Corruption's Impact on Liquidity, Investment Flows, and Cost of Capital

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Abstract

We find that corruption decreases liquidity available to institutional traders and discourages foreign portfolio investment inflows into a country. It increases investors' order execution risks as well as corporations' cost of equity capital. These effects are noticed in country level panel data regressions as well as firm level event-study tests for companies that violate the U.S. Foreign Corrupt Practices Act. The firm level effects are stronger and distinct from reactions to other announcements such as missed earnings reports and analyst downgrades. The effect of corruption on foreign investment is nonlinear, with intermediate levels of corruption yielding the most negative effects.

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The Department of Justice (DOJ) and the SEC's anti-bribery enforcement initiatives and penalties under the U.S. Foreign Corrupt Practices Act (FCPA) have made front page headlines in the popular press almost on a weekly basis in recent years.[2] Many other countries around the world are also following suit. For example, the U.K. passed a major compliance regulation act (the Bribery Act) in April 2011. The prevalence of corruption cases and recent regulatory and enforcement actions are due to several factors including the increased pressure on firms to compete for lucrative international business opportunities. As Cheung, Rau, and Stouraitis (2011) show, the payoff to corrupt behavior can be quite tempting since they estimate that the average return is 10-11 times the original bribe amount for 166 high profile cases in 20 countries. In contrast to Cheung et al's focus on the profitability of bribery, we provide the first firm level empirical analysis of the effects of corruption on portfolio investment flows, the cost of capital, as well as secondary market liquidity and execution risks for institutional investors. We also examine corruption and its impact on financial markets at the national level using data from 49 countries.

The economic effect of corruption has as its theoretical underpinning recent research in asset pricing and cost of capital estimation that focuses on the effects of market imperfections such as illiquidity, asymmetric information, and investor uncertainty about a firm's business fundamentals. These market imperfections are well-known to affect the pricing and cost of capital for risky assets and are most relevant for our examination of the impact of corruption on financial markets.

[2] According to the Department of Justice, Congress enacted the FCPA in 1977 to bring a halt the bribery of foreign officials and to restore public confidence in the integrity of the American business system (e.g., see www.justice.gov/criminal/fraud/fcpa/docs/lay-persons-guide.pdf for more details). In particular, the FCPA was enacted for the purpose of making it unlawful for certain classes of persons and entities to make payments to foreign government officials to assist in obtaining or retaining business. Since its enactment, the FCPA has applied to all U.S. persons and certain foreign issuers of securities. With the addition of certain amendments in 1998, the FCPA now also applies to foreign firms and persons who cause, directly or through agents, an act in furtherance of such a corrupt payment to take place within the territory of the United States.

All three of these market imperfections are likely to be affected by the level of corruption in an economy because increased corruption typically deters investors from participating in a market while also creating greater uncertainty and more severe information asymmetry which, in turn, can negatively affect liquidity within an economy's financial markets. However, as Gerschenkron (1962), Shleifer and Vishny (1993), and La Porta et al. (2002) point out, corruption can have competing effects on a financial market and an economy (some positive and some negative). Thus, as Coppier and Michetti (2006), Pagano (2002, 2008), Barreto (2000), Mauro (2004), Aidt, Dutta, and Sena (2008), Dutt and Traca (2010), and Ratbek (2010) suggest, corruption might also have a nonlinear effect on an economy and its financial markets (i.e., some levels of corruption can be harmful while other levels of corruption might actually be beneficial).[3] For example, Mauro (2004) shows multiple equilibria in terms of corruption and economic growth and finds that individuals allocate their time between productive work activity and theft from government expenditures. In return, services resulting from government expenditures enter the production function. The model shows if many people steal, then the probability of any one of them being caught will be low. Thus, there will be a "good" equilibrium characterized by absence of corruption and high rates of investment and growth; and a "bad" equilibrium characterized by pervasive corruption and low investment and growth. The multiplicity of high versus low growth outcomes creates the kind of uncertainty and information asymmetry that is the subject of our liquidity tests. In addition, Méon and Sekkat (2005) propose an interesting test of the "greasing the wheels" versus "sand in the wheels" hypotheses related to

[3] Related to these issues of corruption and nonlinearity, Shleifer and Vishny (1993) show that the illegality of corruption and the need for secrecy makes it much more distortionary and costly than even taxation. They suggest that the demands of secrecy can shift a country's investments away from more transparent highest value projects into high risk opaque projects if the latter offer better opportunities for secret corruption. Naturally, these distortions from corruption serve to increase information asymmetries and hurt liquidity. In our context, the focus on secrecy instead of shareholder wealth maximization also discourages equity investment inflows into the corrupt country. In this regard, pervasive and open corruption without a need for secrecy is actually somewhat better than medium levels of secret corruption. This peculiarity further justifies the potential nonlinearity in our empirical models.

corruption. This research suggests a possible nonlinear relation between corruption and the economy because, at some levels, corruption can be beneficial (i.e., it greases the wheels of commerce) and, at other levels, corruption might be harmful (thus, putting sand in the wheels of an economy). Most importantly, in contrast to our study, none of these papers investigate the effects of firm level corruption on liquidity, execution risk, foreign portfolio investments, and cost of equity capital.

By exacerbating the three market imperfections noted above, corruption can affect a financial market's liquidity, asset prices, and cost of capital. In practice, the impact of corruption on a nation's financial market can be measured by the market's level of transaction costs and order execution risk (transaction cost volatility), as well as by the amount of foreign investment the market attracts. Specifically, we treat lower equity-related transactions costs, defined as the sum of market impact and commissions / fees, as a proxy for greater liquidity. Also, as Roll and Subrahmanyam (2010) observe, the variability of trading costs can provide a measure of 'execution risk' with respect to an investor's order. Lastly, greater participation in an equity market by foreigners can be viewed as an indirect measure of a more liquid market.

We can also define the three market imperfections noted earlier more precisely in order to see how corruption influences the costs and risks of trading in a financial market. First, illiquidity can be viewed as the cost of converting a risky asset quickly into cash at, or close to, its fair value. Corruption can be a deterrent to investors (particularly foreigners) from investing in a nation's equity markets. In a sense, corruption can be seen as a cost of participating in a country's financial market and, as Pagano (1989) demonstrated, increased participation costs can reduce a market's liquidity and trading volume. In addition, as Acharya and Pedersen (2005) show, one must take into account liquidity when estimating returns to risky assets within an asset

pricing context. At the macroeconomic level, one candidate for impacting liquidity, as Shleifer and Wolfenzon (2002) has discussed, is the level of corruption. So, one can view our focus on corruption as another means to assess how corruption affects liquidity which, in turn, influences required returns on risky assets and the cost of capital for firms.

Second, asymmetric information is a well-known problem in finance where some market participants have superior knowledge over other market participants in terms of the expected returns and riskiness of an asset. Easley and O'Hara (2004) have developed a model which shows how public and private information affect asset returns and demonstrate that investors demand a higher return to hold stocks with greater private information (i.e., more severe information asymmetry). Earlier work by Diamond and Verrecchia (1991) also shows that reducing information asymmetry through public disclosure of information can decrease a firm's cost of capital by generating greater demand from large external investors (due to increased liquidity for the firm's securities). In our setting, institutional investors are more likely to demand a higher risk premium when a firm (or nation) is perceived to have a greater informational advantage over these external investors. In turn, these firms will have to pay a higher cost of capital and investors will face larger transaction costs and greater variability in these trading costs due to a heightened degree of information asymmetry.

Uncertainty, as defined by Knight (1921), is another factor that can affect asset prices and the cost of capital because investors are unable to assign (with any reasonable degree of confidence) the probabilities of all possible states of nature that might affect the values of a market's risky assets. For example, Easley and O'Hara (2010) develop a model in which asset prices and the liquidity of marketable securities are affected by investor uncertainty (which is separate and distinct from Knight's concept of an investor's perceptions of 'risk'). Since

corruption is likely to affect investor uncertainty and asymmetric information about a firm's value, both of which, in turn, have been shown to influence a firm's liquidity and cost of capital, we construct empirical tests in order to examine whether this linkage between corruption and liquidity is economically and statistically significant.

Yet another line of research has focused on the linkages between corruption and government influence on a nation's financial transactions and capital investment inflows. In theory, corruption and government influence within an economy can be either beneficial or detrimental. According to the "*development*" view noted in Gerschenkron (1962), Lui (1985), La Porta, Lopez-de-Silanes, and Shleifer (2002), and Bliss and Di Tella (1997), higher levels of corruption and government involvement in the private sector could actually be *beneficial* to a macroeconomy by enabling investors to identify good investment opportunities more accurately through the government's screening of hand-picked "cronies." In contrast, the "*political*" view described in Gerschenkron (1962), Shleifer and Vishny (1994), and La Porta et al. (2002) suggests that higher levels of corruption lead to larger information asymmetries between investors and issuers, thus creating the classic Stiglitz and Weiss (1981) adverse selection, or "lemons," problem associated with investing in risky firms. Several macro level studies have documented linearly adverse effects of corruption on financing, valuation, and growth.[4] This "political" view suggests a *negative* relation between corruption (as well as with respect to the effect of government involvement in the financial sector) and a country's investor confidence. Thus, contrary to the development view, if the *political* view is correct, then corruption and

[4] For example, Lee and Ng (2009) show that firms from more corrupt countries trade at significantly lower market multiples by using firm level data from 44 countries. Using estimated bribe payments of Ugandan firms, Fisman and Svensson (2007) find that both the rate of taxation and bribery payments are negatively correlated with firm growth. Other studies with similar implications include Mauro (1997), Wei (1999), Kaufmann and Wei (1999), Ciocchini, Durbin, and Ng (2003), Cuervo-Cazurra (2006), Butler, Fauver, and Mortal (2009), Fisman (2001), Johnson and Mitton (2003), Garmaise and Liu (2005), Yin (2008), Javorcik and Wei (2009), and Faccio (2010).

government involvement should have an *adverse* effect on a nation's liquidity, foreign investment, and should also *increase* the cost of equity.

The trade-off between the development and political aspects of corruption, as well as the differential abilities of domestic and foreign institutional investors to deal with corruption, provide another way to establish nonlinear relationships between corruption and our variables of interest. For example, foreign equity inflows are expected to be very high when corruption is extremely low. Such a transparent environment can create a "level playing field" where sophisticated foreign investors can thrive with high quality fundamental research. In contrast, foreign equity inflows can decrease sharply as corruption increases. A moderately corrupt environment could therefore give an edge to local investors who may enjoy a closer relationship with corrupt government officials than foreign institutional investors. At medium levels of corruption, local monopolies / cronies can also twist the rules in their favor. Thus, dominance of local monopolies in a moderately corrupt environment can force foreigners out of the market. Lastly, the foreign equity flows may stabilize and perhaps increase when the levels of corruption are extremely high. In this environment, all investors (including the foreign institutions) may readily influence the corrupt government officials. Even if investors do not interact with corrupt officials, the knowledge about which firms that are benefiting from corruption may be pervasive (or even publicly known) and embedded in culture, thus creating a "perverse level playing field" for both domestic and foreign institutional investors. In this case, foreign institutions could competitively venture into these highly corrupt environments.

