.9956 (-3.84)***	-3.6182 (-4.89)***	-3.4369 (-4.69)***	-3.1831 (-4.31)***
<i>NI/NS</i>	-0.3853 (-3.83)***	-0.3875 (-3.96)***	-0.3761 (-3.84)***	-0.3836 (-3.91)***
<i>NS/NFA</i>	-0.0094 (-2.95)***	-0.0095 (-3.20)***	-0.0097 (-3.26)***	-0.0103 (-3.46)***
<i>SIZE</i>	0.0191 (2.45)***	0.0323 (4.11)***	0.0277 (3.69)***	0.0235 (3.19)***
<i>LTD/TA</i>	0.0909 (0.80)	0.0911 (0.84)	0.1002 (0.93)	0.1079 (0.99)
<i>NFA/TA</i>	-0.2469 (-2.71)**	-0.2416 (-2.80)***	-0.2379 (-2.75)***	-0.2279 (-2.64)***
<i>POST</i>	0.1372 (4.23)***	0.1001 (2.40)***	0.0132 (0.17)	-0.1937 (-1.11)
<i>FD</i>	0.0018 (0.45)			
<i>POST * FD</i>	-0.0011 (-0.21)			
<i>LAW</i>		0.0807 (1.74)**		

Table VII. (Continued)

Panel A: <i>EXCESS_SFG</i> as dependent variable				
Variable	Parameter estimates (<i>t</i> -statistics in parenthesis)			
<i>POST</i> * <i>LAW</i>	0.0451 (0.82)			
<i>ANTIDIR</i>		0.0108 (0.69)		
<i>POST</i> * <i>ANTIDIR</i>		0.0298 (1.52)		
<i>ENFORCEMENT</i>			−0.0228 (−1.49)	
<i>POST</i> * <i>ENFORCEMENT</i>			0.0375 (1.89)*	
Adjusted <i>R</i> ²	0.05	0.06	0.06	0.05
<i>N</i>	2,368	3,001	3,001	3,001
Panel B: <i>EXCESS_SG</i> as dependent variable				
Variable	Parameter estimates (<i>t</i> -statistics in parenthesis)			
<i>Intercept</i>	−0.1143 (−0.59)	−0.2842 (−1.50)	−0.2591 (−1.29)	−0.0097 (−0.60)
<i>DIV/TA</i>	−3.2281 (−4.05)***	−3.7517 (−4.99)***	−3.6275 (−4.87)***	−3.4042 (−4.54)***
<i>NI/NS</i>	−0.5542 (−5.38)***	−0.5783 (−5.81)***	−0.5661 (−5.69)***	−0.57161 (−5.72)***
<i>NS/NFA</i>	−0.0092 (−2.83)***	−0.0093 (−3.07)***	−0.0093 (−3.09)***	−0.0101 (−3.32)***
<i>SIZE</i>	0.0178 (2.23)**	0.0311 (3.90)***	0.0276 (3.62)***	0.0235 (3.14)***
<i>LTD/TA</i>	0.0838 (0.73)	0.0983 (0.89)	0.1054 (0.96)	0.1084 (0.98)
<i>NFA/TA</i>	−0.2342 (−2.52)***	−0.2305 (−2.62)***	−0.2301 (−2.62)***	−0.2142 (−2.44)***
<i>POST</i>	0.1582 (4.78)***	0.1011 (2.38)***	−0.0082 (−0.10)	−0.2173 (−1.23)
<i>FD</i>	0.0021 (0.53)			
<i>POST</i> * <i>FD</i>	−0.0007 (−0.12)			
<i>LAW</i>		0.0622 (1.32)		
<i>POST</i> * <i>LAW</i>		0.0788 (1.41)		
<i>ANTIDIR</i>			0.0104 (0.65)	
<i>POST</i> * <i>ANTIDIR</i>			0.0404 (2.03)**	
<i>ENFORCEMENT</i>				−0.0194 (−1.24)
<i>POST</i> * <i>ENFORCEMENT</i>				0.0425 (2.10)**
Adjusted <i>R</i> ²	0.06	0.07	0.07	0.07
<i>N</i>	2,368	3,001	3,001	3,001

investor protection variable is *LAW* and is coded 1 for countries with a common-law legal tradition and 0 otherwise.¹⁷

Our second proxy for the level of investor protection is what La Porta et al. (1998) term an antidirector rights' index (*ANTIDIR*) based on the presence/absence of six specific elements of investor protection in a country's corporate law. The six-point index measures how easily outside (minority) stockholders can exercise their rights against managers and dominant/inside owners (directors) of a company.¹⁸ Larger values of the *ANTIDIR* indicate that minority shareholders are better protected against expropriation by management and large controlling shareholders.

