The Impact of Legal and Political Institutions on Equity Trading Costs: A Cross-Country Analysis

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Abstract

We examine whether the quality of legal and political institutions impact the trading costs of stocks originating from a country. A study of liquidity costs of 412 NYSE-listed ADRs from 44 different countries reveals a number of interesting findings: The average trading costs are significantly higher for stocks from civil law (French-origin) countries than for stocks from common law (English-origin) countries. After controlling for firm-level determinants of trading costs, effective spreads and price impact of trades are significantly lower for stocks from countries with (i) more efficient judicial systems, (ii) better accounting standards, and (iii) more stable political systems. These empirical relationships are economically very significant. Surprisingly, in the presence of firm-level controls, the enforcement of insider trading does not explain trading costs. Overall, we document that macro-level institutional risk is an important determinant of equity trading costs.

Key Words: *Bid-ask spreads; Adverse selection risk; Institutional risk; Legal systems*

I. Introduction

Following the seminal work by Demsetz (1968), a number of researchers have studied the determinants of transaction costs in stock markets. Broadly, these studies have focused either on firm-level characteristics or on market structure to explain equilibrium trading costs.[1] In contrast, this study examines the impact of macro-level systemic risks that result from the level of institutional development in a country on the liquidity of stocks originating from it. Institutions – defined broadly as both legal and political – may impact the liquidity of capital markets in different ways. In this paper, we discuss these linkages and empirically explore the relationship between the quality of a country's institutions and equity trading costs.

The legal environment – both rules and their enforcement – affects the perception of "investor protection" and therefore the willingness of small investors to provide equity capital. More specifically, countries with weaker legal institutions have less developed markets and more concentrated inside ownership due to lower participation by outside investors (La Porta, Lopez-De-Silanes, Shleifer and Vishny (here after, LLSV) (1997), (1998)). That is, the float of the equity is smaller in countries with weaker institutions.[2] A smaller float in turn implies a smaller pool of uninformed traders and higher trading costs. A second possible effect on trading costs is through the legal framework in place to curb insider trading. As the risk of insider trading increases, investors will be less willing to provide liquidity.[3] The willingness to provide liquidity is also influenced by the level of transparency mandated by the rules governing corporate

[1] See for example, Tinic (1972), Benston and Hagerman (1974), Tinic and West (1974), Stoll (1978), Ho and Stoll (1981), Copeland and Galai (1983), Amihud and Mendelson (1987), Stoll (1989), Huang and Stoll (1996), Bessembinder and Kaufman (1997) and Stoll (2000).

[2] In a related vein, Dahlquist, Pinkowitz, Stulz and Williamson (2002) show that the "home bias" in the average equity portfolios is, in part, caused by differential levels of aggregate float of equity markets in various countries.

[3] In support, Bhattacharya and Daouk (2002) find that the average cost of equity is lower in countries where insider trading laws are enforced. That is, a lower risk of insider trading improves the stock's liquidity, which in turn lowers the cost of capital. Theoretical expositions of these linkages are made in Amihud and Mendelson (1986) and Easley, Hvidkjaer, and O'Hara (2000).

disclosures. In particular, the quality of a country's accounting standards will affect the degree of information asymmetry between inside and outside investors. For all these reasons, we conjecture a link between the quality of legal institutions and the liquidity of stocks from a country.

Further, investor participation depends not only on the legal rules in place but also on the *confidence* that a strong and independent judicial system will enforce them fairly. However, the effectiveness of law enforcement is, arguably, affected by the level of corruption and general adherence to the rule of law in the country. And, these factors in turn are shaped by the political structures within the country. For example, Treisman (2000) argues that the prevalence of corruption is related to the country's historical, cultural, economic and political characteristics. Among other factors, he finds that the exposure to democracy, in addition to the origin of its legal system (common law versus civil law), is a key determinant of the level of corruption in a country. Similarly, Rose-Ackerman (2001) finds that the length of exposure to democratic structures affects the incidence of corruption. All this suggests that, in addition to legal institutions, political institutions are also vital to the development of capital markets, through the level of trust they engender.[4]

An ideal research design to capture the effect of institutional risk(s) is to compare trading costs of *identical* securities from *different* countries that trade on *similar* market structures. In the spirit of such an experiment, we examine trading costs of 412 American Depository Receipts (ADRs) from 44 different countries that trade on the NYSE. We believe that our empirical design has several advantages. First, our trading cost measures are not contaminated by the impact of trading environment and market structure, as all our stocks trade on the same venue

[4] The importance of public trust to capital markets can be seen from Lee and Ng (2002), who find that firms from more corrupt countries trade at lower values, after controlling for other known factors.

(the NYSE). Clearly, this would be a problem if one were to compare trading costs of stocks listed on exchanges in different countries. Second, we explicitly control for the firm-level determinants of liquidity to isolate the effect of institutional risk(s). Third, the stringent NYSE listing and SEC reporting standards[5] imply that our sample of ADRs have significantly better disclosure practices than the typical firms in their home countries.[6] This is especially true for firms originating in countries with weak institutions. Therefore, to the extent that differences in the firm's disclosure policies are attenuated, the differential risk that we study is essentially *systemic* – resulting from the legal and political institutions in the country of origin, and obviously beyond the control of the firms and its managers. Further, any evidence that institutional risks affect trading costs is particularly convincing, since the design is biased against finding such a relationship.

We document substantial evidence suggesting that the perceptions of legal and political risk impact equity trading costs. Our key findings are as follows: The average trading costs are significantly higher for stocks originating from countries with civil law (French-origin) than those with common law (English-origin). After controlling for firm-level determinants of liquidity, effective spreads and price impact of trades (a measure of adverse selection risk) are significantly lower for stocks from countries with (i) more efficient judicial systems, (ii) better accounting standards and, (iii) more stable political systems. Perhaps surprisingly, when we include firm-level controls, the enforcement of insider trading laws in a country (as identified by Bhattacharya and Daouk (BD, here after) (2002)) does not explain trading costs. The empirical

[5] For example, the SEC requires all foreign securities to annually file form 20-F (the equivalent of a U.S. firm's 10K), which includes a reconciliation of the reported earnings and book value of equity to US-GAAP from home-country accounting principles.