Overall, there is a great deal of theoretical research that indicates how corruption can exacerbate well-known market imperfections such as illiquidity, asymmetric information, and uncertainty which, in turn, can affect a financial market's ability to price risky assets properly.

These theories help guide us in our study of corruption and its potential nonlinear effects by examining a global panel dataset containing corruption perceptions at the country level and by conducting a firm level event study surrounding the public announcements of U.S. Foreign Corrupt Practices Act (FCPA) violations.

We organize our tests around three main research questions. First, how are our measures of liquidity and execution risk related to the degree of corruption in the country? Our second question pertains to the investment activity of foreigners: are foreign equity, debt, and portfolio investment inflows significantly and nonlinearly related to the level of corruption? Our third and final research question focuses on corruption's impact on the cost of capital.

Our main findings can be summarized as follows. First, we find that corruption and government involvement have a negative effect on a country's financial markets. Greater corruption not only decreases the liquidity available to large foreign institutions but also discourages foreign portfolio investment inflows into the country due to concerns about the fundamental quality of the economy. Another by-product of increased corruption is that both investors and corporate issuers can suffer (e.g., investors experience greater order execution risk while issuers face higher costs for equity capital). As for potential two-way interactions between foreign investment and corruption, we perform Granger causality tests and find that corruption Granger-causes lower future equity investments by foreigners whereas current investments do not affect future corruption. In addition, our main results are both statistically and economically significant. For example, the average adverse effect of corruption on a country's liquidity is -79.4 bps, as measured by additional expenses related to market impact costs and trading commissions. Similarly, we find that the average effect of corruption on foreign equity

investment is -70.82%. The cost of equity capital also increases by 863 bps based on the average level of corruption in our 49-nation sample.

Second, corruption has a nonlinear impact on foreign equity, debt, and portfolio investment inflows that are consistent with the political view described above. That is, our results indicate that foreign institutions invest heavily in economies with transparent environments that are relatively free of corruption and their investments fall sharply to a minimal level when there is a moderate amount of corruption. Ultimately, in a reversal of this pattern, foreign investment does not decline further at extremely high levels of corruption and, in some cases, foreign investment actually increases to form a reverse J-shaped pattern. Corruption's impact comes with another cost beyond reduced foreign investment, as we also find a nonlinear relationship between cost of equity and corruption, with moderate levels of corruption leading to higher costs for equity capital (relative to both low and high degrees of corruption).

For the country level analysis, we analyze foreign firms listed in their home markets rather than rely on U.S. American Depositary Receipts (ADR) data which other studies have typically employed. The use of ADRs can be problematic because the firms that issue U.S.-traded ADRs could mitigate the effects of corrupt practices in their home countries. In contrast, the Ancerno dataset that we use provides detailed country level and firm level transaction cost information for actual foreign stocks traded by over 700 institutions directly in the home markets of 49 countries.

Third, beyond the country level effects of corruption on global corporations discussed above, we also examine the effect of firm level corruption on investor perceptions. Several Fortune 500 firms faced investigations and enforcement actions by the U.S. Department of Justice under the FCPA during the last decade, with the top 10 settlements through 2010

exceeding $2.8 billion. Firm level analysis of the U.S. FCPA violations reveals that charges of corruption against a firm negatively affect its stock market liquidity and equity investment while also increasing a stock's order execution risk. In addition, charges of corruption increase the firm's cost of equity capital. Thus, our firm level analysis provides an important addition to the corruption literature that has mainly focused on macroeconomic studies in the past. Our tests highlight the economic significance of the fundamental damage experienced by firms convicted of corruption.

Fourth, we find that corruption-related news events are indeed different than other, more common, "bad news" announcements such as missed earnings expectations, analyst downgrades, etc. This could be due to the reality that, apart from hefty fines under the FCPA settlements, just to conduct an investigation can cost companies hundreds of millions of dollars.[5] Additional indirect costs can include diversion of top management's attention, related lawsuits, and potential loss of the firm's customer base. Recent evidence on "busy boards" suggests that a firm's profitability, growth opportunities, and acquisition strategy can suffer when directors are juggling too many demands on their time (e.g., see Fich and Shivdasani, 2006, and Ahn, Jiraporn, and Kim, 2010). A conviction on corruption charges also permanently alters investors' perception about the trustworthiness and integrity of a firm's management by signaling that management may be incapable of generating profits by fair means. Thus, the cost to a firm of an FCPA judgment can be much larger than just the FCPA settlement itself and can continue for a long period after the settlement has been paid. Consequently, corruption-related news events reveal "long-tail risk" at the firm in the sense that additional costs and problems linger long after the announcement of the FCPA settlement.

[5] For example, News Corporation has disclosed in its recent financial statements that the company has spent over $191 million for conducting its internal FCPA investigation. Similarly, Avon disclosed that it has spent over $247 million on its FCPA investigation since 2008.

The findings noted above are robust to several alternative choices in terms of defining our key dependent variables, independent variables, as well as our choice of econometric methods. Section II. E. provides details on these robustness checks.[6]

The remainder of the paper is organized as follows. Section I discusses data selection for our key variables while Section II describes our empirical methodology and results both at the country and firm levels. Section III presents our conclusions.

I. Data Sources and Variable Definitions

We collect panel data on corruption scores, secondary market institutional trading costs, investment flows, and cost of capital variables for 49 countries from 2004 to 2008 to study the effects of country level corruption. Separately, we also collect panel data on corruption event dates, secondary market institutional trading cost, direction of investment flow, and cost of capital variables for 27 FCPA firms from 2000 to 2009.

A. Our measure of corruption

Our corruption measure is based on Transparency International's Corruption Perceptions Index (CPI), which is a composite index, or poll of polls, that ranks countries in terms of the degree to which corruption is perceived to exist among public officials and politicians. It is also used extensively by other researchers such as Treisman (2000), Svensson (2005), Faccio (2010), Pagano (2002, 2008), Ciocchini, Durbin, and Ng (2003), Yin (2008), and many others.[7]

[6] One example of our robustness tests pertains to our key independent variable in this analysis. For example, corruption can arguably be highly correlated with other macro-institutional variables previously used in the literature such as the efficiency of a nation's judicial system, the legal origins of the country's laws, and the degree of political constraints within a nation's system of government. We explicitly control for these possible inter-relationships by supplementing our basic country level analysis with a two-stage regression analysis and orthogonalizing the effects of corruption and government involvement. We find that our results are robust to this orthogonalization process, as well as other robustness checks.

[7] Details about the index's construction are available in the historical data section of the organization's website at www.tranparency.org. The definition relates closely to corruption defined as the misuse of public office for private

The CPI is reported on a scale of 1 (most corrupt) to 10 (least corrupt) but, for ease of understanding, our *Corruption* variable is the inverse of the yearly value of the CPI for each country. As a result of our inversion, the variable can range between 0 and 1, where higher numbers imply greater corruption. For example, several countries including Australia tie as the least corrupt countries with a corruption score of 0.11 while Venezuela ranks as the most corrupt country with a score of 0.44.

To analyze the impact of corruption at the firm level, we begin with the list of all firms that were indicted under the U.S. FCPA obtained from the Department of Justice (DOJ), Shearman & Sterling Inc, and Trace International. Appendix I shows our sample firms that were indicted and are also in our Ancerno and other datasets. Our sample includes prominent FCPA settlements such as Siemens, Halliburton, and many others. We collect both the regulatory action date as well as the date of the first press release about the case. Announcement dates are obtained from Lexis-Nexis. Appendix I also shows financial penalties for those cases. Due to the secretive nature of the investigations, the regulatory action date and the first press release date often coincide. Since investors may react more strongly to the regulatory action dates, we present the analysis using the dates when actual penalties were disclosed. Nonetheless, the key findings hold when we use the first public announcement about the case as well. We did not include the Alcatel case due to the Alcatel-Lucent merger and acquisition. However, the results remain the same when we include this case.

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gain ((Klitgaard (1991; page 221) and Shliefer and Vishny (1993; page 599)). Corruption defined this way would capture, for example, the sale of government property by government officials at unreasonable prices, kickbacks in government contracts and tenders, kickbacks in public procurement decisions, bribery and theft of government funds, among other things (Svensson (2005; page 2)).

B. Proxies for Liquidity and Order Execution Risk

We use country level institutional trading data aggregated at quarterly intervals by an independent brokerage firm's analytical service, Ancerno Ltd. (launched as an independent entity by Abel/Noser Corp. in 2007).[8] One of our key measures of market quality pertains to the price impact of institutional trades defined as follows:

Price Impact = (Execution Price – Prior Day Close Price) / Prior Day Close Price * Trade Indicator (1)

Trade Indicator is equal to -1 if the trade is a Buy and +1 if the trade is a Sell. Buys executed *above* the prior day's closing price represent transaction costs (cash outflows over and above the fair value) are reported as negative values (a similar convention applies to Sells executed *below* the prior day's closing price). Note that this equation ensures that lower numbers imply poorer liquidity (i.e., more negative numbers mean higher transaction costs or lower liquidity) and higher numbers imply better liquidity. We analyze the trading cost measures separately but also define a composite liquidity measure as the sum of price impact and brokerage commissions:

$$\text{Liquidity} = \text{Price Impact} + \text{Commission} \quad (2)$$

We also define the order Execution Risk as the absolute value of the difference between 75^{th} and 25^{th} percentiles of the liquidity measure. Anand, Puckett, Irvine, and Venkataraman (2010) use a similar proxy for execution risk (the standard deviation of institutional trading cost).

[8] This service provides trading cost analysis to over 700 institutional investors, advisors, hedge funds, consultants and brokers with over $7.5 trillion in annual trading of about 13,000 stocks domiciled in 60 countries that trade on nearly 100 exchanges and venues. Countries in our sample represent more than 86% of the world's equity market capitalization of listed companies as of 2008 (based on the 2009 World Development Indicators available from the World Bank). This and other similar datasets are used widely in academic papers focusing on institutional trading costs, such as those by Goldstein, Irvine, Kandel, and Weiner (2009), Chiyachantana, Jain, Jiang, and Wood (2004), and Keim and Madhavan (1996).

Firm level liquidity is computed at daily frequency. The formula is similar to country level *Liquidity,* as described earlier in Equation (2). For firm level *Execution Risk* (in basis points), we are also able to compute the standard deviation of institutional trading cost (our liquidity measure) following Anand et al. (2010). This standard deviation of trading costs is calculated daily based on all individual transactions for a firm during that particular day.

C. Foreign Equity, Debt, and Portfolio Investments

To measure the attractiveness of a nation's equity markets to foreign investors, we analyze the net capital investment in a country's equity markets using two alternative data sources, one from the IMF and another from Ancerno. First, we use the Coordinated Portfolio Investment Survey (CPIS) from IMF (http://www.imf.org/external/np/sta/pi/cpis.htm). This survey of central banks measures *Equity Held by Foreigners* for each country from 2001 to 2009 at market prices.[9] We then define *Equity Held by Foreigners / GDP* as our first measure. Note that this variable can be higher than 100% for countries that have high foreign equity investment inflow relative to their *nominal* GDP. We also measure the attractiveness of a nation's debt market by using *Debt Held by Foreigners / GDP*. The *Total Portfolio Investment by Foreigners / GDP* variable is also obtained from CPIS.

