

# Legal System and Rule of Law Effects on US Cross–Listing to Bond by Emerging–Market Firms

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## *Abstract*

An emerging “bonding hypothesis” holds that a firm’s geographic domicile may not determine its corporate governance destiny. Firms from countries with weaker corporate governance regimes can internationalize their legal (but not necessarily operational) presence by cross–listing their securities on overseas financial markets. They can “bond” with legal systems and enforcement policies in foreign corporate governance regimes providing stronger investor protection. Cross–listing to bond increases firm value by decreasing corporate misconduct, broadening the investor base, and lowering the cost of capital. We document evidence of cross–listing to bond with stronger legal systems and rule of law by more than 700 firms from 23 emerging–market countries cross–listing their securities on US financial markets from 1996–2002. We find that: 1) US cross–listing levels are lower for firms from Common Law countries providing stronger investor protection, but only in Common Law countries with weaker rule of law; and 2) US cross–listing levels are higher for firms from Civil Law countries providing weaker investor protection, but only in Civil Law countries with stronger rule of law. Emerging–market firms exhibit behavior consistent with bonding hypothesis considerations and cross–list as a commitment to a more rigorous corporate governance regime, but the behavior is contingent and depends on examination of both legal system and rule of law effects individually and in interaction. Our empirical results highlight the importance of broadening investigating of firm internationalization to consider legal dimensions. Firms have discretion to choose foreign corporate governance regimes with less or no regard to where their operations are located.

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Please contact Paul M. Vaaler regarding this paper. We received helpful comments, criticisms and suggestions on earlier versions of this research from Ruth Aguilera, Steven Block, Jeff Brown, Murillo Campello, Donald Gonson, Michael Klein, Robert Kudrle, Paul Lansing, Joe Mahoney, Jeffrey Rubin, Jordan Siegel, Joel Trachtman, Sushil Vachani, Michael Weisbach, and seminar participants at Boston University Graduate School of Management, the University of Pennsylvania Wharton School, the University of Minnesota Humphrey Institute for Public Affairs, the University of Illinois at Urbana–Champaign College of Law and the 2006 JIBS Frontiers Conference. All remaining errors are ours.

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Working Paper: Comments Welcome

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## **Legal System and Rule of Law Effects on US Cross-Listing to Bond by Emerging-Market Firms**

### **Abstract**

An emerging “bonding hypothesis” holds that a firm’s geographic domicile may not determine its corporate governance destiny. Firms from countries with weaker corporate governance regimes can internationalize their legal (but not necessarily operational) presence by cross-listing their securities on overseas financial markets. They can “bond” with legal systems and enforcement policies in foreign corporate governance regimes providing stronger investor protection. Cross-listing to bond increases firm value by decreasing corporate misconduct, broadening the investor base, and lowering the cost of capital. We document evidence of cross-listing to bond with stronger legal systems and rule of law by more than 700 firms from 23 emerging-market countries cross-listing their securities on US financial markets from 1996-2002. We find that: 1) US cross-listing levels are lower for firms from Common Law countries providing stronger investor protection, but only in Common Law countries with weaker rule of law; and 2) US cross-listing levels are higher for firms from Civil Law countries providing weaker investor protection, but only in Civil Law countries with stronger rule of law. Emerging-market firms exhibit behavior consistent with bonding hypothesis considerations and cross-list as a commitment to a more rigorous corporate governance regime, but the behavior is contingent and depends on examination of both legal system and rule of law effects individually and in interaction. Our empirical results highlight the importance of broadening investigating of firm internationalization to consider legal dimensions. Firms have discretion to choose foreign corporate governance regimes with less or no regard to where their operations are located.

Keywords: corporate governance, internationalization, law, finance, cross-listing, bonding

## 1. Introduction

This empirical study examines links between the quality of corporate governance regimes in emerging-market countries and efforts by emerging-market firms to internationalize their legal presence through cross-listing shares on US financial markets and “bonding” with substantive US laws and rule of law. Over 30 years of management research has produced rich theoretical and empirical bases to explain motives for and performance implications of firm internationalization. Prominent theories hold that firms are motivated to expand operations abroad as multinational enterprises (“MNEs”) in order to internalize and exploit international market imperfections (Buckley and Casson, 1976), to minimize international transaction costs in the presence of opportunistic foreign counter-parties (Hennart, 1982), to cope with difficulties in identifying, absorbing, and transferring distant and tacit knowledge sources (Kogut and Zander, 1993), and to manage the confluence of ownership, locational and internalized market opportunities available to the firm (Dunning, 1977). Building on these theories, empirical research has documented positive linear (Grant, 1987), U-shaped (Ruigrok and Wagner, 2003), inverted U-shaped (Geringer, Beamish and da Costa, 1989), even S-shaped (Contractor, Kundu and Hsu, 2003) relationships between firm-level economic performance and the extent of firm internationalization, typically defined by the scope and intensity of sales, assets, income, innovation and or personnel outside the home country (Sullivan, 1994; Hitt, Hoskisson and Kim, 1997).

A common assumption underlying this rich and varied research stream is that internationalization follows from the extent of foreign operational presence. However, as Oxelheim and Randøy (2005) and Birkenshaw, Braunerhjelm, Holm and Terjesen (2006) recently remind us, internationalization has not only operational but also legal dimensions that management researchers have largely overlooked. This neglect is not the case, however, in the related “law and finance” literature where, in the last decade, scholars drawn largely from finance and economics (Shleifer and Vishny, 1997; La Porta, Lopez-de-Silanes, Shleifer and Vishny, 1997, 1998, 1999a, 1999b, 2000, 2002; Stulz, 1999; Reese and Weisbach, 2002; Doidge, 2004; Doidge, Karolyi and Stulz, 2004; La Porta, Lopez-de-Silanes and Shleifer, 2006) and law faculties (Coffee, 1999, 2002) have developed fundamental concepts, theoretical perspectives, and preliminary empirical

evidence related to a “bonding hypothesis” linking the legal, but not necessarily operational, presence of firms internationally to substantial differences in firm behavior and financial performance.

Their fundamental concepts –and ours for this study— include corporate governance regime, legal system and rule of law. By corporate governance regime, law and finance scholars mean the collective incentives and enforcement mechanisms assuring suppliers of finance a satisfactory financial return on their investment (Shleifer and Vishny, 1997). Law and finance scholars emphasize close review of a country’s legal system, that is, the substantive laws and legal procedures “on the books.” They also emphasize close review of a country’s rule of law, that is, the legitimacy, predictability and enforcement of those same substantive laws and procedures. A country’s legal system and rule of law constrain the overall quality of a local corporate governance regime, and thereby influence the quantity of local capital available to locally-domiciled firms (La Porta *et al.*, 1998, 1999, 2000, 2002).

But according to the bonding hypothesis, a firm’s country of domicile does not necessarily determine its corporate governance destiny. Stulz (1999) and Coffee (1999) argue from a law and finance perspective that firms domiciled in countries providing weak legal assurances to investors could respond by offering additional “cross-listings” of securities on financial markets in the US and other countries with laws offering stronger investor protection. Cross-listing to “bond” with tougher legal systems and rule of law signals a commitment by firm “insiders” — top managers and dominant shareholders — to refrain from appropriating firm wealth from other stakeholders, particularly non-controlling minority investors. In return, cross-listing to bond promotes more transparent corporate conduct, greater fidelity to investor interests, and a broadened investor interest. Together, these benefits decrease firm capital costs, improve firm decision-making, and increase firm value net of the costs of complying with a more rigorous corporate governance regime. Firms can internationalize legally with less or perhaps no concern for where they are actually operating abroad.

The bonding hypothesis has practical application. It helps explain an explosion of cross-listings by foreign firms on US financial markets since the late 1980s. The number of foreign firms listed on the New York Stock Exchange (“NYSE”) and Nasdaq stock market (“Nasdaq”) grew from 170 in 1990 to 750 in 2000 with cumulative trading volume in these firms over the 1990s reaching more than \$750 billion (Coffee, 2002).

Others explanations include cross-listing to overcome local capital market segmentation and to increase investor recognition (Foerster and Karolyi, 1999; Errunza and Miller, 2000), to increase liquidity (Amihud and Mendelson, 1986), to enhance foreign employee benefits (Rock, 2001), and to facilitate overseas mergers, acquisitions and other major corporate transactions (Saudagaran, 1988, 1990; Saudagaran and Biddle, 1995). What distinguishes the bonding hypothesis is its explicit reliance on cross-country comparison of investor protections to explain firm incentives to internationalize.