[6] Doidge, Karolyi and Stulz (2001) argue that foreign firms that list shares on U.S. exchanges have lower agency conflicts and better disclosure practices than firms that are not listed here.

relationships that we observe between institutional risk(s) and trading costs are also economically very significant. To illustrate the impact of political risk, we estimate that the effective spreads of a representative stock would fall from 0.95% to 0.63%, if the *same* firm was based in Switzerland rather than in India.

The results in our paper are indirectly supported by Bacidore and Sofianos (2002), who find that execution costs of non-U.S. NYSE-listed stocks are higher than their matched U.S. stocks. Similarly, Brockman and Chung (2002) show that bid-ask spreads of China-based firms cross-listed on the Hong Kong exchange are wider than their matched pairs of Hong-Kong stocks. They conjecture that this is a result of lower investor protection in China. However, numerous papers (such as Piwowar (1997)) also find evidence of "home-bias" in trading venue i.e., a very high proportion of trading volume (and presumably, the pool of uninformed retail trades) is executed in the home country. This raises the possibility that an order executed in a foreign market is not a typical order for the stock. Therefore, when comparing trading costs of a cross-listed foreign security with that of a matched domestic security, it is difficult to disentangle the influence of this "home-bias" and of the level of investor protection, particularly when both influences are in the same direction. We attempt to circumvent this problem by comparing trading costs of only ADRs, and excluding home market (U.S.) stocks in our study. In addition, unlike other papers, we implement a controlled regression framework for a large sample of countries with wide variations in institutional risk to estimate the benefits of stronger institutions.

We describe our data and discuss various measures of institutional risk in Section II. Section III discusses our empirical findings and results. Finally, we summarize and conclude in section IV.

II. Variable Definitions and Data

A. Measures of Transactions Cost

Our first measure of transactions cost is the *quoted bid-asked spread*, which measures the cost of simultaneously executing a buy and sell order at the quotes. Intuitively, the quoted spread is the cost of demanding immediate execution (Demsetz (1968)). The second measure, called *effective spread*, is a refinement of the quoted spread. It captures (a) price improvements in the NYSE due to executions occurring within the quoted prices, and (b) executions of larger orders outside the quoted prices. Following Lee (1993) and Bessembinder and Kaufman (1997), we calculate effective spreads as:

$$\textit{Percentage effective spread} = 200 \times D_{it} \times (Price_{it} - Mid_{it}) / Mid_{it}\,, \qquad (1)$$

where $Price_{it}$ is the transaction price for security i at time t, Mid_{it} the mid-point of the quoted ask and bid prices and a proxy of the "true" underlying value of the asset before the trade, and D_{it} a binary variable that equals "1" for market buy orders and "-1" for market sell orders, using the algorithm suggested in Lee and Ready (1991).

The third measure, called *price impact*, captures the market maker's assessment of the risk of inadvertently trading against superior information (Glosten and Milgrom (1985)). The market maker incorporates the information in order flow imbalance by permanently adjusting his quotes upwards (downwards) after a series of buy (sell) orders. Following Huang and Stoll (1996), we compute the *price impact* measure as:

$$\textit{Percentage price impact} = 200 \times D_{it} \times (V_{i,t+n} - Mid_{it}) / Mid_{it}\,, \qquad (2)$$

where $V_{i,(t+n)}$, a measure of the "true" economic value of the asset after the trade, is proxied by the mid-point of the first reported quote at least 30 minutes after the trade.[7]

[7] To control for the arrival of additional information between t and $t+n$, we weigh the price impact by the inverse of the number of transactions between t and $t+n$.

B. Measures of Legal, Accounting, and Political Risk

LLSV (1998) argue that the differences in the laws governing investor protection imply that a similar security represents a very different bundle of rights in various countries. They attribute these differences to the legal tradition of the country. Therefore, following LLSV (1997, 1998), we classify countries into the following legal families: common law (English in origin) or civil law (French, German or Scandinavian origin). Appendix A provides the details. We use these classifications as one measure of legal risk.

A strong system of legal enforcement can substitute for weak rules. To capture this dimension, we use two measures of the quality of enforcement of rules for each country in our sample. The *Efficiency of judicial system* (as in LLSV (1998)) is an assessment of the efficiency and integrity of a country's legal environment by Business International Corp., a country risk rating agency. The *Insider trading enforcement* indicates whether insider trading laws have been enforced by the country's regulatory body, as identified by BD (2002).

The disclosure policy in general and the accounting standards in particular influence information asymmetry between inside and outside investors (Healy and Palepu (2001)). To study its influence, we use the *CIFAR* index (from LLSV (1998)) that assesses the average quality of accounting statements in various countries.

Another important dimension of risk derives from the nature of the political institutions within a country. A political system may be described in terms of (a) the exposure to democracy, (b) stability of the government and its policies – influenced by both internal (racial/ethnic tensions) and external (war) factors, (c) the strength and expertise of its bureaucracy, and (d) the level of corruption, besides others. We use a composite measure of *political risk*, compiled by ICRG, a country risk rating agency, that includes the various components discussed above.

C. Sample Selection and Descriptive Statistics

We identify an initial sample of 516 stocks from the NYSE's non-U.S. companies' database as of May 2002. The database has information on a firm's country of incorporation and global market capitalization in U.S. dollars. The intraday transactions data are from the Trade and Quote (TAQ) database. Our sample period covers three months from January to March 2002. In the final sample, we drop stocks that (a) do not have a matching Ticker in the March 2002 TAQ database (eliminates 11 firms), (b) are not common stocks (51), (c) are incorporated in countries described as "flags of convenience" (32)[8], and (d) are not the primary common stock series for the company (10). Next, for the final sample of 412 firms from 44 countries we obtain the various measures of institutional risk from the data sources described earlier.