Our alternative measure of equity investments and overall market liquidity in a country is the cumulative institutional trading activity (Buy plus sell volume in U.S. dollars) from the Ancerno dataset for all stocks in a given country executed in the given calendar year by all the institutions in our sample (and normalized by the country's nominal GDP). For the firm level equity investment analysis, we use a measure of equity investment based on firm-specific data

[9] Equity inflows are shown in Table 3.1 of CPIS data at http://www.imf.org/external/np/sta/pi/topic.htm and include ordinary shares, stocks, participating preferences shares, depository receipts denoting ownership of equity securities issued by non-residents. Market values of unlisted firms are calculated by using one of the following methods: (1) a recent transaction price, (2) directors' valuation, or (3) net asset value.

from the Ancerno database, where *Buy Shares / Shares Outstanding %* is the daily total shares bought divided by shares outstanding (in percentage format).

D. Cost of Equity, Macro-Institutional Features, and Control Variables

We use a measure of an expected return as a proxy for the cost of equity capital for our sample countries. *Excess return over T-bill (ERT)* is the country's stock index return in U.S. dollars minus the one month U.S. T-bill rate (in percentage terms). The raw return is monthly and obtained from Datastream country indices from 2001 to 2009. We compute *Excess world return* by subtracting the U.S. risk-free rate from the gross world market return (also in percentage terms).

We use annual data from Beck, Demirguc-Kunt, and Levine (2010) for our Government Involvement in the Financial Sector variable. This variable represents the claims on the domestic nonfinancial sector by the central bank as a share of GDP and has been shown by La Porta et al. (2002) as a potentially important factor in determining the cross-sectional variation in country level measures of financial and economic performance.

Prior research also identifies macro level institutional features other than corruption that may have important effects on stock market performance. For example, Eleswarapu and Venkataraman (2006) examine 412 NYSE-listed ADRs from 44 countries and find that, after controlling for firm level determinants of trading costs, the effective bid-ask spread and price impact of trades are significantly lower for ADRs from countries with better ratings for judicial efficiency, accounting standards, and political stability from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1998). Daouk, Lee, and Ng (2006) show that earnings opacity, enforcement of insider trading laws, and short-selling restrictions affect trading volume and U.S. foreign stockholdings. Therefore, we include these institutional details as control variables and

also perform an orthogonalized analysis of the effects of corruption and government control of the financial system.[10] Another control variable is the degree of market fragmentation through cross-listings because Domowitz, Glen, and Madhavan (1998) show that when fragmented markets are not informationally well-linked, then the presence of arbitrage traders may reduce market quality and liquidity by increasing the information asymmetry risk faced by market makers.

Furthermore, we also control for exchange-specific trading rules such as the Insider trading rules index, Volume manipulation rules index, and Price manipulation rules index, as described in Cumming, Johan, and Li (2011). Other market design variables that can affect liquidity include the number of exchanges within the country from the *Handbook of World Stock, Derivative, and Commodity Exchanges*, and the age of the leading stock exchange from Jain (2005).

As additional control variables in our liquidity and execution risk regressions at the country level, we also include stock market turnover, GDP, market capitalization, cross-listing intensity, volatility, and regional dummies based on information provided by Datastream, World Federation of Exchanges databases, and World Development Indicators Online (World Bank: https://publications.worldbank.org/register/WDI). At the firm level versions of these regressions, we also include several control variables from CRSP used in the previous literature. For example, firm *Size* is based on market capitalization (in thousands of dollars). *Volume* is the total number of shares of a stock traded on that day. The *Market Return* is the CRSP Equal-Weighted daily return. *Return* is the daily return for the stock (expressed in percentage).

For the firm level *Cost of Equity Capital* analysis, we extract daily returns of the firm in excess of the risk-free rate (expressed in percentage) from CRSP. Control variables in this

[10] Our orthogonalized effects analysis closely follows the methodology in Daniel and Titman (2006).

analysis include the Fama-French (1993) factors of *SMB*, *HML*, and the U.S. market return in excess of T-bill rate, as well as Jegadeesh and Titman's (1993) momentum factor, *UMD*. These Fama-French and momentum factors (measured on a monthly basis) are also included in the country level cost of equity capital models.

II. Empirical methodology and results

A. Summary statistics

Table I shows country level descriptive statistics of the Average Corruption Score, our key explanatory variable, which has a mean of 0.20 in Panel A for the overall sample and ranges from a minimum of 0.11 to a maximum of 0.44. Government Involvement, measured by central bank assets as a percentage of GDP, averages 4.35% with a minimum of 0.02% and a maximum of 32.9%. The mean value of our first dependent variable, Liquidity, is -68.68 bps. The average for Execution Risk is 184.68 bps and its range is from 93 to 287 bps. The mean of Equity Investment Held by Foreigners is 78.41% of GDP. Average Institutional Total Volume is 24.48% of GDP while the mean values of Debt Held by Foreigners and Total Portfolio Investment by Foreigners are 105.57% and 183.90% of GDP, respectively.

Panel D of Table I shows the correlation coefficients between our main variables. The correlations coefficients of Corruption with Liquidity, Execution Risk, Equity Held by Foreigners, Institutional Total Volume, Debt Held by Foreigners, and Total Portfolio Investment by Foreigners are -0.30, 0.32, -0.17, -0.39, -0.18, and -0.18 respectively, and these coefficients are statistically significant at 1%. Thus, on a simple univariate basis, corruption is associated with decreases in liquidity and capital investment inflows, as well as increases in trade execution risks. Government involvement has similar effects. Most of these results also remain intact after

orthogonalizing the corruption and government involvement variables.[11] For example, the correlation coefficients between our orthogonalized Corruption Residual and Liquidity, Execution Risk, Equity Held by Foreigners, Debt Held by Foreigners, and Total Portfolio Investment by Foreigners are -0.17, 0.15, -0.22, -0.19, and -0.21 respectively, and are all significant at the 1% level. These preliminary indicators are consistent with our research questions and motivate our univariate and multivariate empirical tests.

[Insert Table I about here]

In Table II, we divide our sample into two subgroups based on the level of Corruption, using the median value of corruption as the cut-off point. Liquidity, Execution Risk, and Institutional Total Volume differences between high and low corruption groups are −29.76 bps, 50.35 bps, and -31.24%, respectively. Stocks from countries in the high corruption group have worse Liquidity and higher Execution Risk. Countries in the high corruption group also have less Foreign Equity, Debt, and Portfolio Investments, as well as lower Institutional Total Volume.

[Insert Table II about here]

Figure 1 depicts the relationship between Corruption, Liquidity, and Execution Risk. As one can see, Liquidity deteriorates as Corruption in the country increases. Liquidity depends mainly on local market makers and may therefore deteriorate linearly in corruption. Execution Risk also increases as Corruption in the country increases.

[Insert Figure 1 about here]

Figure 2 shows the nonlinear effects of Corruption on Equity Held by Foreigners and Institutional Investment. Equity Held by Foreigners is very high with extremely low levels of

[11] The orthogonalization procedure and relevant equations are described in more detail when we discuss the multivariate regressions later in Section IV. In essence, we capture the residuals from a regression equation where corruption is the dependent variable and various macro-institutional factors are on the right hand side. The idea is to assess the pure effects of corruption from these residuals that are free of the inter-related effects of other macro-institutional factors.

corruption. As noted earlier, a transparent environment may create a level playing field where sophisticated foreign investors can thrive with high quality fundamental research. Equity Held by Foreigners decreases sharply as corruption increases. The flows then stabilize and even increase slightly for extremely high levels of corruption. In this latter environment, anybody, including foreign institutional investors, might readily understand the effects of corruption on each firm and may influence the corrupt government officials. In sum, our summary statistics and Figures 1 and 2 reveal statistically significant relationships in the hypothesized directions, on a univariate basis, between Corruption and key measures of the quality of a nation's financial markets.

[Insert Figure 2 about here]

B. Country Level Regression results including nonlinear effects

Next, we test our three research questions in a multivariate setting and focus first on our country level tests in this section and then turn our attention to the firm level results in the next section. In Table III, the dependent variable in the first column is Liquidity and two of the key explanatory variables are the linear and squared forms of corruption. These variables try to capture any possible linear and nonlinear relationships between corruption and liquidity. In the specifications for Liquidity (Model [1] in Table III), the coefficient of the linear corruption variable is negative and significant at the 1% level while the squared form of corruption is significant at the 10% level. Thus, increased corruption is associated with lower levels of Liquidity in a nonlinear fashion. We also find that another explanatory variable of interest, government involvement, affects liquidity adversely in Model [1] of Table III**.**

In the Model [2] of Table III, we repeat our analysis with Execution Risk as the dependent variable. We can see that corruption is not significantly related to execution risk. To control for the possibility that the magnitude of foreign equity flows might be inter-related with

our Liquidity and Execution Risk variables, we include Equity Held by Foreigners / GDP as a control variable in Models [1] and [2], although we find that this variable is also insignificant in both specifications.[12]

In Models [3] to [7] of Table III, we examine the impact of corruption and government involvement on foreign equity, debt, and portfolio investments by using Equity Held by Foreigners, Total (Buy plus Sell) Volume, Net Buy Volume, Debt Held by Foreigners, and Total Portfolio Investment (all scaled by nominal GDP) as our dependent variables. With the exception of the Net Buy Volume regression, the linear corruption variable in all of these specifications is negative and statistically significant at 1% while a positive and significant squared form of corruption captures the nonlinear relationship between corruption and foreign equity, debt, and portfolio investments. These results are consistent with the notion that there is a nonlinear relation between corruption and foreign investment activity. Specifically, Table III's results demonstrate that equity, debt, and portfolio flows are very high with extremely low levels of corruption, decrease sharply as corruption increases, and then the flows stabilize and even increase slightly for very high levels of corruption. We find a similar reverse J-shaped pattern when we use the alternative foreign equity investment measure based on Ancerno's total volume (Total Volume / GDP).[13]

[Insert Table III about here]

One potential concern with any empirical analysis is the endogeneity of one or more of the explanatory variables. Although one of our main hypotheses is that corruption-free

[12] In Table IV below, we perform Granger causality tests to examine more precisely the potential simultaneity between Liquidity, Execution Risk, Equity Held by Foreigners / GDP, and Corruption.

[13] The generally insignificant results based on the Net Buy Volume / GDP variable could be due the fact that this Net Buy variable has a near-zero mean but is still quite volatile for our sample (mean = -0.10 and standard deviation = 3.80). Institutional Total Volume, on the other hand, has a positive mean of +27.12 and thus is more representative of actual foreign investor activity / interest in investing in a specific foreign market. Consequently, the Total Volume / GDP variable (i.e., our measure of institutional trading activity) can lead to more reliable parameter estimates, as shown in Table III.

environments attract foreign equity investment, it is also possible that prosperity can reduce corruption. Thus, to understand the direction of causality, Table IV reports in its first two columns the bi-directional Granger causality tests between yearly changes in corruption (Δ Corruption $_{i,t}$) and changes in Equity Held by Foreigners scaled by GDP (Δ Equity Held by Foreigners / GDP $_{i,t}$). The dependent variable in the first column is the yearly change in Equity Held by Foreigners / GDP for a country. The dependent variable in the second column is the yearly change in corruption for a country. This table shows evidence of one-way Granger causality where corruption lowers future foreign equity investment inflow, while there is no evidence of foreign equity investment having any significant impact on future corruption.