This distinction leads to what may be the central empirical implication for firm cross-listing behavior. Incentives among firms to cross-list for bonding purposes should decrease as the quality increases in the corporate governance regime back home. Evidence related to this implication is sparse and mixed with Reese and Weisbach (2002) providing the only broad sample results to date. In their cross-sectional study of 2,038 foreign firms domiciled in 32 industrialized and emerging-market countries from 1985-1995, Reese and Weisbach (2002) find that a higher proportion of firms from countries with a legal system derived from (Continental European) Civil Law providing weaker investor protection cross-list on the New York Stock Exchange or Nasdaq compared to the proportion of firms from countries with legal system derived from (Anglo-American) Common Law providing stronger investor protection. While these univariate results are consistent with the bonding hypothesis, follow-up multivariate analyses including additional controls for firm and country effects run counter to the bonding hypothesis. Firms from Civil Law countries are less rather than more likely to cross-list on US financial markets than firms from Common Law countries.<sup>1</sup>

Our study seeks to reconcile these conflicting results, and in the process, make at least two contributions to theory and empirical methods related to the bonding hypothesis in law and finance research and to management research on firm internationalization. Our first contribution is methodological and responds specifically to Reese and Weisbach's (2002) cross-sectional study of bonding and US cross-listing by firms from industrialized and emerging-market countries. We propose more refined sampling limited to US cross-listing by firms from emerging-market countries. From a law and finance perspective, Doidge,

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<sup>1</sup> Multivariate analyses by Reese and Weisbach (2002) do suggest that firms from Civil Law countries are more likely to issue secondary offerings of equity once cross-listed in the US. Thus, the initial decision to cross-list in the US is not correlated negatively to the quality of the home-country corporate governance system as predicted by the bonding hypothesis. Once cross-listed, however, foreign firms may gain an appreciation of the value such legal bonding may confer, and exploit it through secondary offerings.

Karolyi and Stulz (2004: 210) suggest that incentives to cross-list for bonding purposes on US financial markets since the 1990s are higher for emerging-market firms with “better growth opportunities.”<sup>2</sup> Management researchers from Hoskisson, Eden, Lau and Wright (2000) to Douma, George and Kabir (2006) highlight distinctive characteristics of emerging-market firms, including high-growth potential constrained by domicile in countries with less developed legal systems and legal enforcement policies to guide corporate governance as well as shallower debt and equity markets to finance growth. We build on these insights to refine sampling and set stricter institutional boundary conditions for application of the bonding hypothesis based on firm domicile in emerging-market countries. We combine these refinements with additional controls for alternative cross-listing motivations and panel data estimation techniques permitting assessment of both cross-sectional and time series trends.

Our second contribution is theoretical, and contributes to law and finance as well as management research on legal dimensions of firm internationalization. To our knowledge, no previous research on the bonding hypothesis has theorized about the net effects of legal system and rule-of-law incentives on cross-listing. In response, we develop and empirically test support for a framework examining the net effects. We assess the impact of rule-of-law incentives to cross-list for bonding purposes as these rule-of-law incentives increase and reinforce stronger legal systems protecting investors in Common Law countries, and as they increase and counteract weaker legal systems in Civil Law countries. Our framework, therefore, suggests empirical tests of legal system and rule-of-law incentives to bond individually and in interaction.

With these methodological and theoretical innovations, this research study documents evidence of cross-listing to bond by more than 700 firms from 23 emerging-market countries cross-listing their shares on US financial markets from 1996-2002. We find empirically that: 1) US cross-listing levels are lower for firms from Common Law countries providing stronger investor protection, but only in Common Law countries with weaker rule of law; and 2) US cross-listing levels decrease as rule of law in the home country strengthens, but only in Civil Law countries. In sum, emerging-market firms exhibit behavior consistent with

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<sup>2</sup> Their insight about emerging-market firm growth opportunities and incentives to cross-list is echoed in other recent research in international economics. For example, Klein’s (2005) model of economic adjustment and performance in response to international trade and financial market liberalization also suggests that firms from emerging-market countries have stronger motives and capabilities to exploit such policy changes compared to firms from either less-developed or fully-industrialized countries.

bonding hypothesis considerations and cross-list as a commitment to a more rigorous corporate governance regime. However, the behavior is contingent and depends on examination of both legal system and rule of law effects individually and in interaction.

To make these points in greater detail and to discuss their implications for research and practice, we divide the remainder of this study into four additional sections below. Section 2 develops our theoretical framework predicting firm incentives to cross-list on US financial markets, and elaborates on its origins in law and finance as well as broader management literatures. Section 3 details the methodology for testing four hypotheses derived from the framework. Section 4 reports empirical results from multivariate and related analyses of our sample. Section 5 concludes this research study with discussion of implications, limitations and future avenues for moving forward with law and finance research on the bonding hypothesis and broader management research on legal dimensions of firm internationalization forward.

## **2. Theoretical Framework and Hypothesis Development**

### **Theoretical Framework**

Our theoretical framework predicts incentives to cross-list shares on US financial markets by emerging-market firms based on legal system and rule of law incentives. The framework builds on two assumptions developed to different extents in law and finance and cross-country management research. The first assumption is that firms domiciled in countries with legal systems based on Common Law provide stronger investor protection and thus weaker incentives to internationalize presence legally through US cross-listing. As legal scholars note (Reynolds and Flores, 1983, 2003; Coffee, 1999, 2002; Ribstein, 2005), Common Law systems generally give the judiciary more independence from partisan political branches of government, permit judges to exercise discretion in interpreting and applying legal principles equitably, provide private individuals greater access to courts for the adjudication of contract and property rights disputes, and thereby promote the development of case law precedents to guide economic behavior with less uncertainty and lower transaction costs. By contrast, Civil Law systems are characterized by judges under greater scrutiny by partisan political branches of government, greater reliance on specific legal and procedural codes rather than principles of discretion and equity, and a preference for state regulation over private

litigation and case law to settle disputes and guide economic behavior.

Law and finance empirical research documents links between the Common (Civil) Law origin of country legal systems and more (less) developed country financial markets (La Porta *et al.*, 1997, 1998; La Porta *et al.*, 2006) and stronger (weaker) investor protection (Shleifer and Vishny, 1997; La Porta *et al.*, 1999a, 2000, 2002; Dyck and Zingales, 2004). Specifically for corporate governance issues, La Porta *et al.* (1999a) document greater ownership concentration, block-holding and management or family insider ownership in Civil Law countries, while Dyck and Zingales (2004) document that individuals pay a larger control premium in acquisitions involving firms from many Civil Law countries. This empirical evidence is consistent with the argument that Civil Law systems offer less investor protection, particularly less minority investor protection. Thus, local firms have fewer small, outside shareholders, and investors are willing to pay more to acquire firms from Civil Law countries where they can “tunnel” wealth to themselves more easily (Johnson, La Porta, Lopez-de-Silanes, Shleifer, 2000).

Management research in this decade has also begun giving greater attention to distinctions between Common Law and Civil Law systems to theorize about cross-country differences in corporate governance regimes affecting how local firms choose top managers, treat employees and raise capital (Aguilera and Jackson, 2003). These legal distinctions inform recent empirical studies of local firm ownership structures and financial performance in Civil Law country contexts (Miguel, Pindado and de la Torre, 2004). Recent empirical studies in management also document changes in the behavior of firms from Civil Law countries once oversight standards, investors and related individuals from Common Law countries are introduced. Thus, Oxelheim and Randøy (2005) analyze a sample of 187 firms operating in the 1990s and domiciled from Civil Law countries of Scandinavia and find that they pay their CEOs more, but are faster to discard them if such firms are listed on US, UK or other “Anglo-Saxon” country (*e.g.*, Canada) exchanges and have directors from such countries. Oxelheim and Randøy (2005) conclude that Anglo-Saxon laws and the corporate governance practices they encourage help explain both the higher executive pay and career peril in these “internationalized” Scandinavian firms. Birkenshaw *et al.* (2006) analyze geographic re-location patterns during the 1990s of 35 MNE corporate headquarters historically based in Sweden. They find that foreign re-

location of MNE corporate headquarters is positively and significantly linked to MNE reliance on foreign investment, often from the US and UK. Such evidence from management as well as from law and finance literatures provides the basis for our first framework assumption that Common Law (Civil Law) countries provide stronger (weaker) investor protection and decrease (increase) incentives to cross-list on US financial markets for bonding purposes.

The second assumption of our theoretical framework is that countries with stronger rule of law, no matter their Common Law or Civil Law substance, also provide greater investor protection and lower incentives to cross-list on US financial markets for bonding purposes. We previously defined rule of law summarily and synonymously with the legitimacy, predictability and enforcement of legal provisions. For our study, we follow description of rule-of-law dimensions enunciated by Daniel Kaufman and fellow World Bank researchers investigating public governance quality and corruption trends (Kaufmann, Kraay and Zoido-Lobaton, 2000; Kaufman, Kraay and Mastruzzi, 2003). Here, the rule of law is a gauge of confidence in, and adherence to, rules and their fairness and predictability for economic and social interactions. It encompasses not only the legitimacy, predictability and enforcement of private contracts and property rights, but also the legitimacy, predictability and enforcement power of the judiciary interpreting such rights. Thus, the quality of any country's rule of law requires examination of both legal procedural "inputs" such as judicial procedures, and the "outputs" such as the extent of lawfulness in private economic transactions.