Table I, Panel A, presents descriptive statistics for the firms in the sample by their country of origin. Panel B shows the corresponding descriptive statistics for the overall sample. In Panel A we see that Canada (69), United Kingdom (46) and Brazil (32) have the most NYSE listings. Stocks from Finland, Taiwan and Ireland are the most liquid, when measured either by transactions per day or daily trading volume on the NYSE. However, the firms from Japan, Spain and Finland on the average have the largest global market capitalizations of more than $30 billion. In contrast, the average firm from the Dominican Republic or Singapore is smaller than $100 million. From Panel B, we see that the average sample firm has a mean (median) stock price of $32.50 ($26.50), global market capitalization of $12.16 ($3.36) billion, and daily trading volume of $5.8 ($0.50) million.

Also reported in Panel A are the institutional risk measures for each country in our

[8] Following Pulatkonak and Sofianos (1999) and Bacidore and Sofianos (2002), we classify stocks incorporated in Bahamas, Bermudas, Cayman Islands, Guernsey, Jersey, Liberia, Puerto Rico and Netherland Antilles as "flag of convenience" stocks as their country of incorporation is unrelated to their country of operation. These papers also present an excellent discussion of the institutional framework underlying trading in NYSE cross-listed securities.

sample. Averages across all sample firms are reported in Panel B. Insider trading laws have been enforced in the majority of countries in our sample (29 out of 43). The institutional risk measures vary significantly across the countries. While the overall full sample mean (median) of *CIFAR* is 65 (65), the countries at the extremes are both European – Portugal (36) has the worst accounting standards and Sweden (83) has the best. The distribution of *Efficiency of judicial system* and *Political risk* is right-skewed. The full sample mean (median) of judicial system is 8.33 (9.25) with Indonesia (2.5) the worst and 13 countries tied for a perfect score (10.0). Similarly, the full sample mean (median) of *political risk* is 80 (86) with Finland (95) at the top and Indonesia (48) at the bottom. Note that a higher score indicates a more stable political system.

Table I also reports measures of transactions costs – quoted spreads, effective spreads and price impact – for each country. The spreads are computed using intra-day NYSE trades and quotes from the TAQ database. We use filters to delete trades and quotes that are non-standard or are likely to reflect errors.[9] For the overall sample, the mean (median) effective spread is 0.74% (0.43%), and price of impact is 0.49% (0.24%). But there are wide variations across the countries. Firms from Singapore have the widest quoted (5.37%) and effective (3.69%) spreads, and those from Venezuela have the highest adverse selection risk (3.87%). At the other extreme, stocks from Korea have quoted spreads of 0.20% and effective spreads of 0.16%. The next section investigates the link between country risk and trading costs in detail.

III Discussion of Results

A. Preliminary Evidence

For a preliminary examination of our proposition, we classify the sample by each of our

[9] A trade is omitted if it is (1) out of time-sequence, (2) coded as an error or cancellation, or (3) an exchange acquisition or distribution, or has (4) a non-standard settlement, (5) a negative trade price or, (6) a price change (since the prior trade) of more than 10% in absolute value. A quote is deleted if it has a non-positive bid or ask

measures of legal and political risk. We then test for the average differences in trading costs of these groups, formed by risk rankings. The results are shown in Table II. Panel A shows the results when stocks are classified by the origin of legal system (i.e., English, French, etc.) as proposed by LLSV (1998). The average trading costs for stocks from French-origin countries are the highest and the German-origin stocks the lowest, with that for the English-origin stocks in the middle. The average Effective Spreads and Price Impact measure are 0.96% and 0.67%, respectively, for French-origin stocks, as compared to 0.41% and 0.24%, for German-origin stocks. The corresponding trading cost measures for English-origin stocks are 0.63% and 0.41%, respectively. The trading costs of French-origin stocks are significantly higher than those of English-origin and German-origin stocks. The average Scandinavian-origin stock has an Effective spread of 0.67% and a Price Impact of 0.51%, which cannot be statistically distinguished from those of other groups, perhaps due to a small sample size. These results on trading costs seem to mirror the findings in LLSV (1997, 1998) that common-law countries offer the strongest legal protection of investor's rights against expropriation by management, while French-civil-law countries the weakest – we find that trading costs of stocks from common law countries are significantly lower than those from civil law (French-origin) countries.

Next, we sort stocks into four groups using the CIFAR index, a measure of the quality of the accounting standards in a country. Accounting statements help management communicate valuable information on firm performance and play a crucial role in corporate governance. However, for the statements itself to be reliable, it is crucial that they meet certain basic accounting standards and are independently certified by outside auditors. We therefore hypothesize that stocks from countries with better accounting standards will have lower

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price, a negative bid-ask spread, a change in the bid or ask price of greater than 10% in absolute value, or a non-positive bid or ask depth, or if it is provided during a trading halt or delayed opening.

information asymmetry between inside and outside investors and therefore lower trading costs. We find, in Panel B of Table II, that stocks in the lowest quartile of CIFAR rankings of accounting quality have effective spreads of 1.07% and price impact of 0.77%. The corresponding measures are significantly lower at 0.64% and 0.43%, respectively, for stocks in the highest quality group. Thus the perceptions on the quality of accounting standards in a given country appear to affect the trading costs of stocks originating from it.