In the third and fourth columns of results in Table IV, we show the Granger causality tests for changes in Liquidity and Corruption while the final two columns display results corresponding to Granger causality tests between changes in Execution Risk and Corruption.[14] Similar to what we observe for Equity Held by Foreigners / GDP, Corruption has a uni-directional association with Liquidity in that corruption may influence a nation's liquidity but liquidity does not appear to significantly impact a nation's level of corruption. Interestingly, the final two columns of Table IV suggest that there is neither uni- nor bi-directional Granger causality between Corruption and Execution Risk.

[Insert Table IV about here]

In Table V, we conduct a regression analysis for the equity cost of capital based on our sample countries. We use a measure of an expected return as a dependent variable by collecting

[14] For each of our key dependent variables reported in Table IV, we also include as additional controls the contemporaneous values for the other two variables that we are interested in. For example, we include in the first model for Equity Held by Foreigners / GDP both the contemporaneous changes in Liquidity and Execution Risk. In this way, we can control for any possible simultaneity between these variables while also examining the inter-relationships between Corruption and this foreign investment variable. Interestingly, we do not find any evidence of simultaneity between Liquidity, Execution Risk, and foreign investment activity since all of these control variables are insignificant in Models [1], [3], and [5] except for weak significance at the 10% level for the Equity Held by Foreigners / GDP parameter in model [3].

the monthly *Excess return over T-bill (ERT)* from Datastream. The coefficient of the Corruption variable is 61.577 and statistically significant at 5%. We also observe a statistically significant nonlinear relation between corruption and the cost of equity capital, as can be seen by the significant negative parameter estimate for the Corruption^2 variable. Thus, we find that a higher level of corruption is typically associated with an increase in the cost of equity at the country level, with the highest levels for this cost estimate occurring at an intermediate level of corruption (i.e., at a value of 0.29, which is around the levels found in Mexico, Morocco, and Peru).

The economic significance of the effects of corruption on cost of capital is also substantial. For example, if Chile reduces its corruption level from 0.14 to the corruption level of Canada (0.12), Chile can reduce its annualized cost of equity capital by 9.02% (computed as follows from Model [1] in Table V: $\{(61.577 \times (0.12-0.14) - 92.237 \times (0.12^2 - 0.14^2)\}*12$. One may argue that a high cost of equity may be the result of potentially high growth opportunities in corrupt countries. To address this point, we use the three Fama-French factors, as well as the UMD momentum factor in order to control for country level differences in growth, average firm size, and prior stock return performance (above and beyond unobservable country level fixed effects). The results show that a high cost of equity is primarily driven by greater systematic risk (as measured by beta) and that high growth opportunities (e.g., as proxied by a negative parameter estimate for the HML factor) do not appear to have a significant effect.

[Insert Table V about here]

C. Simultaneous Equations Approach to identify the effects of Corruption and Government involvement on Liquidity, Execution Risk, and *Portfolio Investment by Foreigners*

At the country level, Corruption and Government Involvement in the Financial Sector can be highly correlated with each other and other macro-institutional variables such as the efficiency of judicial system and legal origins. To mitigate potential simultaneity and multi-collinearity problems, we conduct a two-step regression in order to orthogonalize the key variables of interest. In the first step, we regress Corruption on Government Involvement in the financial sector, Efficiency of judicial system, French legal origin, German legal origin, and Scandinavian legal origin, with English common law as the base case, and store the residuals from this regression, $v_{i,t}$. Model structure and variable choice is based on La Porta et al. (1999), Shleifer and Vishny (1994), Tanzi (1995), Johnson, Kaufman, and Zoido-Lobaton (1998), La Porta et al. (2002), and La Porta et al. (1999):

$$Corruption_{it}=f_1(Government\ involvement,\ Efficiency\ of\ judicial\ system,\ French\ legal\ origin,\ German\ legal\ origin,\ Scandinavian\ legal\ origin) + v_{i,t} \quad (3)$$

$$Government\ involvement_{it}=f_2(Corruption,\ POLCON\text{-}III,\ legal\ origin\ variables) + u_{i,t} \quad (4)$$

Then, in the second step, we use $v_{i,t}$ as an alternative proxy for Corruption's incremental effect. Similarly, we regress Government involvement in the financial sector on Corruption, POLCON-III, French legal origin, German legal origin, Scandinavian legal origin, with English common law as the base case, and use the residuals from this regression, $u_{i,t}$, as an alternative proxy for Government involvement's. In this way, Corruption and Government involvement in the financial sector data are orthogonalized and thus free of any collinearity between each other and the macro-institutional variables. The incremental effect of residual, or orthogonalized, corruption on Liquidity, Execution Risk, Equity Held by Foreigners, Debt Held by Foreigners, and Total Portfolio Investment by Foreigners is estimated via a panel data set as follows:

$$Liquidity_{i,t}=f_3(Corruption\ residual,\ Govt.\ residual,\ Control\ variables) + \varepsilon_{s,t} \quad (5)$$

$$\textit{Execution Risk}_{i,t}=f_4(\textit{Corruption residual, Govt. residual, Controls}) + \varepsilon_{s,t} \quad (6)$$

$$\textit{Equity Held by Foreigners}_{i,t}=f_5(\textit{Corruption residual, Govt. residual, Controls}) + \varepsilon_{s,t} \quad (7)$$

$$\textit{Debt Held by Foreigners}_{i,t}=f_6(\textit{Corruption residual, Govt. residual, Controls}) + \varepsilon_{s,t} \quad (8)$$

$$\textit{Total Portfolio Investment by Foreigners}_{i,t}=f_7(\textit{Corruption residual, Govt residual, Controls}) + \varepsilon_{s,t} \quad (9)$$

where,

Corruption Residual = $v_{i,t}$ from Equation (3), and

Government Involvement Residual (Govt. Residual) = $u_{i,t}$ from Equation (4).

The regression specifications noted above all include dummy variables to control for unobserved regional differences and we cluster standard errors by country and year, as recommended in Petersen (2009). Liquidity and Execution Risk variables are also winsorized at the 1st and 99th percentile values to eliminate any outliers, although we also find that the results are robust to the inclusion of outliers. In Regression [1] of Panel A in Table VI, the dependent variable is Corruption and the R^2 of the regression is 0.659. In Regression [2] within the same panel, the dependent variable is Government involvement and its R^2 is 0.192. The residuals from the first-stage regressions reported in Panel A are then used along with Equations (5) – (9) to generate the second-stage parameter estimates found in Panel B of Table VI.

In Panel B of Table VI, the dependent variable in the first column's regression is Liquidity. The corruption residual's parameter estimate in this column is -86.56 and statistically significant at 1%. Thus, greater corruption is related to decreases in liquidity, over and above any joint effects of corruption and other institutional variables on liquidity. The Government involvement residual's coefficient is -1.28 and statistically significant at 1%. In addition, the coefficient of Buy orders is -26.26 and the coefficient of Multi-Day orders is -37.86, both of

which are significant at 1%. Thus, both buy and multi-day orders are associated with lower Liquidity. Since we use orthogonalized residuals as proxies for corruption and government involvement, we do not include a squared form of these residuals in our regressions because squaring the residual values removes an important attribute of these variables: their potential to have either a negative or positive sign.

In the second regression in Panel B of Table VI, the dependent variable is Execution Risk and corruption is modestly significant at the 10% level while the Government involvement residual's parameter estimate is 1.80 and significant at 1%. Thus, Government involvement is positively related to Execution Risk for institutions, over and above their joint effects with other institutional variables.

The dependent variable in the third regression is Equity Held by Foreigners / GDP and the corruption residual has a statistically significant coefficient of -133.56. In addition, the Government involvement residual has a coefficient of -1.04, which is also significant at the 1% level. In models [4] and [5], we find similar patterns between corruption, government involvement, foreign debt, and total foreign investment. Thus, increased corruption and greater government involvement confirm our earlier results which indicate that these variables are associated with lower levels of foreign equity, debt, and portfolio investments.

[Insert Table VI about here]

Overall, the above results provide support for our research questions related to corruption's impact on liquidity, execution risk, and foreign investment activity. For example, the evidence related to Corruption supports the "political" view and is also consistent with how greater amounts of asymmetric information and investor uncertainty can create a negative relationship between corruption and variables such as Liquidity, Foreign Equity, Debt, and

Portfolio Investments (and a positive relationship with Execution Risk). The results pertaining to Government involvement also support the political view via this variable's positive relationship with Execution Risk and its inverse relationship to Liquidity and Foreign Equity, Debt, and Portfolio Investments.

D. Firm Level Regression results including nonlinear effects

Although our empirical results up until now have been focused on country level effects, we also examine how corruption in business dealings can have a major impact on individual firms. In this way, we can see if our country level results are corroborated at the microscopic, firm level. In addition, this type of additional analysis can help inform our understanding of how firm-specific decisions, particularly involving foreign dealings, can impact a firm's market value and liquidity. In Models [1], [2], and [3] of Table VII, the dependent variable is our firm level measure of Liquidity. As noted earlier, more negative values represent higher trading costs or lower liquidity while higher numbers imply better liquidity. The variable of interest in these regressions is labeled as Post-Corruption. This variable is equal to one for the entire sample period after the corruption case was filed and equal to zero before the filing date for the corruption case.

In this context, the announcement date is the day that the DOJ's penalty is publicly revealed based on the Lexis-Nexis and DOJ databases.[15] The Post-Corruption variable is negative and statistically significant at the 10% level in models [1] to [3]. Liquidity of the firm's stock decreases by about 44 basis points per transaction after the corruption cases were filed. In Models [4], [5], and [6] of Table VII, we analyze the impact of firm level corruption on

[15] We focus on actual DOJ penalties rather than announcements of preliminary DOJ investigations into possible misconduct because an actual penalty is a much clearer signal of wrongdoing and thus should lead to more accurate estimates of corruption's direct impact on firm value.

Execution Risk and find that the Post-Corruption variable is positive and statistically significant at the 5% level. In terms of economic impact, we can see from model [6] that the firm's order execution risk increases by 74.81 in basis points after the corruption cases were filed. We also analyze the impact of firm level corruption on the firm's equity investment. In Model [7], the dependent variable is Buy Shares / Shares Outstanding % and the Post-Corruption variable is negative and statistically significant at 1% and thus investors' buying interest, as measured by this foreign investment metric, decreases by 0.0186% after the corruption cases were filed.[16] We also checked whether our sample firms have financial restatements during our study period. We found that those firms did not have any restatements. Thus, our results are not affected by the restatement effect as suggested by Karpoff, Lee, and Martin (2012).