Aspects of rule of law and legal systems overlap. For example, on the one hand, a key advantage of Common Law systems being broader judicial discretion to establish case law precedents to guide economic behavior with less uncertainty and lower transaction costs. On the other hand, examining cross-country differences in rule of law entails a different type of analysis from examining differences in substantive case law and legislative statutes "on the books" in those countries. Indeed, it is in the examination of both legal systems and rule of law affecting their application that we gain a more holistic sense of the quality of a country's legal institutions (Hart, 1961; Libecap, 1989) and their contribution to "rules of the game" governing local economic interaction (North, 1990).

Law and finance literature highlights the negative economic impact of poorly enforced laws, particularly in emerging-market countries. For example, Johnson, Kaufman and Shleifer (1997) and Hay and Shleifer (1998) point to institutional failures deterring small-business formation, foreign investment and enterprise restructuring in countries of the former Soviet Union (“FSU”). As Hay and Shleifer (1998: 398) describe multiple problems related to weak rule of law in the FSU:

The legal rules are incomplete in crucial areas needed to support existing business activity, such as real-estate registration. When legal rules do exist, in many instances judges do not know what they are. Many judges, for example, are unfamiliar with the relatively new securities law, which comes up in securities-markets disputes. Even when the law speaks to a particular matter, judges may not have the resources or inclination to verify the relevant facts. And when the facts are available and the legal rules exist, judges may be biased, corrupt, or partial to political sentiment, and hence it is by no means certain how they will rule. Finally, once a judge rules, there are often no institutions to enforce his ruling.

Hay and Shleifer (1998) and other law and finance scholars (e.g., Black and Kraakman, 1996) have such descriptions in mind in suggesting that the FSU and other emerging-market countries may be disserved by copying often complex corporate governance regimes of developed countries with stronger rule of law. These countries may be better served by adopting less ambitious and largely “self-enforcing” corporate governance regimes that are consistent with more modest institutional capabilities, particularly with judicial institutions. Consistent with this reasoning, Pistor, Raiser and Gelfer (2000) document strong links between stronger rule of law and larger share market capitalization as well as private credit markets in 22 Central and Eastern European countries in the 1990s.

Management interest in rule of law and investment in non-industrialized country contexts dates from long before law and finance research in the 1990s. In the 1970s, Vernon (1971) described an “obsolescing bargain” problem for MNEs doing business in the developing world. Investment agreements between MNEs and host country governments were vulnerable to opportunistic breach and re-negotiation by host country governments with little concern for the sanctity of MNE contract or property rights. As Hoskisson *et al.* (2000) note, similar concerns about the predictability and enforcement of contract and property rights in emerging-markets have prompted new streams of research since the 1990s on optimal MNE investment timing in privatizing industries (Doh, 2000) and MNE investment under varying degrees of host country policy uncertainty (Delios and Henisz, 2000). Across these decades of management research, a recurring

prescriptive implication for MNEs has been to achieve some minimal level of geographic scope in operations. The credible threat of transferring operations between countries would constrain host governments considering contractual breach or outright expropriation, what Vernon (1971) described as keeping “sovereignty at bay.” The bonding hypothesis updates that basic insight to suggest that even firms with wholly-domestic operations might have latitude to replace aspects of local government oversight with alternative sovereigns promising legal systems and rule of law providing better protection to firm investors.

\*\*\*\* *Insert Figure 1 Approximately Here* \*\*\*\*

With these two assumptions about legal systems and rule of law, we define our 2-dimensional framework in Figure 1 to predict incentives by firms from emerging-market countries to cross-list on US financial markets for bonding purposes. Figure 1 includes two rows depicting home-country legal system incentives to cross-list for bonding purposes, Civil Law in Row A and Common Law in Row B. Two columns depict home-country rule of law incentives to cross-list for bonding purposes, Weak Rule of Law in Column 1 and Strong Rule of Law in Column 2. These dimensions yield four scenarios, 1A, 1B, 2A and 2B. In each scenario, we denote in parentheses legal system and rule of law incentives to cross-list for bonding purposes by home-country firms. A positive (negative) sign indicates that home country legal system or rule of law provides weaker (stronger) investor protection, thus prompting more (less) US cross-listing to bond by home-country firms. For example, Scenario 1A exhibits positive incentives to cross-list based on both legal system and rule of law considerations (+, +). Civil Law countries provide weaker investor protection prompting more cross-listing. Similarly, weak rule of law imperils investors and prompts cross-listing to bond. Firms from emerging-market countries like Indonesia fall into Scenario 1A. We see the opposite set of incentives in Scenario 2B where substantive Common Law and strong rule of law provide stronger investor protections and prompt less cross-listing (-, -). Firms domiciled in countries like Israel fit Scenario 2B. Scenarios 2A (+, -) and 1B (-, +) exhibit mixed effects reflecting the contradictory incentives of Civil Law but strong rule of law (Scenario 2A) as in the case of Chilean firms or Common Law but weak rule of law (Scenario 1B) as in the case of Nigerian firms.

## Hypothesis Development

Our framework yields several testable hypotheses based on comparisons of the net effects of legal system and rule-of-law incentives to cross-list under different scenarios. This study focuses on four hypotheses comparing US cross-listing scenarios along their respective columns, thus controlling for rule of law differences, or along their respective rows, thus controlling for legal system differences. The first two hypotheses control for rule of law strength and predict differences in US cross-listing by foreign firms domiciled in Common Law countries providing stronger investor protection versus firms domiciled in Civil Law countries providing weaker investor protection. In countries with weak rule of law such legal system differences lead to our first prediction:

Hypothesis 1: *Firms from Common Law countries with weak rule of law cross-list less on US financial markets than firms from Civil Law countries with weak rule of law (US cross-listing in Scenario 1B < US cross-listing in Scenario 1A).*

Similarly, in countries with strong rule of law such legal system differences lead to our second prediction:

Hypothesis 2: *Firms from Common Law countries with strong rule of law cross-list less on US financial markets than firms from Civil Law countries with strong rule of law (US cross-listing in Scenario 2B < US cross-listing in Scenario 2A).*

Our next two hypotheses control for legal system differences and predict differences in US cross-listing by foreign firms domiciled in countries with weak versus strong rule of law protecting investors. Strengthening rule of law at home should decrease incentives to cross-list by firms from Civil Law countries, thus leading to our third prediction:

Hypothesis 3: *Firms from Civil Law countries with strong rule of law cross-list less on US financial markets than firms from Civil Law countries with weak rule of law (US cross-listing in Scenario 2A < US cross-listing in Scenario 1A).*

Similarly, in Common Law countries rule of law differences lead to our fourth prediction:

Hypothesis 4: *Firms from Common Law countries with strong rule of law cross-list less on US financial markets than firms from Common Law countries with weak rule of law (US cross-listing in Scenario 2B < US cross-listing in Scenario 1B).*

### 3. Empirical Methodology

#### Pair-Wise Comparisons

To investigate empirical support for these four hypotheses we undertake two analyses. First, we partition observations of US cross-listing levels by firms from various emerging-market countries into each of the four scenarios described in Figure 1. Our measure of US cross-listing, *USListing*, is described in detail below. We then use pair-wise comparisons of means to test for differences in US cross-listing between scenarios consistent with our four hypotheses. Hypothesis 1 predicts that firms from Common Law countries with weak rule of law will cross-list less on US financial markets than firms from Civil Law countries with weak rule of law. A t-test assesses the statistical significance of difference in mean US cross-listing levels ( $\mu$ ) between firms from countries with weak rule of law and Common Law (Scenario 1B) versus Civil Law (Scenario 1A). Hypothesis 1 will be supported if  $\mu_{1B} < \mu_{1A}$ . Hypothesis 2 predicts the same outcome for firms in Common Law versus Civil Law countries with strong rule of law. Hypothesis 2 will be supported if  $\mu_{2B} < \mu_{2A}$ . Hypothesis 3 predicts that firms from Civil Law countries will cross-list less as rule of law at home strengthens. A t-test again assesses the significance of differences in mean US cross-listing levels ( $\mu$ ) between firms from Civil Law countries with strong rule of law (Scenario 2A) versus weak rule of law (Scenario 1A). Hypothesis 3 will be supported if  $\mu_{2A} < \mu_{1A}$ . Hypothesis 4 predicts that firms from Common Law countries will also cross-list less as rule of law at home strengthens. Hypothesis 4 will be supported if  $\mu_{2B} < \mu_{1B}$ .