In Panel C and D, we classify stocks in terms of the quality of legal enforcement in their home countries. Legal enforcement can bolster investor confidence in several ways. A national regulatory body (such as the SEC in the United States) with a reputation for prosecuting security law violators will deter insider trading, increase trust among investing public, and lower adverse selection risk. Similarly, a strong judicial system that steps in and protects investors encourages better compliance with rules and laws. Therefore, a strong reputation for legal enforcement should increase investor participation and improve stock liquidity. In Panel C, we use BD (2002) classifications of whether the insider trading laws are enforced in a country. Stocks from countries that enforce insider-trading laws have effective spreads of 0.69% and price impact of 0.45%. In contrast, stocks from countries that do not enforce such laws have significantly higher effective spreads and price impact of 0.99% and 0.71%, respectively. In Panel D, we next classify the stocks into four groups using the LLSV (1998) rankings of the *Efficiency of the Judicial System*. The average effective spread and the price impact for the stocks from the least efficient countries are 0.91% and 0.70%, respectively, and 0.76% and 0.46% for those from the most efficient countries. While the average price impact of trade is significantly different across the two extreme groups, the effective spreads are not statistically distinguishable.

As discussed earlier, the quality of political institutions can affect the investors'

perception that the rule of law will prevail in the country. In a corrupt system the enforcement of rules and regulations will be arbitrary. Similarly, under an authoritarian or dictatorial regime the executive power to enforce laws will be concentrated in the hands of a privileged few. In contrast, a democratic system will have more checks and balances. Further, if the government is unstable the legal system and the rules may not engender much public trust, as policies and laws can change overnight. Similarly, both internal (e.g., terrorism) and external (e.g., war) conflicts adversely affect investor confidence. The political risk ranking by ICRG captures all these dimensions. We therefore hypothesize that investor participation is lower and cost of liquidity higher as the perceived political risk of a country rises. Panel E presents trading costs of stocks sorted into four groups using the Political Risk rankings. The results show that stocks in the highest risk category of Political Risk have effective spreads and price impact of 1.00% and 0.73%, respectively. In marked contrast, the stocks in the lowest quartile of the Political risk ranking have effective spreads of 0.65% and price impact of 0.37%. The differences in the trading costs of the two extreme groups are highly significant, with a p-value of less than 1%. Also, we observe in Table III that firms in quartile 3 seem to have lower trading costs than firms in quartile 4. One possible explanation is the lack of control for firm characteristics that also affect transactions cost. Such an investigation is the focus of our analysis in the next section.

B. Regression Analysis

In all our analysis thus far, when we compare the trading costs of stocks classified by different risk measures, we do not account for potential differences in the type of firms in each group. That is, the average stock in a "low legal/political risk" category could in fact be larger, have higher trading volume or lower volatility. Since it is well known that such firm-level characteristics affect the cost of liquidity, we need to control for these factors before we can

attribute the differences in trading costs to our measures of legal and political risk. In Table III, we present a regression model that accounts for the influence of firm characteristics on trading cost measures and isolates the impact of legal and political risk.

The regressions include the inverse of stock price, standard deviation of daily stock returns, global market capitalization of the ADR firm, and the log of daily NYSE trading volume as control variables. The general conclusions we obtained earlier, using group-level averages, still hold. After controlling for firm-level characteristics, stocks from countries with better accounting standards (CIFAR rankings) have significantly lower trading costs. Similarly, firms originating from countries with more efficient judicial systems have significantly lower effective spreads and price impact of trades. Again, even with firm-level controls, stocks from countries with lower Political risk have lower transaction costs. However, perhaps surprisingly, in a regression model with firm-level controls, the dummy variable for the enforcement of insider trading laws (from BD (2002)) is not statistically significant. Overall, the results in Table III show that (macro-level) institutional risk is an important determinant of equity trading costs. More specifically, the transactions costs are significantly lower for stocks from countries with (i) more efficient judicial systems, (ii) better accounting standards, and (iii) more stable political systems.

In Table IV, we extend our regression analysis by including more than one legal/political risk at a time. Thus, we create a horse race between our various country-wide risk measures. In models (1), (2) and (3) of Table IV, just as in Table III, the insider trading enforcement variable does not explain either the effective spreads or price impact of trades. Results from model (4) and (6) suggest that the efficiency of judicial system variable loses explanatory power in the presence of either CIFAR or Political Risk. In contrast, the CIFAR index and Political risk scores

significantly influence the trading costs, even in the multivariate specifications. Finally, when we include both CIFAR and Political risk variables together (model 5), Political Risk continues to explain variations in effective spreads (p-value of 0.02) and price impact (p-value of 0.00). The CIFAR variable however is insignificant (p-value of 0.85) in price impact regression and only weakly significant (p-value of 0.09) in effective spread regression.

Overall, in the multivariate regression setting, the Political risk rating of ICRG, and to a lesser extent the CIFAR ranking of the quality of accounting statements, have significant power to explain the cross-sectional differences in trading costs of stocks from various countries. One particularly robust finding is that stocks from countries with more stable political systems – more democratic structures, less corruption, etc. – have significantly lower transaction costs.[10]

Finally, we assess the economic significance of the impact of political risk on transaction costs. Using the parameters of model (4) in Table III, we estimate the trading cost measures for a hypothetical stock that originates from each of the countries in our sample. Specifically, we estimate the trading costs of a stock from a given country using its political risk rank, while holding all the firm-level variables at the sample averages. In other words, how would the expected trading costs for a given (average) stock vary depending on the political stability in the country of its origin? Table V shows the results. We find that effective spreads would fall from 0.95% to 0.63%, if the *same* firm was based in Switzerland instead of India. Similarly, the price impact of a trade would be 0.72% or 0.37% depending on whether the level of political risk is that of India or Switzerland. Clearly, the perceived level of political stability of the country of origin has a significant economic impact on transactions cost.

[10] Pulatkonak and Sofianos (1999) find that a country's proximity to the New York time zone increases NYSE's market share of global trading volume. We ran a specification including eight time zone dummy variables along with our institutional risk measures. The time zone variables have no explanatory power, while our basic results in Table III and IV remain unchanged.