[Insert Table VII about here]

Beyond the firm level analysis of corruptions' impact on liquidity, execution risk, and foreign buying activity noted above, we also analyze the relation between a firm's cost of equity capital and the U.S. Foreign Corrupt Practices Act in the period before and after each firm's corruption event in a multivariate regression setting. Following the method described in Jain (2005), we divide the sample into 3 periods: 1) a pre-announcement period that produces the benchmark period cost of capital, 2) an announcement period (or a valuation adjustment period) that controls for the immediate reaction to the news of FCPA settlement, and 3) a post-announcement treatment period which provides an estimate of the new cost of capital after the corruption news has been fully assimilated in the market.

[16] Eight of our FCPA cases in the sample are related to the Iraq Oil-For-Food scandal. Since these eight cases may be related to, in effect, just one event corresponding to this scandal, we check any lack of independence due to such a situation by clustering the standard errors not only by year but also by an Iraq Oil-For-Food dummy, as described in Appendix I. Using these clustered standard errors, the statistical significance of our results remains the same (results are available upon request).

We expect that a DOJ corruption investigation leads to an increase in the cost of capital or future returns required by investors. Furthermore, we exclude the valuation adjustment period between the benchmark and treatment periods from the regression dataset (i.e., we remove the announcement period and analyze it separately). An increase in required future returns in the post-announcement treatment period implies that the firm's stock price should immediately decline upon the corruption-related announcement in the valuation adjustment period, even if the future cash flows are expected to remain unchanged. Thus, the announcement period must be separated from the comparison periods for the cost of capital before and after the corruption investigation. We use daily equity returns of the firm in excess of the risk-free rate (expressed in percentage form) as the dependent variable in Model [1] of Table VIII. Days -1, 0, and + 1 are excluded from the regression as the announcement period, leaving only the periods before and after the corruption for cleaner comparisons.

The Post-Corruption variable has a coefficient of 0.101 and is statistically significant at 5%. As expected, higher firm level corruption increases the firm's cost of equity capital.[17] The parameter estimate of 1.265 for the market risk factor suggests that firms indicted under the FCPA are likely to be high beta companies and thus they may take greater risks than the average firm. The pressure on high beta firms to generate significant new earnings may also encourage those firms to adopt aggressive business practices such as bribing foreign officials.

For the valuation analysis at the time of the announcement of the FCPA enforcement action, we use daily stock returns in excess of the risk-free rate for the benchmark period, as well as over the three days surrounding this news (i.e., [-1, +1] in Model [2]). The Announcement Effect variable is -0.391 and statistically significant at 5% and indicates an immediate negative

[17] Note that we do not test for nonlinear effects in this model since we cannot construct a nonlinear variant form of the Post-Corruption dummy variable.

reaction to the FCPA by the firm's equity investors. Taken together, the results for Model [1] show that investors do require a higher return on equity capital for a firm that receives an enforcement action while Model [2] indicates that the short-term reaction is negative as investors adjust their valuation of the firm's equity downward. In order to see if the relative size of an FCPA penalty matters, we re-run our regressions with both the Post-Corruption variable and a relative measure of the penalty (i.e., a Firm's Total FCPA Financial Penalties divided by the Firm's Market Cap). We find that the Post-Corruption variable still remains significant but the coefficient for the Financial Penalties / Market Cap variable is insignificant. Thus, the announcement of a firm's corrupt activity rather than the relative amount of penalties is more important for these FCPA enforcement actions.

[Insert Table VIII about here]

The results reported here in Tables VII and VIII also raise the question as to whether or not FCPA-related announcements of corruption are likely to be a harbinger of more bad news about the firm. Although we are not suggesting that a firm becomes progressively more (or less) corrupt after a corruption event, the adverse effects associated with this type of news event typically continue for a long time and may suggest that other problems might be revealed in the future (and thus, as we see in Table VIII, the firm's cost of equity may remain elevated even after the corruption announcement).

A conviction on corruption charges permanently alters investors' perception about the trustworthiness and integrity of a firm's management. As we all know, there are good people and bad people. A corruption conviction sends a signal to the investors about the type of people that are running the company and suggests to external investors that corruption was necessary to generate the profits reported in the past. It tells investors that management may be incapable of

generating profits by fair means and resorted to corruption. In fact, expected future monitoring by external investors due to possible subsequent investor-led litigation can directly and indirectly cost the company in terms of both top executive time and legal costs for a prolonged period of time. For example, the increased investor scrutiny of management due to this conviction might distract senior executives and ultimately further erode shareholder value. As noted in the Introduction, recent evidence on "busy boards" suggests that a firm's profitability, growth opportunities, and acquisition strategy can suffer when directors are juggling multiple board memberships because these individuals have too many demands on their time.

To further explore this avenue, we have searched for news through Lexis-Nexis one year before and one year after the corruption event for our sample of 27 public firms involved in a FCPA settlement and find that the proportion of bad news (versus good news) is typically higher after corruption than before corruption. Bad news items include waste violations, downgrades by rating agencies, litigations, anti-trust settlement, contamination lawsuit, project delays, House bills targeting the company, illegal contract, environmental violations, and human rights abuses. Also, firms with FCPA violations typically lose government contracts due to the negative signal these corrupt activities convey not only to investors but also to the public / government sectors of the economy. Good news items include earnings higher than analysts' estimates, upgrades by rating agencies, and big defense projects.

We present this analysis in Appendix II. The data indicate that corruption is indeed followed by a flurry of bad news. For example, Avery Dennison has 18 good news announcements and 12 bad news reports prior to the corruption event while the firm had 4 good news events and 11 bad news items after the corruption announcement. In addition, Chevron had 22 good news and 13 bad news reports before the corruption event and had 24 good news and 27

bad news announcements after this event. The table in Appendix II presents details on all firms within our sample in terms of the frequency of good vs. bad news events during the pre- and post-corruption periods, as well as the ratios of bad news-to-good news and the change in these ratios.

As the data in Appendix II illustrate, 21 of the 27 firms in our sample (78% of the total) exhibited an increase in the bad news-to-good news ratio. In addition, the average change of +0.553 is significant at the 5% level and thus suggests that most firms faced with a FCPA conviction still have further bad news events to report during the post-corruption period. These findings are broadly consistent with those documented in Karpoff, Lee, and Martin (2012) that corruption announcements might foreshadow other corporate problems in the future. These authors find that 95% of the FCPA enforcement actions are accompanied by other charges such as aiding and abetting, conspiracy, civil and criminal fraud, racketeering, tax evasion, and class action lawsuits.

E. Tests of Robustness and Economic Significance

In this section, we report the main findings of various robustness tests by: a) comparing corruption-related news announcements to other non-corruption-related bad news events, b) re-running the foreign investments regressions of Table III by excluding data from countries that are tax-havens, c) re-estimating our country level liquidity and execution risk models of Table III after omitting some observations that might be skewing the results (e.g. by dropping countries that may have many more observations than the rest of our sample), and d) testing the robustness of our Corruption variable by performing a two-stage instrumental variable analysis within our

Granger causality models (where we use an education-related variable as an instrument for a nation's level of corruption).[18]

To formally test the distinct effects of corruption-related news announcements, we replace corruption with other bad news events to assess their relative effects. For each FCPA company, we pick a 6-month period starting 1 year before the corruption announcement date. In that period, we search Lexis-Nexis for all news releases stating that the firm missed analyst forecasts about earnings estimates or the company issued a downward revision or an equity analyst downgraded the firm's stock. From this chronological list of news releases, we select the first news item to construct our sample of a bad news benchmark. If the 6-month period returns a blank list, we incrementally expand backwards the period by 6 more months until at least one bad news event is located in Lexis-Nexis.

We find that liquidity effects for those types of "other bad news" announcement are not as serious as for corruption events. We have replicated Table VI and Table VIII for those bad news announcements. We employ a dummy variable called Post-Missed Earnings which is equal to one after the non-corruption-related bad news event. The Post-Missed Earnings variable is -20.79 and statistically insignificant in our liquidity regression (e.g., similar to model [3] of Table VII). The coefficient of Post-Missed Earnings variable is -2.23 and statistically insignificant in our execution risk regression (similar to model [6] of Table VII). In Model [7], the Post-Missed Earnings variable is negative and statistically significant at 1% while our robustness check based on model [1] of Table VIII revealed that the Post-Missed Earnings variable has a coefficient of 0.079 and is statistically insignificant.

[18] To conserve space, we do not report the tables related to these robustness tests but are available upon request.

Another concern is that the special tax policies of some nations might be driving our results since tax havens tend to attract large foreign investments. Thus, we repeat the tests based on models [3], [6], and [7] of Table III and we re-run our models again after omitting tax-haven nations such as Luxembourg, Switzerland, and others. For example, foreign investments of some tax havens such as Luxembourg and Ireland tend to exceed GDP. The main findings of the country level foreign investment regressions reported in Table III remain the same when we drop those nations with very high equity inflow ratios such as Hong Kong, Ireland, Luxembourg, Switzerland, Singapore, Belgium, Netherlands, Cyprus, Panama, Thailand, Japan, and Israel. For example, when we replicate Table III without those outliers, the coefficient for Corruption is -279 and significant at the 1% level and the squared term is positive and significant in the regression model when Equity Held by Foreigners divided by GDP is used as the dependent variable. Thus, our main results remain intact even after accounting for the possibly confounding factors of tax-related foreign investment incentives.

Another concern is that other statistical outliers might be affecting the liquidity regressions. Thus, we repeat the tests based on the Model [1] and [2] of Table III and exclude countries with a very large number of observations (trades) such as U.S., United Kingdom, and Japan. Our key findings also remain unchanged when we omit these very active countries. For example, the coefficient for Corruption is -670.88 and significant at the 1% level and the squared term is positive and significant at 5% in the regression model when Liquidity is used as the dependent variable. Similarly, the coefficient for Corruption is 910.48 and significant at the 5% level and the squared term is positive and significant at 10% in the regression model with Execution Risk as the dependent variable.[19]

[19] For these tests, we also lose some observations in a few specifications because the government involvement variable and other indices are not available for all countries.

Another potential problem is the sensitivity of our choice of corruption variable within an endogenous relation between our corruption and liquidity variables. To address the robustness of our corruption variable, we identify an instrument for corruption and then employ this instrumental variable in our Granger causality tests. We found several studies (Glaeser and Saks (2006); Glaeser, La Porta, Lopez-de-Silanes, and Shleifer (2004); Reinikka and Svensson (2005)) which observed that higher education in a society helps to reduce the level of corruption. Thus, we use a Total Enrollment variable as a proxy for a nation's education level (obtained from the *World Development Indicators and Global Development Finance*). Total Enrollment is the number of pupils of school-age children enrolled either in primary or secondary education, expressed as a percentage of the total population in that age group. The correlation between Total Enrollment and Corruption is -0.53 and statistically significant at 1%. When we re-estimate the Granger causality tests of Table IV with the instrumental variable based on this education-related proxy for corruption, we observe a statistically significant parameter estimate for this instrument and confirm that our main findings remain intact (i.e., corruption is still a significant factor affecting Liquidity, Execution Risk, and foreign investment activity).