Our third variable represents the strength of legal enforcement and is a 10-point index that has been used in several recent studies (e.g., Leuz et al., 2003). It represents the average of three legal variables (efficiency of the judicial system, assessment of the rule of law, and the level of corruption) developed by La Porta et al. (1998). Thus, in our context, higher values of *ENFORCEMENT* reflect stronger legal enforcement.

Table VII reports the OLS regression results for our two excess growth metrics (*EXCESS_SFG* and *EXCESS_SG*). In addition to the main effect for the *POST* and the country-level variable in each regression, we include an interaction between the country-level variable and the *POST* variable. Given that we include country-level variables, we estimate these models with industry and time-fixed effects (instead of firm-fixed effects). The coefficients on the control variables are generally consistent with our expectations, with a few exceptions. The main effects for the cross-listed firm's home-country variables (*FD*, *LAW*, *ANTIDIR*, and *ENFORCEMENT*) are not statistically significant at the 0.10 level. The main effect of the *POST* variable is statistically significant at the 0.01 level only in columns (1) and (2) when *FD* and *LAW* serve as the country-level variable. Moreover, the coefficients on the interaction terms of the *POST* variable with the cross-listed firm's home-country variables are generally not statistically significant at the 0.10 level except in a few

¹⁷ We also used indicator variables for each of the three groups of civil-law countries (French, German, and Scandinavian), with common-law countries as the reference group. Unreported results for our test variable are qualitatively similar to those included as alternative proxies for a country's legal system.

¹⁸ This index is based on six specific elements of investor protection dealing with the ability of outside (minority) investors to challenge the control of the firm by managers and dominant (inside) owners. Country-level scores can range from zero to six based on the sum of six indicator variables that reflect shareholder rights: (1) the ability to vote by mail, (2) the ability to gain control of shares during the shareholder's meeting, (3) the possibility of cumulative voting for directors, (4) the ease of calling an extraordinary shareholders' meeting, (5) the availability of mechanisms allowing minority shareholders to make legal claims against directors, and (6) shareholders having preemptive rights that can be waived only by a shareholder's vote.

estimations, suggesting that cross-listing is associated with higher firm growth independent of either the firm's home-country level of financial development or its legal system. Overall, we do not find that increases in externally financed firm growth after cross-listing systematically vary as a function of the home country's attributes: either in its level of financial development or of variables proxying for investor protection.

5. Conclusions

An often-positated benefit of cross-listing in the USA is that it improves firms' access to lower-cost external financing. It is argued that this improved access to lower-cost external financing occurs because cross-listing in the USA enables more investor recognition, enhances liquidity, mitigates the costs due to market segmentation, and affirms a strong commitment to stringent rules backed by strict enforcement. The implication of these arguments is that cross-listing improves firms' ability to undertake potentially profitable projects. More importantly, theory anticipates that cross-listing will positively influence firm growth, particularly the kind of growth that external financing enables.

Despite the posited role of cross-listing in improving a firm's ability to access lower-cost external financing, recent research questions whether cross-listing does indeed contribute to firm growth. This concern stems from scholarly skepticism about the bonding hypothesis, which contends that cross-listing in a developed market like the USA will result in a firm having better corporate governance. Principally, recent studies point to the lack of enforcement by regulatory agencies against foreign firms. In the absence of effective improvement in corporate governance, it is less than clear whether firms will deploy the lower-cost external funds due to cross-listing in an optimal way, especially firms that originate in countries with weak investor protection institutions in place. In light of these concerns, we empirically evaluate the cross-listing/firm-growth relation. Additionally, we examine whether this relation depends on either the level of financial development or the investor protection of a cross-listed firm's home country.

Using a sample of cross-listed firms in the USA, our study finds that US firms that cross-list have a higher externally financed growth rate following their cross-listing. This increased growth rate, however, does not appear to systematically vary as a function either of the home country's level of financial development or of variables proxying for investor protection. Overall, our results provide evidence of a positive association between firm growth and cross-listing that is consistent with the argument that cross-listing improves

a firm's access to lower-cost external financing, and that these funds are channeled into profitable projects.

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