IV Summary and Conclusions

We conjecture that the quality of a country's institutions – both legal and political – affects the overall *perception* of "investor protection" and therefore the willingness to provide liquidity. This study of 412 ADRs from 44 different countries documents a significant relationship between the quality of legal and political institutions in a country and the liquidity of stocks originating from it. Specifically, we find that the average trading costs are significantly higher for stocks from civil law (French-origin) countries than for stocks from common law (British-origin) countries. After controlling for firm-level determinants of liquidity, transactions costs are significantly lower for stocks from countries with (i) more efficient judicial systems, (ii) better accounting standards or, (iii) more stable political systems. One notable and, perhaps, surprising finding is that the enforcement of insider trading laws does not appear to impact trading costs, after we account for firm-level determinants of liquidity. In a multivariate regression analysis, where we evaluate the explanatory power of various country-risk measures, the impact of political risk and accounting standards on trading costs is robust.

Our analysis has many implications. First and most importantly, we link the growing literature on legal systems and the vast microstructure literature on the determinants of trading costs – specifically, we provide compelling evidence that (macro-level) institutional risk(s) impact (micro-level) equity trading costs. Second, our regression approach quantifies the economic significance of institutional risk on trading costs. To illustrate, we estimate that the effective spread of a representative stock would fall from 0.95% to 0.63%, if the *same* firm was based in Switzerland (with low political risk) instead of India (high risk). These estimates may be valuable to studies that examine the effect of market structure across different countries or those that compare trading costs of cross-listed foreign securities and home market securities. Our

results suggest that one needs to control for institutional risks of countries before drawing conclusions on market structures.

Finally, we add to the mounting evidence on the economic consequences of weak legal systems in a country. Prior research shows that countries with poor investor protection have less developed financial markets, lower economic growth and less efficient capital allocation. Also, firms from countries with weak institution have lower valuations and a higher required return on equity. Our results suggest that legal and political systems could affect firm valuation through their impact on transactions cost. We thus present another piece of evidence towards a better understanding of the benefits of improving a country's institutions.

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Appendix A:
Description of the Variables

Variable	Description	Sources
Origin	Identifies the legal family or tradition of the company law or commercial code to which a country belongs (Reynold and Flores (1989)). Broadly classified as either common law (English in origin) or civil law (French, German or Scandinavian in origin).	La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997)
Insider trading enforcement	Equals one if there has been an incident of prosecution under insider trading laws, based on responses to a survey of national regulators and officials of stock exchanges in March 1999, and zero otherwise.	Bhattacharya and Daouk (2002)
Efficiency of judicial system	Assessment of the "efficiency and integrity of the legal environment as it affects business, particularly foreign firms" produced by the country risk rating agency Business International Corp. It "may be taken to represent investors' assessments of conditions in the country in question." Average between 1980 to 1983. Scale from zero to 10; low scores indicate low efficiency levels.	La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997)
Accounting Standards	Index created by examining and rating companies' 1990 annual reports on their inclusion or omission of 90 items by Center for International Financial Analysis and Research (CIFAR). These items fall into seven categories (general information, income statements, balance sheets, funds flow statement, accounting standards, stock data and special items). A minimum of three companies in each country was studied. The companies represent a cross section of various industry groups; industrial companies represented 70 percent, and financial companies represented the remaining 30 percent. Scale from zero to 100; low scores indicate low accounting standards.	La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997)
Political Risk	Assessment of the "political stability of the countries covered by ICRG on a comparable basis", by assigning risk points to a pre-set group of risk components. The minimum number of points assigned to each component is zero, while the maximum number of points is a function of the components weight in the overall political risk assessment. The risk components (and maximum points) are: Government stability (e.g., popular support) (12), Socioeconomic conditions (e.g., poverty) (12), Investment profile (e.g., expropriation) (12), Internal conflict (e.g., terrorism or civil war) (12), External conflict (e.g., war) (12), Corruption (6), Military in politics (6), Religion in politics (6), Law and order (6), Ethnic tensions (6), Democratic accountability (6) and Bureaucracy Quality (4). Scale from zero to 100; low scores indicate high political risk.	International Country Risk Guide