#### Regression Analyses

Results from these pair-wise comparisons of means provide initial evidence related to our four hypotheses. Multivariate analyses based on the regression equation below provide an alternative basis for hypothesis testing:

$$\begin{aligned} USListing_{kt} = & \beta_0 + \sum_{j=1}^4 \beta_j Controls_{kt} + \beta_5 Common\ Law_{kt} + \beta_6 Rule\ of\ Law_{kt} \\ & + \beta_7 Common\ Law_{kt} * Rule\ of\ Law_{kt} + \sum_{k=1}^{23} \phi_k Country_k + \sum_{t=1}^3 \eta_t Year_t + \varepsilon_{kt} \end{aligned} \quad (1)$$

In Equation 1, the dependent variable is *USListing*, the level of US cross-listing by firms in country  $k$  in year  $t$ . The  $k$  is an index running from 1-23 for 23 of the 24 emerging-market countries while  $t$  is an index running from 1-3 for three of the four time (1996, 1998, 2000 and 2002) where comparable dependent and independent variable information are available. *USListing* is defined as a ratio. For each country  $k$  in year  $t$ , we divide the number of firms cross-listed in the US, either as American Depository Receipt (“ADR”) listings or as direct listings, by the number of firms listed in country  $k$ ’s home share markets. We use this same *USListing* measure in our pair-wise comparisons described above.

ADRs are the most common means by which foreign firms list their shares on US share markets. An ADR is actually a certificate entitling the holder to a claim on the firm’s domestically listed shares at the value in US dollars of the ADR. Qualified US financial institutions are the typical custodians of these certificates. This arrangement permits US investors to “hold” foreign shares priced in US dollars, trading on US markets, and available through US custodial institutions. Direct cross-listing of actual (non-ADR) shares on US markets is much less common and limited largely to Canadian and Israeli firms. We measure *USListing* based on all types of ADRs, so-called Level I, Level II and Level III ADRs, including ADRs issued privately to qualified institutional buyers under SEC Rule 144A, and related direct cross-listings. As Coffee (2002) and others (*e.g.*, Palmiter, 2002) point out, ADRs of all types expose foreign firms to US criminal and civil law liabilities. They also imply consent to US jurisdiction for resolution of disputes, all of which engender greater firm transparency and standards of firm conduct providing stronger protection to minority investors.<sup>3</sup>

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<sup>3</sup> Several recent papers (Licht, 2003; Coffee, 2002; Benos and Weisbach, 2004; Doidge, 2004; Ribstein, 2005; Siegel, 2005) and books (Palmiter, 2002) discuss differences in reporting requirements and liability issues distinguishing foreign firms using Level I, II, and III ADRs, including Rule 144A ADRs, and direct listings. ADRs of all types expose foreign firms, for example, to risk of US criminal prosecution (*e.g.*, price-fixing) and securities litigation under US anti-fraud rules (*e.g.*, SEC Rule 10b5), and imply consent to US jurisdiction to adjudicate firm shareholder and related individual and class-action claims (*Pinker v. Roche*, 2002). Level I ADRs are commonly used to give US investors access to existing securities of foreign issuers but cannot be used to raise capital. Level I ADRs permit issuing firms to request exemption from periodic reporting requirements under SEC Rule 12g3-2(b). Thus, Level I ADR firms do not have to comply with US Generally Accepted Accounting Principles (“GAAP”) or with full SEC disclosure requirements; the firms need only furnish the SEC with copies of reports, shareholder communications and other materials required to be prepared under their home country regulations. The costs of setting up a Level I ADR program average about \$25,000. Rule 144A ADRs are issued on a private rather than public market to qualified institutional buyers, and are also exempt from SEC registration. Level II ADRs are traded on the Nasdaq, NYSE or American Stock Exchange and are commonly used by firms seeking greater liquidity and investor recognition. Level II ADR firms must register with the SEC under Section 12(b) of the 1934 Securities Exchange Act, and must periodically disclose information consistent with Section 13 of the 1934 Securities Exchange Act. This means firms must reconcile their reports with US GAAP, report regularly, file SEC Form 20F, and meeting listing requirements of the US exchange where they trade. Level II ADR programs average about \$1 million to set up. Only Level III ADRs permit foreign firms to raise new equity capital

The right-hand side of Equation 1 initially includes five control variables (*Controls*) derived from previous empirical research in management (Birkenshaw *et al.*, 2006) and law and finance (Reese and Weisbach, 2002). These controls are designed to capture variance in US cross-listing levels related to factors other than legal system and rule of law factors linked to cross-listing for bonding purposes. We noted earlier that US cross-listing may follow from several motives other than bonding: cross-listing to overcome local capital market segmentation and increase investor recognition (Foerster and Karolyi, 1999; Errunza and Miller, 2000); cross-listing to increase liquidity (Amihud and Mendelson, 1986); cross-listing to enhance foreign employee benefits (Rock, 2001); cross-listing to facilitate overseas mergers, acquisitions and other major corporate transactions (Saudagaran, 1988, 1990; Saudagaran and Biddle, 1995).

Accordingly, our controls include a market segmentation control (*Market Segmentation*) measuring the availability of capital for entrepreneurs from country  $k$  in year  $t$  on a scale of 1 (low availability) to 6 (high availability). US cross-listing should decrease with greater availability of capital to firm insiders in the home country. A second equity market liquidity control (*Log Liquidity*) is measured as the natural log of the following: the dollar value of shares traded in year  $t$  on country  $k$ 's share markets divided by average share market capitalization; average market capitalization is calculated as the 2-year average of the end-of-period values for years  $t$  and  $t-1$ . US cross-listing should decrease as home country equity market liquidity increases. A third market presence control (*Log Market Presence*) is measured as the natural log of the per capita dollar value of goods and services exported to the US from country  $k$  in year  $t$ . US cross-listing levels should increase where US market presence is more important to home country firms. A fourth economic strength (*GDP Growth*) control is measured as the 2-year average GDP growth for country  $k$  in years  $t$  and  $t-1$ . US cross-listing should decrease as the home country economy grows faster. In addition to these four *Controls*, we include 0-1 dummies for three of our four time periods,  $t$  (*Year*) (1998, 2000 and 2002, omitting 1996) and 23 of the 23 emerging-market dummies in our base sample (omitting Argentina). These dummies pick up

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in a public offering in the US. As such, it requires compliance with all Level II ADR rules (and permits listing on exchanges permitted with all Level II ADRs), and also requires compliance with liability provisions of Section 11 of the Securities Act of 1933 dealing with share offerings. Public offerings require issuers to prepared detailed registration statements (usually SEC Form F-1), which typically provide more current information than the typical SEC Form 20-F. Level III ADR programs related to public offering in the US typically cost in excess of \$1.5 million.

unspecified and idiosyncratic effects on US cross-listing levels linked to the year of observation or to the country sampled.

Consistent with our theoretical framework, the independent variables of central interest are *Common Law*, *Rule of Law* and an interaction term multiplying the two (*Common Law\*Rule of Law*). We follow La Porta *et al.* (1998) and identify the legal system of each country in our sample based on classifications provided by Reynolds and Flores (1989, 2003). *Common Law* is a 0-1 dummy that takes the value of 1 for Common Law countries. Our *Rule of Law* measure comes from the World Bank's Corporate Governance Project headed by Daniel Kaufman (Kaufman *et al.*, 2000; Kaufman *et al.*, 2003), and is available for more than 175 countries in four time periods (1996, 1998, 2000, and 2002). Rule of law is defined as the incidence of violent and non-violent crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. It represents the extent to which individuals have confidence in and abide by the rules of society. It gauges the success of a society in developing an environment where fair and predictable rules form the basis for economic and social interactions (Kaufman *et al.*, 2000). It is a standardized measure  $(0, \sigma)$  of country  $k$ 's rule of law in year  $t$ . Methods for gathering various indicators from multiple informants, aggregating such indicators into broad categories, reducing and transforming them into a single measure using unobserved components analyses, and then validating their resulting measures through meta-study are discussed in Kaufman *et al.* (2000). Higher measures indicate stronger rule of law. A third independent variable interacts the *Common Law* dummy with the standardized *Rule of Law* measure (*Common Law\* Rule of Law*) so that we might partition rule-of-law effects within a given legal system consistent with our theoretical framework.

Recall that Hypothesis 1 predicts that firms from Common Law countries with weak rule of law will cross-list less on US financial markets than firms from Civil Law countries with weak rule of law. The *Common Law* dummy in Equation 1 captures effects on US cross-listing levels related to firms having Common Law country origins, and should be negative. The interaction term, *Common Law \*Rule of Law*, assesses differences in Common Law effects as rule of law strengthens and should be also be negative. Hypothesis 1 will be supported if the linear combination of these two terms assessed at low (weak) levels of

*Rule of Law* is negative thus indicating that Common Law countries cross-list less than similarly situated Civil Law countries:  $\beta_5 + \beta_7 < 0$  (at lower levels of *Rule of Law*). Hypothesis 2 predicts that firms from Common Law countries with strong rule of law will cross-list less on US financial markets than firms from Civil Law countries with strong rule of law. Hypothesis 2 will be supported if the linear combination of these two terms assessed at high (strong) levels of *Rule of Law* is negative thus indicating that Common Law countries cross-list less than similarly situated Civil Law countries:  $\beta_5 + \beta_7 < 0$  (at higher levels of *Rule of Law*).