Lastly, we focus on the economic significance of our results. We present in Table IX the effects of corruption (on average and at the median) for three of our primary dependent variables based on parameter estimates from Table III. To compute the first two rows of results in this table, we use the average and median values of corruption and then multiply them by the appropriate parameters (if these parameters are statistically significant at the 10% level or lower). The results reported here show that, on average (and at the median), corruption has a large, negative impact on a nation's equity markets since Liquidity is lower (e.g., -79.4 bps on average, computed as follows from Model [1] in Table III: $-547.39*0.20 + 752.02*0.20^2$) and the Cost of

Equity Capital is higher by +863 bps (computed as follows from Model [1] in Table V: $61.577*0.20 - 92.237*0.20^2$) while foreign equity investment is reduced (e.g., -70.8%, computed as follows from Model [3] in Table III: $-500.27*0.20 + 730.97*0.20^2$).

The third row of the table reports the "indifference point" where the net effect of corruption on our key dependent variables is zero. These indifference points represent a specific value of corruption that is derived from the relevant parameter estimates of the linear and nonlinear forms of corruption (i.e., Corruption and Corruption^2) for each dependent variable by setting these competing linear and nonlinear effects equal to zero. For example, the level of corruption that has a zero net effect on Foreign Equity Investments / GDP is 0.34.[20] Interestingly, the indifference point for our Corruption variable is nearly the same for all three dependent variables, ranging from 0.33 to 0.36, and with an overall mean of 0.34. As a point of reference, Argentina's level of corruption is 0.35 and is closest to this mean value based on our sample of 49 nations. Thus, countries with corruption levels higher than this range will typically have lower liquidity and higher cost of capital, as well as possibly exhibit an uptick in foreign investment due to the "perverse playing field" we have described in the Introduction.

[Insert Table IX about here]

III. Conclusion

We test the effects of corruption and government influence on financial transactions, capital investment inflows, and cost of equity capital. The development view on corruption suggests that corruption can have positive effects whereas the political view states that corruption has negative effects. The trade-off between the development and political aspects of corruption, as well as the differential abilities of domestic and foreign institutional investors,

[20] This result is computed by setting the first order derivative of the parameter estimates from Model [3] in Table III equal to zero and then solving for a specific value of corruption: -500.27 + 2 x 730.97 x Corruption = 0.

potentially generate nonlinear effects of corruption that have not been previously explored in the literature. We test the competing development and political views of corruption by examining a country level panel dataset containing corruption perceptions and by conducting a firm level event study surrounding the public announcements of U.S. Foreign Corrupt Practices Act (FCPA) violations.

We find that corruption decreases liquidity available to institutional traders and discourages foreign portfolio investment inflows into a country. It also increases investors' order execution risks as well as corporations' cost of equity capital. The effect of corruption on foreign equity investment is nonlinear and reverse J-shaped, with intermediate levels of corruption yielding the most negative effects on foreign portfolio investment in our study of 49 countries. Mirroring our foreign investment results, we also observe a nonlinear relation between corruption and the cost of equity capital, with intermediate levels of corruption coinciding with higher costs of capital.

In addition to the country level analysis of corruption discussed above, we examine the effect of firm level corruption. Several Fortune 500 firms faced investigations and enforcement actions by the U.S. Department of Justice under the FCPA during the last decade. Firm level analysis of the U.S. FCPA violations reveals that charges of corruption against a firm negatively affect its stock market liquidity and equity investment while also increasing a stock's order execution risk. Charges of corruption also increase the firm's cost of equity capital. These firm level findings show that investor reactions to news about corruption charges are stronger than those observed for other corporate "bad news" announcements such as missed earnings reports or analyst downgrades. Thus, these findings are an important addition to the corruption literature that has mainly focused on macroeconomic studies in the past.

Our findings on corruption's pervasive effects on investors and corporations suggest that further research is warranted in areas of portfolio analysis and corporate decision making, explicitly focusing on short term and long term consequences of corruption and the regulatory fight against it.

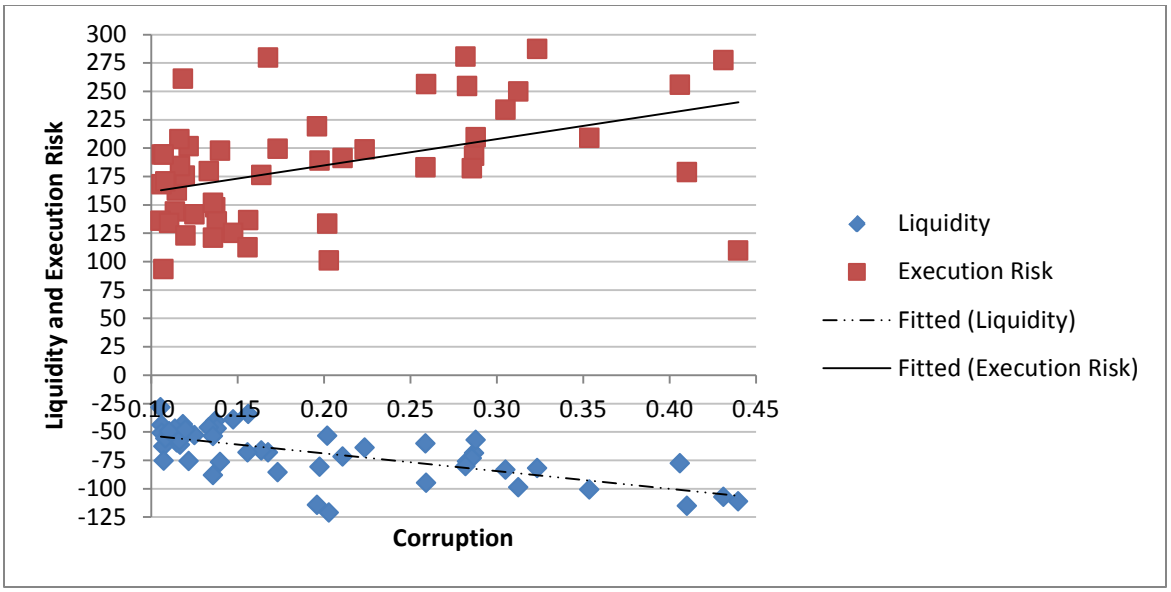

Figure 1. Corruption, Execution Risk, and Liquidity

Corruption is the inverse of Corruption Perception Index. *Liquidity* is the sum of the median brokerage commission for each country in basis points and the median value of market impact measure in basis points. Negative values represent cash outflow. *Execution Risk* is the absolute value of difference between 75th and 25th percentiles of total trading cost. All variables are defined in Table I.

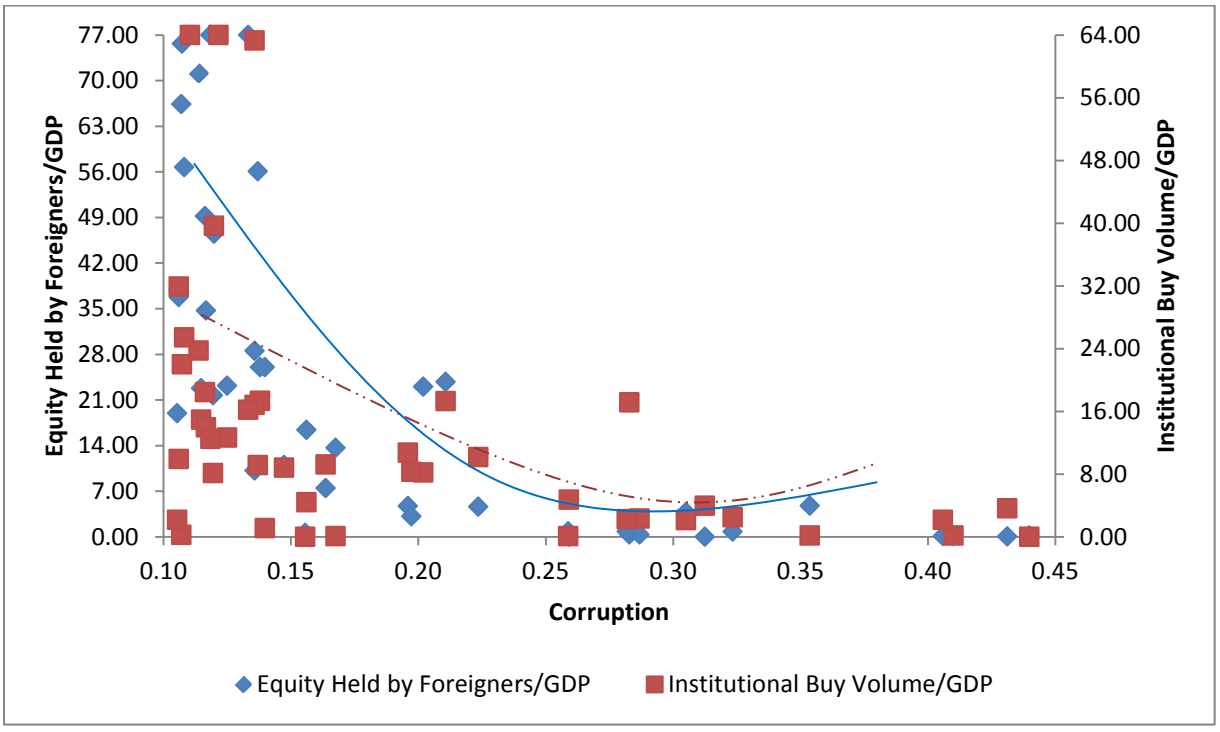

Figure 2. Corruption, Equity Held by Foreigners, and Institutional Buy Volume

Corruption is the inverse of Corruption Perception Index. *Equity Held by Foreigners* is equity ownership of foreigners divided by GDP as a percentage. *Institutional Buy Volume / GDP* is the cumulative value of shares traded that were designated as buy orders, expressed as a percentage of GDP. All variables are defined in Table I.

Appendix I: Foreign Corrupt Practices Act and Related Enforcement Actions

Appendix I shows our sample firms that were indicted and are in our Ancerno and other datasets during 2000 to 2009. Public announcement date for the corruption case from Lexis-Nexis is shown in the second column. The third column reports citations or case name and number for each company. The fourth column shows regulatory action date. The fifth column shows Iraq Oil-For-Food Scandal dummy which is equal to one if the corruption case is related to the scandal. The sixth column reports the provisions of the FCPA that are violated by the firm. Financial penalties and permno of the indicted companies for those cases are shown in seventh and eighth respectively.