Table I: Descriptive sample statistics, by country, and across all sample firms

Panel A: Descriptive Statistics, by country

Country	Number of ADRs	Global market size	Stock price	Trades per day	Trading volume / day	Legal system	CIFAR	Insider trad. enfrc	LLSV jud. system	Political risk	Quoted spreads	Effective spreads	Price impact
Argentina	11	1,198	12.4	41	577,547	Fren	45	1	6.00	62.5	1.95	1.55	1.03
Australia	10	12,561	45.4	63	2,878,693	Eng	75	1	10.00	88.5	0.75	0.60	0.35
Austria	1	1,426	24.8	13	103,249	Ger	54	0	9.50	89.5	0.88	0.63	0.28
Belgium	1	4,243	70.9	26	647,360	Fren	61	1	9.50	87.0	0.33	0.25	0.18
Brazil	32	3,153	28.0	102	4,018,498	Fren	54	1	5.75	62.5	0.83	0.66	0.54
Canada	69	4,232	30.9	234	6,937,011	Eng	74	1	9.25	89.5	0.44	0.36	0.23
Chile	21	983	19.3	19	492,302	Fren	52	1	7.25	77.5	1.71	1.38	0.91
China	13	5,796	22.7	29	533,505	-	-	0	-	68.0	1.08	0.86	0.45
Colombia	1	175	2.8	3	24,524	Fren	50	0	7.25	51.0	4.11	3.40	2.43
Denmark	2	9,471	40.4	27	349,628	Scan	62	1	10.00	91.0	0.65	0.52	0.32
Dominican Republic	1	85	5.3	8	25,568	-	-	-	-	66.5	1.91	1.59	1.39
Finland	4	30,518	30.9	647	56,933,988	Scan	77	1	10.00	95.0	0.60	0.46	0.29
France	20	22,698	43.8	141	5,237,791	Fren	69	1	8.00	80.5	0.73	0.60	0.46
Germany	16	27,656	52.8	149	5,553,944	Ger	62	1	9.00	87.5	0.49	0.40	0.28
Ghana	1	581	6.7	59	829,143	-	-	0	-	63.5	1.10	0.81	0.44
Greece	4	3,067	16.0	30	1,092,763	Fren	55	1	7.00	76.0	0.88	0.72	0.25
HongKong	9	7,353	13.0	70	1,902,616	Eng	69	1	10.00	80.5	2.27	1.87	1.36
Hungary	1	3,608	26.2	44	607,493	-	-	1	-	78.0	0.40	0.27	0.20
India	8	2,074	20.2	60	1,062,458	Eng	57	1	8.00	56.0	0.98	0.81	0.52
Indonesia	3	2,065	13.0	39	520,459	Fren	-	1	2.50	48.0	0.68	0.52	0.30
Ireland	4	7,314	40.4	390	27,897,295	Eng	-	0	8.75	92.0	0.46	0.35	0.21
Israel	5	244	14.4	4	22,263	Eng	64	1	10.00	58.5	2.05	1.68	0.91
Italy	11	11,638	39.9	43	847,953	Fren	62	1	6.75	81.0	1.02	0.83	0.60
Japan	17	33,195	57.3	99	2,289,490	Ger	65	1	10.00	86.0	0.60	0.50	0.27
Korea	5	16,615	36.3	267	11,546,086	Ger	62	1	6.00	76.0	0.20	0.16	0.10
Luxembourg	1	835	25.7	19	361,881	-	-	0	-	95.0	0.60	0.38	0.13
Mexico	25	2,533	19.7	105	5,856,734	Fren	60	0	6.00	68.0	1.45	1.18	0.92
Netherlands	20	22,537	34.4	239	9,483,462	Fren	64	1	10.00	94.0	0.96	0.78	0.34
New Zealand	2	2,058	13.9	34	248,402	Eng	70	0	10.00	91.0	2.15	1.81	0.63
Norway	4	7,853	23.5	89	2,191,278	Scan	74	1	10.00	89.5	0.85	0.67	0.69
Panama	3	875	26.9	97	1,537,695	-	-	0	-	73.0	0.56	0.45	0.29
Peru	3	1,038	18.2	58	1,537,393	Fren	38	1	6.75	65.0	1.59	1.26	0.79
Philippines	1	1,770	14.4	69	1,132,795	Fren	65	0	4.75	67.0	0.50	0.34	0.15
Portugal	3	7,272	22.9	32	230,603	Fren	36	0	5.50	84.5	0.91	0.76	0.33
Russia	5	1,099	31.7	129	3,267,747	-	-	0	-	61.5	0.54	0.41	0.26
Singapore	1	61	1.7	4	17,611	Eng	78	1	10.00	90.0	5.37	3.69	2.92
South Africa	3	3,072	28.8	221	5,609,133	Eng	70	0	6.00	64.0	0.34	0.29	0.21
Spain	6	31,479	22.4	162	3,228,005	Fren	64	1	6.25	82.5	0.66	0.53	0.22
Sweden	1	3,804	26.9	1	1,219	Scan	83	1	10.00	92.0	2.31	1.84	1.05
Switzerland	12	25,145	43.3	191	19,751,392	Ger	68	1	10.00	92.5	0.48	0.36	0.18
Taiwan	3	23,385	15.8	501	36,220,750	Ger	65	1	6.75	79.5	0.57	0.45	0.33
Turkey	1	443	26.2	31	787,139	Fren	51	1	4.00	58.5	0.49	0.39	0.26
United Kingdom	46	26,347	47.8	132	6,475,825	Eng	78	1	10.00	90.0	0.71	0.57	0.39
Venezuela	2	353	21.9	61	1,407,726	Fren	40	0	6.50	49.5	4.27	3.17	3.87

Panel B: Overall summary statistics

	N	Mean	Median	Std. Dev	Minimum	Maximum
Global market capitalization	412	12,159	3,363	23,710	3	200,014
Stock price	412	32.5	26.5	25.2	0.8	190.7
Daily number of trades	412	137	42	274	0	2493
Daily trading volume	412	5,800,170	552,366	19,635,040	442	225,920,266
CIFAR	380	65	65	10	36	83
Insider trading enforcement	411	1	1	0	0	1
Efficiency of judicial system	387	8.33	9.25	1.73	2.50	10.00
Political risk	412	80	86	12	48	95
Quoted spreads (%)	412	0.92	0.55	1.10	0.06	8.16
Effective spreads (%)	412	0.74	0.43	0.90	0.06	6.14
Price impact (%)	412	0.49	0.24	0.78	0.03	7.51

Panel A of Table I reports the number of firms, average global market capitalization, stock price, number of daily trades, and daily trading volume for each country in our sample. Panel B shows the corresponding statistic for the overall sample. The sample is obtained from NYSE's non-U.S. companies' database. The intraday transactions data are from Trade and Quote (TAQ) database. The sample period covers three months from January to March 2002. Also reported in Table I are the institutional risk measures from the county of origin of sample stocks. Origin of Legal System, Efficiency of Judicial System and CIFAR rankings are obtained from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997), the Insider Trading Enforcement variable from Bhattacharya and Daouk (2002) and Political Risk rankings from International Country Risk Guide. Appendix A provides the details. Table I also reports trading cost measures by country (in Panel A) and for the overall sample (in Panel B). Percentage quoted spread is computed as [200*(Ask-Bid)/mid], where mid is the midpoint of the bid-ask quotes. Percentage effective spread is computed as [200×dummy×(Price-mid)/mid], where the dummy equals one for a market buy and negative one for a market sell, price is the transaction price. Percentage price impact is computed as [200×dummy× (Qmid30 - mid)/mid], where Qmid30 is the midpoint of the first quote observed after 30 minutes. All market quality measures are cross sectional averages across sample firms during the sample period