Hypothesis 3 predicts that firms from Civil Law countries will cross-list less as rule of law at home strengthens. The *Rule of Law* term in Equation 1 captures differences in US cross-listing levels tied to strengthening rule of law for firms from Civil Law countries. Hypothesis 3 will be supported if the *Rule of Law* coefficient is negative and significant:  $\beta_6 < 0$ . Hypothesis 4 predicts that firms from Common Law countries will also cross-list less as rule of law at home strengthens. In Equation 1, the interaction term, *Common Law \*Rule of Law*, assesses differences in the rule of law effect for firms from Common Law countries. The linear combination of *Rule of Law* and *Common Law \*Rule of Law* thus captures net cross-listing effects for firms from Common Law countries. Hypothesis 4 will be supported if this linear combination of coefficients is negative and significant:  $\beta_6 + \beta_7 < 0$ .

### **Estimation Strategy**

The data for multivariate analyses are organized as a panel with both time-series (year  $t$ ) and cross-sectional (country  $k$ ) dimensions. Previous cross-sectional empirical research on cross-listing permitted examination of cross-country differences but not differences within countries over time (Reese and Weisbach, 2002). Our panel data structure permits examination of variance in cross-listing along both dimensions. This panel data structure is particularly advantageous in a sample of emerging-market firms and countries, where economic, financial and institutional characteristics are likely to exhibit more substantial change over time than counterparts from industrialized democracies.

To analyze gross sample properties, including the possibility of outlier observations, we initially employ random effects generalized least squares panel regression (“panel GLS”) to estimate a reduced form

of Equation 1 with *Controls* only. After exclusion of outliers, we employ a panel feasible generalized least squares estimator (“panel FGLS”) with robust standard errors to handle heteroskedasticity in cross-sectional members and panel-specific first-order autoregressive correction to address year-to-year serial correlation in panel error structures. Both the panel GLS and panel FGLS estimators are available in Stata Version 9 (*Stata Corp*, 2005). In addition to these two multivariate analyses, we also present bivariate scatterplot and linear trend estimates of rule-of-law effects on *USListing* for Common Law and Civil Law countries.

### **Data Sources and Sampling**

Data for our sample come from several sources. Data on ADR and direct listings for the *USListing* dependent variable in 1996, 1998, 2000, and 2002 come from the Bank of New York’s (2006) ADR department. This source provides names, listing dates, firm country of domicile, US exchange-listing (*e.g.*, NYSE, Nasdaq, American Stock Exchange) or non-exchange listed “over-the-counter” status. We obtain the same information for direct listings from the NYSE and Nasdaq websites and from the National Quotation Bureau’s Pink Sheets service, now available under the title “Pink Sheets LLC” ([www.pinksheets.com](http://www.pinksheets.com)). We review NYSE, Nasdaq and Pink Sheets LLC for de-listings from 1996-2002. We exclude listings for unsponsored ADRs, that is, ADR programs that were not initiated by foreign firms themselves, since this inconsistent with the bonding hypothesis assumption of intentional listing.

The *USListing* dependent variable is calculated as the number of US listings for each country  $k$  in year  $t$  divided by the number of firm listings in country  $k$ ’s domestic share markets in year  $t$ . The number of firm listings on domestic share markets for each country  $k$  at year-end for 1996, 1998, 2000, and 2002 comes from the World Development Indicators (“WDI”) of the World Bank (World Bank 2005). Data sources for other independent variables in Equation 1 come from several sources. They include the US International Trade Commission (2004) (*Market Presence*), the World Bank (2005) (*Market Liquidity*, *GDP Growth*), the Milken Institute Capital Studies Group Capital Access Index (*Market Segmentation*), Reynolds and Flores (1989, 2003) and La Porta *et al.* (1998) (*Common Law*), and Kaufman *et al.*, (2003) (*Rule of Law*).

We sample only from “emerging-market” countries given theory and previous research suggesting that firms from such countries are more likely to respond to bonding incentives. We take an investor’s

perspective in defining emerging-market sampling criteria. We identify three prominent emerging-market investor indices and funds: 1) J.P. Morgan's Emerging Markets Bond Index Global (Morgan, 1999); 2) Standard & Poor's Emerging Markets Index (Standard & Poor's, 2006); and 3) Vanguard Group's Emerging Markets Stock Index Fund (VEIEX, 2006). We initially include in our gross sample all countries listed on at least one of these three indices and funds. We then apply two screens. First, we exclude two OECD countries (Great Britain and France) since they are included only for purposes of investment access to British and French Global Depository Receipts and related cross-listings for firms domiciled elsewhere. Second, we exclude all countries with incomplete dependent and independent variable information for all analyses implemented below. This reduces our gross sample size to 96 *USListing* observations from 24 emerging-market countries from Latin America, Europe, Africa, the Middle East and Asia.<sup>4</sup> In 1996 the total number of US cross-listed firms for these 24 emerging-market countries is 392. This number increases to 533 in 1998, 684 in 2000, and 818 in 2002.

#### **4. Results**

##### **Preliminary Analyses**

We preface our discussion of results with brief review of preliminary analyses implemented to investigate sample properties and assess estimation methods. We use 96 observations in our gross sample to estimate a reduced form of Equation 1. *USListing* is regressed on *Controls*, and *Country* and *Year* dummies using fixed and random effects assumptions and the panel GLS estimator. Hausman test results do not reject the use of random effects assumptions in subsequent estimations. We obtain Cooks D measures of individual observation influence after this estimation, and find three Cooks D measures exceeding 0.2 and of an order substantially greater than all other Cooks D measures: Mexico in 1998, 2000 and 2002. Between 20% and 48% of firms listed on Mexican share markets are cross-listed on US markets during these years, whereas the gross sample mean US cross-listing level ranges from 5% to 9% during the same period. Mexico also stands out qualitatively given treaty relationships with the US that may ease cross-listing for Mexican firms (*e.g.*,

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<sup>4</sup> These 24 emerging-market countries in our gross sample include: Argentina, Brazil, Chile, Colombia, Ecuador, Egypt, Greece, Hong Kong, India, Indonesia, Israel, Jordan, Malaysia, Mexico, Nigeria, Pakistan, Peru, Philippines, South Africa, South Korea, Thailand, Turkey, Venezuela and Zimbabwe.

NAFTA). Given this combination of qualitative and quantitative factors, we exclude Mexican observations from the sample, leaving us with a sample of 92 *USListing* observations covering US cross-listings by firms from 23 emerging-market countries in 1996 (353 firms), 1998 (479), 2000 (613) and 2002 (737).<sup>5</sup>

### **Descriptive Statistics**

Descriptive statistics and correlations for this net (of Mexico's exclusion) sample are reported in Table 1. The mean value of the dependent variable, *USListing*, is 0.06 with a minimum value of 0 and maximum value of 0.25. On average, about 6% of firms listed on domestic financial markets in emerging-market countries also listed in the US from 1996-2002. This percentage translates into roughly 24 cross-listed firms per country in each year of observation. Some countries exhibit low absolute numbers of cross-listed firms but high percentages. Venezuela, for example, lists only 15 firms on US financial markets in 2002, but that is 25% of all firms listed on Venezuelan domestic share markets. Other countries exhibit the opposite trend. In 2002, 119 firms domiciled in India cross-list on US financial markets, but they constitute only 2% of India's domestically-listed companies.

\*\*\*\* *Insert Table 1 Approximately Here* \*\*\*\*

Other noteworthy descriptive statistics include the rather wide range of *GDP Growth* in the sample of emerging-market countries. Since our time-period of study includes both years of sustained economic growth (e.g., 1996) and economic crisis and contraction (e.g., 1998) in emerging markets, it is not surprising that we observe annual GDP growth rates of from -13.13% to 10.36%. We note the mean value on the *Common Law* dummy indicating that approximately 43% of our sampled firms are domiciled in Common Law countries and 57% in Civil Law countries. The *Rule of Law* mean score is 0.07, thus close to the zero mean for the larger sample of rule of law scores for pre-emerging, emerging and industrialized countries in Kaufman *et al.* (2003). Variance in *Rule of Law* scores follows intuition with the lowest score for Nigeria (-1.33 in 2002) and the highest score for Hong Kong (1.73 in 1998). We also note variance in *Rule of Law* scores within emerging-market countries over the four years of observation. Zimbabwe's *Rule of Law* score drops from approximately zero in 1998 to -1.33 in 2002, while Jordan's score increases from 0.19 in 1996 to 0.56 in

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<sup>5</sup> These preliminary results are available from the authors.

2000. Substantial cross-section and time-series variance in *Rule of Law*, *Controls* and *USListing* terms support our panel estimation strategy.