Company Name	Public Announcement	Citation	Regulatory Action Date	Iraq Oil-For-Food Scandal	Violations of the FCPA Provisions	Financial Penalties	Permno
ABB Ltd	7-Jun-04	U.S. v. ABB Vetco Gray, Inc., No. CR H-04-279 (S.D. Tex. 2004)	6-Jul-04	0	Anti-bribery	$16.4 million	88953
		SEC v. ABB Ltd., 1:04-cv-01141 (D.D.C. 2004)	30-Nov-04				
AGCO Corp	30-Sep-09	U.S. v. AGCO Ltd., No. 1:09-cr-249-RJL (D.C.C. 2009)	30-Sep-09	1	Books and records, Internal controls	$20 million	77520
		SEC v. AGCO Corp., No. 1:09-cv-1865-RMU (D.D.C. 2009)	30-Sep-09				
Avery Dennison Corp	12-Jan-09	SEC v. Avery Dennison Corp., No. 2:09-cv-5493 (C.D. Cal. 2009); In re Avery Dennison Corp., SEC Admin. Proceeding No. 3-13564 (2009)	28-Jul-09	0	Books and records, Internal controls	$518,470	44601
Baker Hughes Inc.	12-Sep-01	U.S. v. Baker Hughes Services Int'l., Inc., No. 07-CR-00129 (S.D.Tex. 2007)	11-Apr-07	0	Anti-bribery, Books and records	$44.1 million	75034
		S.E.C. v. Baker Hughes Inc. and Roy Fearnley, No. 07-cv-1408 (S.D. Tex. 2007)	26-Apr-07				
BellSouth Corp	15-Jan-02	SEC v. BellSouth Corp., No. 02-0113 (N.D. Ga. 2002)	15-Jan-02	0	Books and records, Internal controls	$150,000	65883
Chevron	14-Nov-07	United States v. Chevron Corp.	8-Nov-07	1	Books and records, Internal controls	$28 million	14541
		SEC v. Chevron Corporation, Civil Action No. 07 CIV 10299 (S.D.N.Y. 2007)	14-Nov-07				
CNH Global NV	22-Dec-08	United States v. CNH Italia S.p.A.	22-Dec-08	1	Books and records, Internal controls	$17.8 million	84179
		United States v. CNH France S.A.	22-Dec-08				
		SEC v. Fiat S.p.A. and CNH Global N.V., No. 1:08-cv-02211 (D.D.C. 2008)	22-Dec-08				
Diagnostic Products Corp	20-May-05	U.S. v. DPC (Tianjin) Co. Ltd., No. 2:05-cr-00482 (C.D. Cal. 2005)	20-May-05	0	Anti-bribery, Books and records, Internal controls	$4.8 million	29752
		In the Matter of Diagnostics Products Corporation, SEC Administrative Proceeding File No. 3-11933 (2005)	20-May-05				
El Paso Corp	19-Feb-07	U.S. v. El Paso Corporation	5-Feb-07	1	Books and records, Internal controls	$2.2 million	77481
		SEC v. El Paso Corporation, No. 07-CV-899 (S.D.N.Y. 2007)	7-Feb-07				
Electronic Data Systems Corp	25-Sep-07	SEC v. Chandramowli Srinivasan	25-Sep-07	0	Books and records	$490,902	83596

Flowserve Corp	21-Feb-08	U.S. v. Flowserve Corporation	21-Feb-08	1	Books and records, Internal controls	$10.5 million	30940
		SEC v. Flowserve Corporation, No. 1:08-cv-00294 (D.D.C. 2008)	21-Feb-08				
Halliburton Company	7-Feb-09	U.S. v. Kellogg Brown & Root LLC, No. 09-071 (S.D. Tex. 2009)	6-Feb-09	0	Anti-bribery, Books and records, Internal controls	$579 million	23819
		SEC v. Halliburton Company and KBR, Inc., No. 4:09-cv-00399 (S.D. Tex. 2009)	11-Feb-09				
Helmerich & Payne Inc.	29-Jul-09	In the Matter of Helmerich & Payne, Inc., Respondent	30-Jul-09	0	Anti-bribery, Books and records, Internal controls	$1.3 million	32707
Immucor, Inc	27-Sep-07	In re Immucor Inc. and Gioacchino De Chirico, SEC Administrative Proceeding File No. 3-12846	27-Sep-07	0	Books and records, Internal controls	Not stated	88867
Ingersoll Rand Co Ltd.	31-Oct-07	U.S. v. Ingersoll-Rand Italiana S.p.A., 1:07-cr-00294-RJL	31-Oct-07	1	Books and records, Internal controls	$6.7 million	12431
		U.S. Securities and Exchange Commission v. Ingersoll-Rand Company Limited, 1:07cv-01955-JDB	31-Oct-07				
IBM Corp	21-Dec-00	SEC v. International Business Machines Corporation 00-Civ-3040 D.D.C. Dec. 21, 2000	21-Dec-00	0	Books and records	$300,000	12490
ITT Corp	11-Feb-09	SEC v. ITT Corporation, No. 1:09-cv-00272 (D.D.C. 2009)	11-Feb-09	0	Books and records, Internal controls	$1.7 million	12570
Novo Nordisk AS	30-Mar-06	U.S. v. Novo Nordisk A/S, No. 09-12C (RJL) (D. D.C. 2009)	11-May-09	1	Books and records, Internal controls	$9 million	63263
		SEC v. Novo Nordisk A/S, No. 1:09-cv-00862 (D. D.C. 2009)	11-May-09				
Schering-Plough Corp	9-Jun-04	SEC v. Schering-Plough Corp., No. 04-0945, (D.D.C. 2004)	9-Jun-04	0	Books and records, Internal controls	$500,000	25013
Schnitzer Steel Industries Inc.	13-Oct-06	United States v. SSI Int'l Far East Ltd., Case 3:06-cr-00398-KI (D. Or. Oct. 16, 2006)	16-Oct-06	0	Books and records, Internal controls	$7.5 million	79866
		In re Schnitzer Steel Industries	16-Oct-06				
Siemens AG AD	6-Nov-08	U.S. v. Siemens Aktiengesellschaft, No. 1:08-cr-00367-RJL (D.D.C. 2008)	12-Dec-08	0	Books and records, Internal controls	$800 million	88935
		SEC v. Siemens Aktiengesellschaft, No. 08-CV-02167 (D.D.C. 2008)	12-Dec-08				
Statoil ASA	11-Oct-06	U.S. v. Statoil, ASA, No. 1:06-cr-00960-RJH-1 (S.D.N.Y. 2006)	12-Oct-06	0	Anti-bribery, Books and records	$10.5 million	89016
		In the Matter of Statoil, ASA, No. 312453 (S.E.C. 2006)	13-Oct-06				
Textron Inc.	23-Aug-07	United States v. Textron, Inc.	23-Aug-07	1	Anti-bribery, Books and records, Internal controls	$4.65 million	23579
		SEC v. Textron, Inc., No. 1:07-cv-01505 (D.D.C. 2007)	23-Aug-07				
The Dow Chemical Comp	15-Feb-07	SEC v. Dow Chemical Co., No. 07-CV-336 (D.D.C. 2007); In the Matter of the Dow Chemical Co., Administrative Proceeding No. 3-12567 (SEC Feb. 13, 2007)	13-Feb-07	0	Books and records, Internal controls	$325,000	20626

Tyco International Ltd.	18-Apr-06	SEC v. Tyco International Ltd., No. 06-CV-2942 (S.D.N.Y. 2006)	13-Apr-06	0	Anti-bribery, Books and records, Internal controls	$50 million	45356
Wabtec Corp	14-Feb-08	U.S. v. Westinghouse Air Brake Technologies Corporation	14-Feb-08	0	Anti-bribery, Books and records, Internal controls	$689,000	81677
		SEC v. Westinghouse Air Brake Technologies Corporation, No. 08-CV-706, (E.D.Pa. 2008); SEC v. Westinghouse Air Brake Technologies Corporation, SEC Adminstrative Proceeding File No. 3-12957 (Feb. 14, 2008)	14-Feb-08				
Willbros Group Inc.	14-May-08	U.S. v. Willbros, Inc. and Willbros International, Inc., No. 4:08-cr-0287 (S.D. Tex. 2008)	14-May-08	0	Anti-bribery, Books and records	$22 million	83834
		SEC v. Willbros Group, Inc., et al., No. 4:08-cv-01494 (S.D. Tex. 2008)	14-May-08				

Excluded Firm: We did not include Alcatel case due to the Alcatel-Lucent merger and acquisition. However, the results remain the same when we include this case.

Appendix II: Frequency of Good vs. Bad News Events During the pre- and post-corruption periods

We have searched for news announcements through Lexis-Nexis one year before and one year after a firm's "corruption event" for our sample of 27 public firms. A corruption event means that a publicly traded firm was involved in a settlement under the U.S. Foreign Corrupt Practices Act (FCPA) at some point during 2001-2009. The table displays both the number and relative proportion of bad news announcements (versus good news items) for each of the 27 firms, as well as summary statistics for this sample. The final column (*Difference*) reports the change in the relative proportion of bad new-to-good news from the year prior to the corruption event to one year after this event. *Bad News* items include waste violations, downgrades by rating agencies, litigations, anti-trust settlement, contamination lawsuit, project delays, house bills targeting the company, illegal contract, environmental violations, and human rights abuses. Also, firms with FCPA violations typically lose government contracts due to the negative signal these corrupt activities convey not only to investors but also the public / government sectors of the economy. *Good News* items include earnings higher than analysts' estimates, upgrade by rating agencies, and big defense projects.

Company Name	**Good News Before the Corruption Event**	**Bad News Before the Corruption Event**	**Good News After the Corruption Event**	**Bad News After the Corruption Event**	**Bad News Divided by Good News Before the Corruption Event**	**Bad News Divided by Good News After the Corruption Event**	**Difference (After minus Before)**
ABB Ltd	19	3	18	11	0.158	0.611	0.453
AGCO Corp	2	5	8	5	2.500	0.625	-1.875
Avery Dennison Corp	18	12	4	11	0.667	2.750	2.083
Baker Hughes Inc.	1	2	1	4	2.000	4.000	2.000
BellSouth Corp	3	9	6	17	3.000	2.833	-0.167
Chevron	22	13	24	27	0.591	1.125	0.534
CNH Global NV	3	2	1	5	0.667	5.000	4.333
Diagnostic Products Corp	2	1	2	0	0.500	0.000	-0.500
El Paso Corp	8	4	11	7	0.500	0.636	0.136
Electronic Data Systems Corp	29	2	30	2	0.069	0.067	-0.002
Flowserve Corp	0	3	5	2	n.m.	0.400	n.m.
Halliburton Company	22	9	15	29	0.409	1.933	1.524
Helmerich & Payne Inc.	3	8	3	4	2.667	1.333	-1.333
IBM Corp	21	5	12	9	0.238	0.750	0.512
Immucor, Inc	9	3	4	6	0.333	1.500	1.167
Ingersoll Rand Co Ltd.	18	2	7	8	0.111	1.143	1.032
ITT Corp	52	3	67	9	0.058	0.134	0.077
Novo Nordisk AS	3	1	3	3	0.333	1.000	0.667
Schering-Plough Corp	18	17	13	16	0.944	1.231	0.286
Schnitzer Steel Industries Inc.	4	3	3	5	0.750	1.667	0.917
Siemens AG AD	39	11	34	26	0.282	0.765	0.483
Statoil ASA	32	10	17	19	0.313	1.118	0.805
Textron Inc.	95	4	66	11	0.042	0.167	0.125
The Dow Chemical Comp	8	12	12	14	1.500	1.167	-0.333
Tyco International Ltd.	11	10	9	15	0.909	1.667	0.758
Wabtec Corp	11	1	12	3	0.091	0.250	0.159
Willbros Group Inc.	4	1	5	4	0.250	0.800	0.550
						Mean	**0.553**
						Std. dev.	1.158
						t-statistic	**2.483**

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Table I. Descriptive Statistics of Corruption, Government Involvement, Liquidity, Execution Risk, Equity Held by Foreigners, Total Volume, Debt Held by Foreigners, and Control Variables

Panel A reports our key variables by country. The first column shows the total number of Ancerno clients' institutional trades in the respective home market during 2004-2008. *Corruption* is the inverse of Corruption Perception Index (Transparency International) such that higher numbers in the table indicate greater corruption. The proxy for *Government Involvement* is the percentage claims on domestic nonfinancial sector by the Central Bank as a share of GDP from Beck, Demirguc-Kunt, and Levine (2010). *Liquidity* is the product of minus one and total trading cost, which is defined as the sum of the median of brokerage commission for each country in basis points and the median value of market impact measure in basis points. More negative values represent higher trading cost or lower liquidity while higher numbers imply better liquidity. *Execution Risk* is the absolute value of difference between 75th and 25th percentiles of total trading cost. *Equity Held by Foreigners*, *Debt Held by Foreigners*, and *Total Portfolio Investment by Foreigners* are from Coordinated Portfolio Investment Survey (IMF). These are scaled and expressed as percent of GDP. The alternative measure of equity investments in a country is the institutional trading activity from the Ancerno dataset, *Total (Buy plus Sell) Volume / GDP*. Institutional total volume in a country's stocks for each calendar year is defined as the total institutional buy plus sell volume, which is the sum of all buy and sell orders for all stocks in a given country, executed in the given calendar year by the institutions in our sample and is normalized by nominal GDP. Panel B shows the summary statistics for the overall sample. Panel C shows the breakdown of total trading costs by order direction and order duration. Panel D shows Pearson Correlation Coefficients.