Table II: Univariate analysis of Transactions Cost, by Institutional Risk Rankings

	Quoted spread	Effective spread	Price impact
Panel A.1: Market quality, by origin of legal systems (Source: LLSV (1997))			
French-origin	1.19	0.96	0.67
Scandinavian-origin	0.85	0.67	0.51
German-origin	0.51	0.41	0.24
English-origin	0.78	0.63	0.41
	Panel A.2. Test of Means (p-value)		
French vs. German origin	*(0.00)*	*(0.00)*	*(0.00)*
French vs. Scandinavian origin	*(0.32)*	*(0.31)*	*(0.51)*
French vs. English origin	*(0.00)*	*(0.00)*	*(0.00)*
Scandinavian vs. German origin	*(0.34)*	*(0.36)*	*(0.28)*
Scandinavian vs. English origin	*(0.82)*	*(0.87)*	*(0.66)*
German vs. English origin	*(0.12)*	*(0.11)*	*(0.16)*
Panel B.1: Market quality, by CIFAR quartiles			
Lowest quality quartile	1.34	1.07	0.77
Quartile 2	0.93	0.75	0.48
Quartile 3	0.67	0.55	0.37
Highest quality quartile	0.81	0.64	0.43
Highest vs. Lowest quality	*(0.01)*	*(0.01)*	*(0.02)*
Panel C.1: Market quality, by insider trading enforcement (Source: BD (2002))			
Markets without enforcement	1.23	0.99	0.71
Markets with enforcement	0.85	0.69	0.45
With vs. Without enforcement	*(0.01)*	*(0.01)*	*(0.01)*
Panel D.1: Market quality, by efficiency of judicial system (Source: LLSV (1997))			
Least efficient quartile	1.14	0.91	0.70
Quartile 2	1.03	0.83	0.56
Quartile 3	0.45	0.36	0.23
Most efficient quartile	0.94	0.76	0.46
Most vs. Least efficient	*(0.22)*	*(0.25)*	*(0.05)*
Panel E.1: Market quality, by Political Risk quartiles (Source:ICRS)			
Highest Risk quartile	1.25	1.00	0.73
Quartile 2	1.13	0.92	0.62
Quartile 3	0.51	0.42	0.27
Lowest risk quartile	0.81	0.65	0.37
Lowest vs. Highest Risk	*(0.01)*	*(0.01)*	*(0.00)*

Average transactions cost measures are reported for NYSE-listed non-U.S. stocks by institutional risk groups. For each sample firm, the institutional risk reflects the ranking of the country where the firm is incorporated. Stocks are grouped by Origin of Legal System (Source: LLSV(1997)) in Panel A, CIFAR rankings (LLSV(1997)) in Panel B, Insider Trading Enforcement (BD(2002)) in Panel C, Efficiency of Judicial System rankings (LLSV(1997)) in Panel D, and Political Risk rankings (ICRG) in Panel E. Reported in parenthesis are the p-values of the null hypothesis that the group means are equal.

Table III: Coefficients (p-values) of Regressions of Transactions Cost on each Institutional Risk measure and firm characteristics

Dependent Variable	Effective Spreads (%)				Price Impact (%)			
	(1)	(2)	(3)	(4)	(1)	(2)	(3)	(4)
Intercept	3.77	3.00	3.34	3.62	3.03	2.34	2.81	3.04
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
CIFAR	-0.01				-0.01			
	(0.00)				*(0.00)*			
Insider Trading		0.09				-0.07		
		(0.19)				*(0.34)*		
Eff. Jud. Sys			-0.04				-0.05	
			(0.01)				*(0.00)*	
Pol. Risk				-0.01				-0.01
				(0.00)				*(0.00)*
Price	3.84	3.95	3.90	3.90	2.18	2.29	2.22	2.24
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Return Volatility	0.22	0.26	0.22	0.25	0.31	0.28	0.30	0.27
	(0.09)	*(0.04)*	*(0.10)*	*(0.00)*	*(0.04)*	*(0.05)*	*(0.05)*	*(0.05)*
Glob.Mkt Cap	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.00)	*(0.02)*	*(0.01)*	*(0.00)*	*(0.03)*	*(0.08)*	*(0.02)*	*(0.01)*
Daily Volume	-0.19	-0.19	-0.19	-0.19	-0.16	-0.15	-0.16	-0.15
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Adj R^2	71.7%	69.4%	70.4%	70.6%	48.4%	46.6%	47.8%	48.7%
N	378	409	385	410	378	409	385	410

Reported are coefficients from regressions of transactions cost measures on each institutional risk variables and firm characteristics for a sample of NYSE-listed non-U.S. stocks. The intraday transactions data are from Trade and Quote (TAQ) database. The sample period covers three months from January to March 2002. The transactions cost measures are effective spreads and price impact of trades, in percentage basis points. Percentage effective spread is computed as [200×dummy×(Price-mid)/mid], where the dummy equals one for a market buy and negative one for a market sell, price is the transaction price. Percentage price impact is computed as [200×dummy× (Qmid30 - mid)/mid], where Qmid30 is the midpoint of the first quote observed after 30 minutes. For each sample firm, the institutional risk reflects the ranking of the country where the firm is incorporated. The measures (and data sources) are Efficiency of Judicial System rankings (LLSV(1997)), CIFAR rankings (LLSV (1997)), Insider Trading Enforcement variable (BD(2002)), and Political Risk rankings (ICRG). For each firm, the inverse of the average stock price, standard deviation of daily stock returns, global market capitalization of the ADR firm, and the log of the daily NYSE trading volume serve as firm level controls. P-values are reported in parenthesis.