### Pair-Wise Comparison Results

Figure 2 reproduces our theoretical framework, summarizes the four hypotheses derived from our framework, and reports results from pair-wise comparisons of mean US cross-listing levels for each of the four scenarios in our framework. Scenario 1A includes observations of US cross-listing for firms from Civil Law countries with weak rule of law. We have 32 *USListing* observations where *Common Law* equals zero and *Rule of Law* is below the sample mean of 0.07. The scenario mean ( $\mu_{1A}$ ) is 0.083. On average, 8.3% of the firms listed on domestic financial markets in Scenario 1A countries like Indonesia also cross-list on US financial markets. Hypothesis 1 predicts that firms falling into Scenario 1B will have significantly lower US cross-listing since they are domiciled in countries with weak rule of law but stronger investor protections linked to Common Law. The 13 *USListing* observations falling into Scenario 1B have mean US cross-listing ( $\mu_{1B}$ ) of 0.006. On average, 0.6% of the firms listed on domestic financial markets in Scenario 1B countries like Nigeria also cross-list on US financial markets. The difference between Scenario 1B and Scenario 1A means ( $\mu_{1B}-\mu_{1A}$ ) is negative and significant at the 1% level (-0.07,  $p < .01$ ), consistent with Hypothesis 1. Differences in legal systems explain US cross-listing behavior by firms from emerging-market countries with weak rule of law.

\*\*\*\* *Insert Figure 2 Approximately Here* \*\*\*\*

But legal system differences do not lead to different US cross-listing behavior by firms from countries with strong rule of law as predicted in Hypothesis 2. The 20 *USListing* observations falling into Scenario 2A with Civil Law and strong rule of law have mean US cross-listing ( $\mu_{2A}$ ) of 0.044. On average, 4.4% of the firms listed on domestic financial markets in Scenario 2A countries like Chile also cross-list on US financial markets. We expect lower US cross-listing by firms from similarly-situated Common Law countries of Scenario 2B but find that mean US cross-listing ( $\mu_{2B}$ ) for these 27 *USListing* observations is 0.057. 5.7% of the Scenario 2B firms from countries like Israel cross-list on US financial markets. The difference between these two means is not significant at commonly acceptable levels, thus providing no support for Hypothesis 2.

Hypothesis 3 predicts less cross-listing as rule of law strengthens in Civil Law countries. This prediction reduces to a pair-wise comparison of means between the two Civil Law scenarios, Scenario 1A and 2A ( $\mu_{2A} - \mu_{1A}$ ). The difference between these scenario means is negative and significant at the 1% level (-0.039,  $p < .01$ ), consistent with Hypothesis 3. Strengthening rule of law is correlated with less US cross-listing by firms from emerging-market countries with Civil Law. Not so in Common Law countries. The difference in mean US cross-listing between weak and strong rule of law countries in Scenarios 1B and 2B ( $\mu_{2B} - \mu_{1B}$ ) is significant at the 1% level but the sign (0.051,  $p < 0.01$ ) contradicts Hypothesis 4. Firms from Common Law countries with strong rule of law cross-list more (not less) on US financial markets than firms from Common Law countries with weak rule of law.

### **Regression Results**

These pair-wise results are largely confirmed in multivariate regression analyses. Table 2 reports results from estimations of Equation 1 in reduced form (Columns 1-2), full form (Column 3) and in an extended form (Column 4) including additional controls to assess the robustness of full-form results. Estimating *USListing* with country and year fixed effects as well as our *Controls* leads to intuitive results in Columns 1 and 2. Panel GLS results reported in Column 1 yield *Controls* estimates with predicted signs in three of four instances and statistical significance at the 5% level or better in two instances. The overall model  $R^2$  is 0.86, thus our country, year and related *Controls* alone explain substantial variation in the dependent variable, *USListing*. Panel FGLS results reported in Column 2 yield *Controls* estimates with expected signs and significance at the 5% level or better in three of four instances. Consistent with our predictions, greater US market presence, lower domestic share market liquidity and slower domestic economic growth all increase the level of US cross-listing by emerging-market country firms. Only capital *Market Segmentation* yields a contradictory (to expectation) sign. As domestic capital availability increases, there is more (not less) US cross-listing.

\*\*\*\* *Insert Table 2 Approximately Here* \*\*\*\*

In Column 3 we add our three legal system and rule of law variables (*Common Law*, *Rule of Law* and *Rule of Law\*Common Law*). The coefficient estimate on the *Common Law* dummy ( $\beta_5$ ) is negative and

significant at the 10% level ( $-0.053, p < 0.10$ ). After controlling for other factors, US cross-listing by firms from Common Law countries is about 5.3% lower compared to US cross-listing rates by firms domiciled in Civil Law countries. But this interpretation is contingent on rule of law strength in these same countries. The *Common Law\*Rule of Law* ( $\beta_7$ ) is positive and significant at the 5% level ( $0.042, p < 0.05$ ) indicating that the significantly negative US cross-listing impact of Common Law protections weakens as rule of law strengthens. With this in mind, we think it more precise to hold that the *Common Law* dummy ( $\beta_5$ ) represents the marginal impact on US cross-listing of legal system differences in countries with weaker rule of law. If *Rule of Law* score is set to zero—slightly below the *Rule of Law* variable mean of 0.07—the impact of Common Law is fully captured by the Common Law dummy coefficient estimate. As *Rule of Law* scores sink below zero, the linear combination of *Common Law* and *Rule of Law\*Common Law* ( $\beta_5 + \beta_7$ ) becomes increasingly negative. Thus, we confirm pair-wise comparison results with multivariate support for Hypothesis 1. In countries with weak rule of law, Common Law investor protections are associated with less US cross-listing by local firms compared to similarly-situated firms from Civil Law countries.

As *Rule of Law* scores exceed the mean score of 0.07 the same linear combination turns positive and becomes insignificant. For example, when we set *Rule of Law* equal to 1, well above the *Rule of Law* variable mean of 0.07 and approaching the variable maximum of 1.73, the linear combination yields a coefficient with a positive sign but no significance at commonly acceptable levels. Thus, we again confirm pair-wise comparison results yielding no support for Hypothesis 2 and the prediction of less US cross-listing by firms from Common Law countries with strong rule of law compared to firms from similarly-situated Civil Law countries.

Recall that Hypothesis 3 predicts less cross-listing as rule of law strengthens in Civil Law countries, while Hypothesis 4 predicts the same for Common Law countries. Again, regression results in Column 3 largely confirm pair-wise comparison results. The coefficient estimate of *Rule of Law* ( $\beta_6$ ) represents the US cross-listing impact of increasing rule of law for firms from Civil Law countries. The linear combination of coefficient estimates for *Rule of Law* and *Common Law\*Rule of Law* ( $\beta_6 + \beta_7$ ) represents the US cross-listing impact of increasing rule of law for firms from Common Law. Consistent with Hypothesis 3, we find that the

coefficient on *Rule of Law* ( $\beta_6$ ) is negative and significant at the 10% level (-0.026,  $p < 0.10$ ). After controlling for other incentives, a decrease in our *Rule of Law* score from 0 to -1 will lead on average to a 2.6% increase in US cross-listing by firms domiciled in Civil Law countries. Of course, the effects may be stronger in specific cases. From 1996 to 2002, the *Rule of Law* score for Civil Law country Argentina fell by approximately one unit, from 0.27 to -0.73. The percentage of local Argentine firms listing on US financial markets over the same period increased dramatically from 6.1% to 24%. These effects do not extend to Common Law countries. The linear combination of coefficient estimates for *Rule of Law* and *Common Law\*Rule of Law* ( $\beta_6 + \beta_7$ ) is positive (0.011) rather than negative as predicted by Hypothesis 4, but in any case, the coefficient is not significant at commonly acceptable levels.

### **Graphical Illustration**

A scatterplot of *USListing* observations and predicted linear trends illustrated in Figure 3 summarizes broader US cross-listing trends uncovered by pair-wise comparisons and multivariate regression analyses. *USListing* observations from Civil Law countries are dark dots (“•”) while observations from Common Law countries are light x’s. The horizontal axis for Figure 2 is *Rule of Law* score. The vertical axis is *USListing*. The linear trend for *USListing* observations from Civil Law countries exhibits the negative slope consistent with Hypothesis 3 and the broader proposition of firm cross-listing to internationalize legal presence and submit to more rigorous corporate governance regimes. Incentives to cross-list overseas in countries with stronger investor protections decrease as the strength of home country rule of law increases. *USListing* observations from Civil Law countries are generally greater, that is, situated higher on the vertical axis than observations for Common Law countries. This contrast is particularly evident when comparing Civil Law and Common Law *USListing* observations where *Rule of Law* scores are low. As rule of law increases, *USListing* observations for each legal system contrast less. The overall pattern again suggests support for certain predictions derived from our framework, specifically, Hypotheses 1 and 3. Consistent with the bonding hypothesis, firms from Common Law countries cross-list less on US financial markets than firms from Civil Law countries, but only where rule of law is weak. Consistent with the bonding hypothesis, firms cross-list less on US financial markets as rule of law increases, but only firms from Civil Law countries.