Table IV: Coefficients (p-values) of Regressions of Transactions Costs on multiple Institutional Risk measures and firm characteristics

Dependent Variable	Effective Spreads (%)						Price Impact (%)					
	(1)	(2)	(3)	(4)	(5)	(6)	(1)	(2)	(3)	(4)	(5)	(6)
Intercept	3.82	3.39	3.63	3.76	4.00	3.77	3.10	2.86	3.04	3.07	3.39	3.23
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Insider Trading	-0.10	-0.11	0.01				-0.13	-0.11	0.03			
	(0.27)	*(0.19)*	*(0.94)*				*(0.19)*	*(0.26)*	*(0.71)*			
CIFAR	-0.01			-0.01	-0.01		-0.01			-0.01	-0.01	
	(0.00)			*(0.00)*	*(0.09)*		*(0.00)*			*(0.13)*	*(0.85)*	
Eff. Jud. Sys		-0.03		0.01		0.03		-0.04		-0.03		0.03
		(0.03)		*(0.72)*		*(0.16)*		*(0.02)*		*(0.29)*		*(0.35)*
Pol. Risk			-0.01		-0.01	-0.01			-0.01		-0.01	-0.01
			(0.00)		*(0.02)*	*(0.00)*			*(0.00)*		*(0.00)*	*(0.00)*
Price	3.82	3.88	3.91	3.84	3.82	3.85	2.15	2.20	2.24	2.18	2.16	2.17
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Return Volatility	0.20	0.20	0.26	0.23	0.21	0.23	0.29	0.28	0.28	0.30	0.29	0.32
	(0.12)	*(0.13)*	*(0.04)*	*(0.09)*	*(0.11)*	*(0.07)*	*(0.06)*	*(0.06)*	*(0.05)*	*(0.05)*	*(0.05)*	*(0.03)*
Glob.Mkt Cap	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	(0.00)	*(0.01)*	*(0.00)*	*(0.01)*	*(0.00)*	*(0.00)*	*(0.03)*	*(0.02)*	*(0.01)*	*(0.02)*	*(0.00)*	*(0.01)*
Daily Volume	-0.19	-0.20	-0.19	-0.19	-0.19	-0.19	-0.16	-0.16	-0.15	-0.16	-0.16	-0.15
	(0.00)	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*	*(0.00)*
Adj R^2	71.7%	70.5%	70.5%	71.6%	72.0%	71.5%	48.5%	47.9%	48.4%	48.4%	49.6%	48.4%
N	378	385	409	378	378	385	378	385	409	378	378	378

Reported are coefficients from regressions of transactions cost measures on multiple institutional risk variables and firm characteristics for a sample of NYSE-listed non-U.S. stocks. The intraday transactions data are from Trade and Quote (TAQ) database. The sample period covers three months from January to March 2002. The transactions cost measures are effective spreads and price impact of trades, in percentage basis points. Percentage effective spread is computed as [200×dummy×(Price-mid)/mid], where the dummy equals one for a market buy and negative one for a market sell, price is the transaction price. Percentage price impact is computed as [200×dummy× (Qmid30 - mid)/mid], where Qmid30 is the midpoint of the first quote observed after 30 minutes. For each sample firm, the institutional risk reflects the ranking of the country where the firm is incorporated. The measures (and data sources) are Efficiency of Judicial System rankings (LLSV(1997)), CIFAR rankings (LLSV (1997)), Insider Trading Enforcement variable (BD(2002)), and Political Risk rankings (ICRG). For each firm, the inverse of the average stock price, standard deviation of daily stock returns, global market capitalization of the ADR firm, and the log of the daily NYSE trading volume serve as firm level controls. P-values are reported in parenthesis.

Table V: Economic significance of the impact of Political Risk on Trading Costs

Country	Political risk	Effective spreads	Price impact
Indonesia	48.00	1.018	0.791
Venezuela	49.50	1.005	0.777
Colombia	51.00	0.991	0.763
India	***56.00***	***0.947***	***0.716***
Israel	58.50	0.925	0.692
Turkey	58.50	0.925	0.692
Russia	61.50	0.899	0.663
Argentina	62.50	0.890	0.654
Brazil	62.50	0.890	0.654
Ghana	63.50	0.881	0.644
South Africa	64.00	0.877	0.640
Peru	65.00	0.868	0.630
Dominican Republic	66.50	0.855	0.616
Philippines	67.00	0.850	0.611
China	68.00	0.842	0.602
Mexico	68.00	0.842	0.602
Panama	73.00	0.798	0.554
Greece	76.00	0.771	0.526
Korea	76.00	0.771	0.526
Chile	77.50	0.758	0.512
Hungary	78.00	0.753	0.507
Taiwan	79.50	0.740	0.493
France	80.50	0.731	0.483
HongKong	80.50	0.731	0.483
Italy	81.00	0.727	0.479
Spain	82.50	0.714	0.464
United States	***84.00***		
Portugal	84.50	0.696	0.445
Japan	86.00	0.683	0.431
Belgium	87.00	0.674	0.422
Germany	87.50	0.670	0.417
Australia	88.50	0.661	0.407
Austria	89.50	0.652	0.398
Canada	89.50	0.652	0.398
Norway	89.50	0.652	0.398
Singapore	90.00	0.648	0.393
United Kingdom	90.00	0.648	0.393
Denmark	91.00	0.639	0.384
New Zealand	91.00	0.639	0.384
Ireland	92.00	0.630	0.374
Sweden	92.00	0.630	0.374
Switzerland	***92.50***	***0.626***	***0.370***
Netherlands	94.00	0.613	0.355
Luxembourg	95.00	0.604	0.346
Finland	95.00	0.604	0.346

Estimates of percentage trading costs for a hypothetical stock from each country are reported. The estimates are the fitted values obtained using model (4) in Table III. For each country, we use its political risk ranking while holding all firm-level variables at the sample averages.