\*\*\*\* *Insert Figure 3 Approximately Here* \*\*\*\*

## Robustness Tests

These empirical results prove substantially robust to reasonable variation in model estimation and specification. We obtain the same signs and in many cases, the same levels of statistical significance when the panel FGLS estimator is implemented with alternative non-panel-specific autoregressive adjustments, and when we use a simpler panel GLS estimator permitting no such adjustments.<sup>6</sup> We also investigate the robustness of our results after iteratively dropping from our sample countries with extremely low *Rule of Law* scores in Scenarios 1A (Indonesia) and 1B (Nigeria), and extremely high *Rule of Law* scores in Scenarios 2A (Chile) and 2B (Israel). In all cases, we obtain the same coefficient signs and at least the same level of statistical significance on key terms (*Common Law*, *Rule of Law*, *Common Law\*Rule of Law*).<sup>7</sup>

We also investigate the robustness of our empirical results after re-specification of Equation 1 to include additional terms related to substantive legal protections for investors in Civil and Common Law countries. Admittedly, a 0-1 *Common Law* dummy simplifies more subtle legal differences and related investor protections between emerging-market countries. To gain insight on whether we have *over-simplified* such differences, we again draw on previous law and finance research (La Porta *et al.*, 1998) to identify additional substantive law provisions protecting investors and include them as additional controls. In Column 4 of Table 2, we report results from panel FGLS estimation of Equation 1 after addition of three new law-related terms capturing country *k* differences in: 1) the rights of shareholders vis-à-vis firm insiders (*Anti-Director*<sup>8</sup>); 3) public liability standards for firms under securities laws (*Liability*<sup>9</sup>); and 3) financial and

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<sup>6</sup> These empirical results are available from the authors.

<sup>7</sup> These empirical results are available from the authors.

<sup>8</sup> *Anti-Director* index scores are created by examining and adding one when each of the following six provisions exist in the company law or commercial code of a country as reviewed in 1995: 1) shareholders can mail their proxy vote to the firm; 2) shareholders are not required to deposit their shares prior to the general shareholders' meeting; 3) cumulative voting or proportional representation of minorities on the board of directors is allowed; 4) a mechanism for providing relief to aggrieved minority shareholders exists; 5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10%; and 6) shareholders have preemptive rights that can be waived only by a shareholders' vote. These scores are presented and come from La Porta *et al.* (1998). The sample mean is 3.04, the standard deviation is 1.27, the minimum is 1, and the maximum is 5.

<sup>9</sup> *Liability* index scores equal the arithmetic mean of three other scores based on review country securities laws in 1993: 1) a score for liability standards applicable to the share issuing firm and its directors; 2) a score for liability standards for the distributor of firm shares; and 3) a score for liability standards for the accountant advising firms. Higher scores indicate greater potential liability to firms under country securities laws. These scores are presented in La Porta *et al.* (1998). The sample mean is 0.44, the standard deviation is 0.23, the minimum is 0.11 and the maximum is 1. We convert continuous *Liability* scores to 0-1 dummies with scores below (above) the sample mean of 0.44 receiving a 0 (1).

accounting disclosure requirements for firms (*Disclosure*<sup>10</sup>). These three terms were developed between 1990 and 1995, and are available for all 23 emerging-market countries in our sample. Scores for these three terms are invariant across the years of our study, 1996-2002, thus they may be more representative of legal differences and related investor protections in the early rather than later years of our study.

Higher scores are associated with stronger investor protection, thus we expect all three terms to enter Equation 1 with negative signs. In Column 4 of Table 2 we see that they do enter negatively with *Disclosure* ( $\beta_{10}$ ) statistically significant at the 1% level (-0.079,  $p < 0.01$ ). More importantly, inclusion of these additional terms related to the legal system variable does not change signs on either *Common Law* or *Rule of Law*. Indeed, the statistical significance on *Common Law* increases from 10% to 5% (-0.035,  $p < 0.05$ ) while the statistical significance of *Rule of Law* is unchanged (-0.026,  $p < 0.10$ ). We take these additional results as evidence that our simple measure of legal system differences, *Common Law*, is not over-simplified to the point of bias. More generally, we conclude that our basic empirical results in Column 3 of Table 2 are robust to reasonable changes in model estimation and specification.

## 5. Discussion and Conclusion

Our study has multiple goals. For management research generally and internationalization research specifically, we seek to develop and empirically test an integrative theoretical framework to explain legal system and rule of law incentives for firms to internationalize their legal presence independent of where their actual operations are located. For law and finance research generally and bonding research more specifically, we seek more refined sampling and estimation approaches to focus on where and when incentives to cross-list for bonding purposes are more pronounced, that is, among emerging-market firms since the mid-1990s.

Our empirical results suggest substantial progress toward reaching those goals. We document evidence of cross-listing to bond in the decisions of more than 700 firms from 23 emerging-market countries

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<sup>10</sup> *Disclosure* index scores are created by examining and rating companies' 1990 annual reports for their inclusion or omission of 90 items. These items fall into seven categories, including: 1) general information; 2) income statements; 3) balance sheets, 4) funds flow statements; 5) accounting standards; 6) stock data; and 7) special items. Higher scores indicate greater accounting disclosure by country firms. A minimum of three companies in each country were studied. The companies represent a cross section of various industry groups: industrial companies represent 70% and financial companies represent the other 30%. These scores are presented in La Porta *et al.* (1998) and come from the Center for International Financial Analysis and Research. The sample mean is 0.58, the standard deviation is 0.25, the minimum is 0 and the maximum is 0.92. We convert continuous *Disclosure* scores to 0-1 dummies with scores below (above) the sample mean of 0.58 receiving a 0 (1).

to list their shares on US financial markets from 1996-2002. For firms from emerging-market countries with weaker rule of law, US cross-listing levels are lower for firms from Common Law countries. In Civil Law countries, US cross-listing levels decrease as rule of law in the home country strengthens. Together, our empirical results indicate that emerging-market firms exhibit behavior consistent with bonding hypothesis considerations and cross-list as a commitment to more rigorous corporate governance regimes. However, the behavior is contingent on firms' home country institutional background, and requires close examination of both legal system and rule of law factors shaping incentives to cross-list for bonding purposes individually and in interaction. In terms of our theoretical framework, we find US cross-listing behavior consistent with bonding considerations in three of four emerging-market country scenarios. The exception is Scenario 2B where more protective Common Law and stronger rule of law factors predict much lower cross-listing rates than we actually observe. This anomaly may follow from the relatively small sample size (92) or Scenario 2B sub-sample size (27) available for our analyses. Or this anomaly may prompt closer investigation of countries falling into Scenario 2B (*e.g.*, Israel, Hong Kong), and perhaps, the appropriateness of continuing to define some as “emerging-market” in institutional character.

Even with this anomaly, our empirical results provide substantial empirical support for a central proposition of the bonding hypothesis in law and finance research, as well as support for emerging research on legal internationalization in management. Firms can benefit from operating under more rigorous corporate governance regimes, and these firms are more likely to “rent” better regimes via cross-listing abroad as the quality of their home country regime worsens. Management scholars such as Oxelheim and Randøy (2005) and Birkenshaw *et al.* (2006) have uncovered evidence related to this proposition in the context of established firms internationalizing legally from the relative stability of industrialized democracies in Scandinavia. Our study substantially broadens that evidentiary foundation to include legal internationalization behavior by firms from more rough-and-tumble emerging-market settings where basic institutions supporting a market economy, capital formation and corporate governance regimes are less settled (Hoskisson *et al.*, 2000.)

Future research on legal internationalization can build on this foundation to elaborate on home and (cross-listing) host country factors as well as firm-specific factors shaping the decision to list for bonding

purposes. Oxelheim and Randøy (2005) and Birkenshaw *et al.* (2006) provide insight on firm-specific determinants of legal internationalization, but country coverage is quite limited. Our study examines determinants of legal internationalization across a broad range of countries, yet we do little to account for firm-specific factors that may also influence the listing decision. Since 2002 and the passage of Sarbanes-Oxley in the US, international finance and business commentators have noted greater reluctance by foreign firms to cross-list on US financial markets. Some commentators foresee foreign firm de-listing due to added regulatory compliance costs imposed by Sarbanes-Oxley (*Wall Street Journal*, 2005.) If legal internationalization through cross-listing lets foreign firms rent better corporate governance regimes than they have at home, then this latest commentary implies a substantial increase in rent (Ribstein, 2005). Future research should explore how cross-listed firms from emerging-market and other country settings respond to such increases. If increased benefits also come with the increased costs, then higher rent may not result in the de-listing trend predicted by some. Indeed, it may even accelerate legal internationalization and a race towards improving corporate governance standards across the globe (Coffee, 2002).

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**FIGURE 1**

**Conceptual Framework for Predicting US Cross-Listing to Bond  
by Firms from Emerging-Market Countries**

<p><b>Home Country Legal System</b></p>	<p>Row A Civil Law</p>	<p><u>Home Country Scenario 1A</u> Civil Law and Weak Rule of Law <i>Example: Indonesia</i> Impact on US cross-listing: (+,+)</p>	<p><u>Home Country Scenario 2A</u> Civil Law and Strong Rule of Law <i>Example: Chile</i> Impact on US cross-listing: (+,-)</p>
	<p>Row B Common Law</p>	<p><u>Home Country Scenario 1A</u> Common Law and Weak Rule of Law <i>Example: Nigeria</i> Impact on US cross-listing: (-,+)</p>	<p><u>Home Country Scenario 2A</u> Common Law and Strong Rule of Law <i>Example: Israel</i> Impact on US cross-listing: (-,-)</p>
		<p>Column 1 Weak Rule of Law</p>	<p>Column 2 Strong Rule of Law</p>
		<p><b>Home Country Rule of Law</b></p>	

Predicted impact on US cross-listing by firms from emerging-market countries in parentheses: **(Legal System Impact, Rule of Law Impact)**

**TABLE 1**

**Descriptive Statistics and Pair-Wise Correlations for Terms Related to  
US Cross-Listing by Firms from Emerging-Market Countries**

<u>Variables</u>	<u>Mean</u>	<u>Std. Dev.</u>	<u>Min.</u>	<u>Max.</u>	<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>	<u>5</u>	<u>6</u>	<u>7</u>	<u>8</u>
1. <i>USListing</i> (Dep. Var.)	0.06	0.05	0.00	0.25	1.00							
2. <i>Log Market Presence</i>	9.32	1.53	4.69	12.45	.47	1.00						
3. <i>Market Segmentation</i>	4.00	0.57	2.89	5.65	.10	.01	1.00					
4. <i>Log Liquidity</i>	3.27	1.23	-0.39	6.16	-.14	-.16	.12	1.00				
5. <i>Economic Growth</i>	1.64	3.67	-13.13	10.36	-.24	-.18	.12	.20	1.00			
6. <i>Common Law</i>	0.43	0.50	0.00	1.00	-.26	-.09	.29	.33	.07	1.00		
7. <i>Rule of Law</i>	0.07	0.74	-1.35	1.73	.04	-.22	.74	.30	.27	.22	1.00	
8. <i>Common Law*Rule of Law</i>	0.11	0.56	-1.35	1.73	.28	.15	.66	.28	.11	.22	.78	1.00

*N* = 92.

Correlations greater than .17 or less than -.17 are significant at 10% level ( $p < 0.10$ ) (one-tailed test).

Correlations greater than .20 or less than -.20 are significant at 5% level ( $p < 0.05$ ) (one-tailed test).

Correlations greater than .25 or less than -.25 are significant at 1% level ( $p < 0.01$ ) (one-tailed test).

**FIGURE 2**

**Results from Pair-Wise Comparisons of Mean US Cross-Listing Levels by Firms from Emerging-Market Countries**

		<p><u>Hypothesis 1:</u> Less US Cross-Listing in Common Law Country with Weak Rule of Law:</p> $\mu_{1b} < \mu_{1a} = 0.006 < 0.083$ $= -0.07^{**} < 0$	<p><u>Hypothesis 2:</u> Less US Cross-Listing in Common Law Country with Strong Rule of Law:</p> $\mu_{2b} < \mu_{2a} = 0.057 < 0.044$ $= 0.013 < 0$		
<b>Home Country Legal System</b>	Row A Civil Law	<p><u>Home Country Scenario 1A</u></p> <p>Civil Law and Weak Rule of Law</p> <p><i>Example:</i> Indonesia</p> <p>Impact on US cross-listing: (+,+)</p> <p><b>Observations: N = 32</b> <b>Mean US cross-listing: <math>\mu_{1a} = 0.083</math></b></p>	<p><u>Home Country Scenario 2A</u></p> <p>Civil Law and Strong Rule of Law</p> <p><i>Example:</i> Chile</p> <p>Impact on US cross-listing: (+,-)</p> <p><b>Observations: N = 20</b> <b>Mean US cross-listing: <math>\mu_{2a} = 0.044</math></b></p>	<p><u>Hypothesis 3:</u> Less US Cross-Listing in Civil Law Country as Rule of Law strengthens:</p> $\mu_{2b} < \mu_{2a} = 0.044 < 0.083$ $= -0.039^{**} < 0$	
	Row B Common Law	<p><u>Home Country Scenario 1A</u></p> <p>Common Law and Weak Rule of Law</p> <p><i>Example:</i> Nigeria</p> <p>Impact on US cross-listing: (-,+)</p> <p><b>Observations: N = 13</b> <b>Mean US cross-listing: <math>\mu_{1b} = 0.006</math></b></p>	<p><u>Home Country Scenario 2A</u></p> <p>Common Law and Strong Rule of Law</p> <p><i>Example:</i> Israel</p> <p>Impact on US cross-listing: (-,-)</p> <p><b>Observations: N = 27</b> <b>Mean US cross-listing: <math>\mu_{2b} = 0.057</math></b></p>		<p><u>Hypothesis 4:</u> Less US Cross-Listing in Common Law Country as Rule of Law strengthens:</p> $\mu_{2b} < \mu_{1b} = 0.057 < 0.006$ $= 0.051^{**} < 0$
		Column 1 Weak Rule of Law	Column 2 Strong Rule of Law		
<b>Home Country Rule of Law</b>					

Predicted impact on US cross-listing by firms from emerging-market countries in parentheses: **(Legal System Impact, Rule of Law Impact)**

† p < 0.10; \* p < 0.05; \*\* p < 0.01

**TABLE 2**

**Results from Regression of US Cross-Listing Levels by Firms from Emerging-Market Countries: Controls, Legal System and Rule of Law Terms, and Country and Year Dummies**

Estimators→	(1)		(2)		(3)		(4)	
	Panel GLS		Panel FGLS		Panel FGLS		Panel FGLS	
	Est.	S.E.	Est.	S.E.	Est.	S.E.	Est.	S.E.
<i>Variables↓</i>								
<i>Log Market Presence</i> [ $\beta_1$ ]	0.020*	0.009	0.021**	0.006	0.018**	0.006	0.017**	0.006
<i>Market Segmentation</i> [ $\beta_2$ ]	0.034	0.032	0.031†	0.017	0.037*	0.018	0.037*	0.018
<i>Log Liquidity</i> [ $\beta_3$ ]	-0.012**	0.005	-0.010**	0.003	-0.007*	0.003	-0.007*	0.003
<i>Economic Growth</i> [ $\beta_4$ ]	-0.001	0.001	-0.001**	0.000	-0.001**	0.000	-0.001*	0.000
<i>Common Law</i> [ $\beta_5$ ]					-0.053†	0.031	-0.035*	0.016
<i>Rule of Law</i> [ $\beta_6$ ]					-0.026†	0.015	-0.026†	0.015
<i>Rule of Law*Common Law</i> [ $\beta_7$ ]					0.042*	0.019	0.042*	0.019
<i>Anti-Director Rights</i> [ $\beta_8$ ]							-0.021	0.016
<i>Liability</i> [ $\beta_9$ ]							-0.014	0.014
<i>Disclosure</i> [ $\beta_{10}$ ]							-0.079**	0.024
<i>Country Dummies</i>	Yes		Yes		Yes		Yes	
<i>Year Dummies</i>	Yes		Yes		Yes		Yes	
<i>N</i>	92		92		92		92	
<i>Wald <math>\chi^2</math> (Overall <math>R^2</math>)</i>	377.33** (0.86)		1742.08**		1195.66**		1195.66**	
<i>Hypothesis 1. Less US Cross-Listing in Common Law Countries With Weak Rule of Law: [<math>\beta_5 + \beta_7 &lt; 0</math> Where Rule of Law = 0]</i>					-0.053†	0.031	-0.035*	0.016
<i>Hypothesis 2. Less US Cross-Listing in Common Law Countries With Strong Rule of Law: [<math>\beta_5 + \beta_7 &lt; 0</math> Where Rule of Law = 1]</i>					-0.011	0.029	0.007	0.030
<i>Hypothesis 3. Less US Cross-Listing With Strengthening Rule of Law in Civil Law Countries [<math>\beta_6 &lt; 0</math>]</i>					-0.026†	0.031	-0.026†	0.015
<i>Hypothesis 4. Less US Cross-Listing With Strengthening Rule of Law in Common Law Countries [<math>\beta_6 + \beta_7 &lt; 0</math>]</i>					0.017	0.011	0.017	0.011

Columns 1-4 report point estimates (“Est.”) and standard errors (“S.E.”) from multivariate regression analyses. Column 1 reports results from panel generalized least squares (“GLS”) regression. Columns 2-4 report results from panel feasible generalized least squares (“FGLS”) regressions, which include robust standard errors and panel-specific (country) first-order autoregressive process corrections to error structures. Regression results for country and year dummies are available on request. The sample of 92 US cross-listing observations for 1996, 1998, 2000 and 2002 comes from the following emerging-market countries: Argentina, Brazil, Chile, Colombia, Ecuador, Egypt, Greece, Hong Kong, India, Indonesia, Israel, Jordan, Malaysia, Nigeria, Pakistan, Peru, Philippines, South Africa, South Korea, Thailand, Turkey, Venezuela and Zimbabwe.

† p < 0.10; \* p < 0.05; \*\* p < 0.01

**FIGURE 3**

**US Cross-Listing Scatter-Plots and Linear Trends for Firms from Emerging-Market Countries**