Country	Number of trades	Corruption	Government Involvement	Liquidity	Execution Risk	Equity Held by Foreigners /GDP	Institutional Total Volume/GDP	Debt Held by Foreigners /GDP	Total Port-folio Investment by Foreigners/GDP
Argentina	19602	0.35	8.89	-100.81	208.95	4.78	0.35	3.30	8.08
Australia	1488978	0.11	3.71	-59.41	162.37	22.81	25.95	11.65	34.51
Austria	256262	0.12	1.01	-46.79	175.83	21.74	14.2	74.95	96.69
Belgium	412599	0.14	0.40	-40.39	147.90	56.08	17.66	102.02	158.10
Brazil	552841	0.28	13.43	-76.12	254.50	0.37	45.5	0.60	0.96
Canada	2028362	0.12	3.24	-61.37	184.15	34.71	27.08	8.99	43.53
Chile	37168	0.14	3.83	-76.59	197.60	26.04	2.01	8.34	34.25
Colombia	2650	0.26	0.65	-60.20	183.16	0.84	0.16	3.86	4.70
Cyprus	401	0.17	11.64	-68.22	279.85	13.65	0.27	119.52	133.18
Denmark	320693	0.11	0.66	-43.78	167.98	37.95	20.05	44.12	82.29
Egypt	37955	0.32	32.90	-81.85	287.43	0.83	3.84	1.20	2.03
Finland	661838	0.11	0.09	-50.81	194.17	36.79	59.75	50.12	86.91
France	3588508	0.14	0.54	-47.01	135.36	26.06	32.53	72.53	98.26
Germany	2813287	0.13	0.19	-52.84	141.71	23.21	21.74	43.41	66.47
Greece	344910	0.22	6.30	-63.90	198.73	4.63	19.61	28.35	32.98
Hong Kong	1841308	0.12	.	-75.83	201.67	164.83	125.62	125.27	290.38
Iceland	2807	0.11	0.08	-62.79	93.31	66.41	0.56	24.19	91.88
India	422560	0.31	2.18	-98.93	249.84	0.04	6.91	0.00	0.05
Indonesia	185532	0.43	9.22	-107.35	277.35	0.07	6.46	0.47	0.56
Ireland	448774	0.13	0.02	-46.23	179.70	208.92	32.39	450.40	659.04
Israel	175862	0.16	1.26	-66.54	176.21	7.50	14.99	13.72	21.21
Italy	1572258	0.20	4.82	-53.42	133.56	23.03	15.12	31.01	54.04
Japan	9636759	0.14	16.48	-88.15	151.79	10.17	31.28	40.50	50.67
Jordan	263	0.20	5.43	-121.19	100.97	.	0.04	.	.
Korea	844890	0.20	1.13	-114.46	219.03	4.76	20.54	4.29	9.02
Luxembourg	48842	0.12	0.21	-43.35	261.22	2228	21.28	2831	5051
Malaysia	236979	0.20	1.12	-80.85	188.86	3.16	14.83	1.92	5.08
Mexico	302013	0.29	.	-68.78	193.31	0.36	4.56	0.78	1.15
Morocco	301	0.29	2.08	-73.24	182.16	.	0.04	.	.
Netherlands	1576435	0.11	0.14	-47.21	144.23	71.13	44.2	106.85	180.21
New Zealand	58272	0.11	2.51	-28.47	135.98	18.98	3.99	6.03	25.00
Norway	625563	0.12	.	-57.68	207.73	49.22	33.07	67.71	116.79

Pakistan	1608	0.41	6.40	-115.26	178.90	0.13	0.22	0.06	0.19
Panama	5481	0.31	12.93	-83.37	233.68	3.81	3.36	22.16	25.98
Peru	12422	0.29	0.02	-57.10	209.43	.	2.65	.	.
Philippines	65875	0.41	4.27	-77.68	255.87	0.11	3.97	4.78	4.91
Portugal	105578	0.16	0.12	-34.34	136.42	16.42	8.57	60.38	77.23
Singapore	602599	0.11	2.98	-75.46	194.43	75.68	40.91	102.34	179.90
South Africa	453771	0.21	1.14	-71.76	191.15	23.77	28.6	1.84	25.61
Spain	978304	0.15	1.66	-38.96	125.25	11.03	17.8	37.56	48.56
Sweden	1096396	0.11	.	-55.59	170.71	56.70	47.99	31.49	87.82
Switzerland	2796389	0.11	1.60	-49.43	134.06	96.96	149.87	120.03	216.90
Taiwan	736988	0.17	.	-85.48	199.31	.	.	.	.
Thailand	85665	0.28	2.04	-80.12	280.51	0.84	4.32	2.68	3.48
Turkey	198986	0.26	2.68	-94.85	256.19	0.02	7.54	0.30	0.32
United Kingdom	12181113	0.12	1.82	-48.15	122.97	46.51	73.52	63.31	109.51
Uruguay	387	0.16	13.24	-68.22	112.68	0.59	0.04	10.54	11.13
USA	175976578	0.14	5.68	-53.71	121.09	28.56	119.31	11.76	40.33
Venezuela	98	0.44	0.63	-111.17	109.82	0.23	0.00	3.86	4.14

Panel B: Overall summary statistics for 49 countries

Statistics	**Number of trades**	**Corruption**	**Government Involvement**	**Liquidity**	**Execution Risk**	**Equity Held by Foreigners /GDP**	**Institutional Total Volume/GDP**	**Debt Held by Foreigners /GDP**	**Total Portfolio Investment by Foreigners/GDP**
N	49.00	49.00	44.00	49.00	49.00	45.00	48.00	45.00	45.00
MEAN	4609055.31	0.20	4.35	-68.68	184.68	78.41	24.48	105.57	183.90
STD	25090506.71	0.10	6.14	22.72	51.23	330.44	32.96	421.94	750.33
MIN	98	0.11	0.02	-121.19	93.31	0.02	0.00	0.00	0.05
MAX	175976578	0.44	32.90	-28.47	287.43	2228.14	149.87	2831.63	5051.43

Panel C: Breakdown of total liquidity costs by order direction and order duration.

Statistics	**Buy's Price Impact**		**Sell's Price Impact**		**Commissions**
	Single	**Multiple**	**Single**	**Multiple**	
MEAN	-38.69	-76.02	-17.83	-53.74	-20.24
STD	31.85	42.76	30.00	45.25	11.28
MIN	-188.74	-237.80	-174.21	-242.70	-77.70
MAX	83.21	104.34	121.36	87.39	0.00

Panel D: Pearson Correlation Coefficients

All variables retain their definitions from Table I. ***, **, and * represent 1, 5, and 10% significance level respectively.

	Corr-uption	Corr-uption Residual	Govern-ment Involve-ment	Liquidity	Execution Risk	Equity Held by Foreigners/ GDP	Institutional Total Volume/GDP	Debt Held by Foreigners/ GDP	Total Portfolio Investment by Foreigners/ GDP
Corruption	1								
Corruption Residual	0.59***	1							
Government Involvement	0.36***	0.02	1						
Liquidity	-0.3***	-0.17***	-0.16***	1					
Execution Risk	0.32***	0.15***	0.24***	-0.4***	1				
Equity Held by Foreigners/GDP	-0.17***	-0.22***	-0.13***	0.10***	0.10***	1			
Institutional Total Volume/GDP	-0.39***	-0.09	-0.12*	0.07***	-0.10***	0.03	1		

Debt Held by Foreigners/GDP	-0.18***	-0.19***	-0.12***	0.11***	0.11***	0.98***	0.02	1	
Total Portfolio Investment by Foreigners/GDP	-0.18***	-0.21***	-0.13***	0.11***	0.11***	0.99***	0.03	0.99***	1

Table II. Effect of Country Level Corruption

The sample is divided into two subgroups. *Equity Held by Foreigners, Debt Held by Foreigners, Total Portfolio Investment by Foreigners, Institutional Total Volume, Liquidity, Execution Risk,* and *Corruption* are defined in Table I. Each country has one observation for the entire sample period in this table. Means of the respective conditioning variable in high and low subgroups are shown in the first column. We winsorize the *Liquidity* and *Execution Risk* variables at the 1st and 99th percentile values to eliminate any outliers. ***, **, and * represent 1, 5, and 10% significance level respectively.

Effects of Corruption on Liquidity, Execution Risk, Equity Held by Foreigners/GDP, Total Volume/GDP, and Debt Held by Foreigners/GDP

Corruption level	Average Corruption Value	Liquidity	Execution Risk	Equity Held by Foreigners/GDP	Institutional Total Volume/GDP	Debt Held by Foreigners/GDP	Total Portfolio Investment by Foreigners/GDP
Low Corruption (N=25)	0.12	-54.1	160.01	137.43	39.45	180.24	317.51
High Corruption (N=24)	0.28	-83.86	210.37	4.65	8.21	12.24	16.88
High minus Low		-29.76***	50.35***	-132.78	-31.24***	-168.01	-300.63

Table III. Deterioration in Liquidity, Execution Risk, Equity, Debt, and Total Portfolio Investments by Foreigners due to Corruption at the Country Level

The dependent variables are *Liquidity*, *Execution Risk*, *Equity Held by Foreigners*, *Total Volume*, *Net Buy Volume*, *Debt Held by Foreigners*, and *Total Portfolio Investment by Foreigners*. *Corruption* and *Government Involvement* are the key explanatory variables. Control variables are motivated by Eleswarapu and Kumar (2006) and others mentioned below. All those variables are defined in Table I. *Buy* and *Multi-Day* are indicator variables for the direction and execution length of the institutional trading order. Stock market *Turnover* is defined as ratio of the value of total shares traded to average real market capitalization and is obtained from Beck, Demirguc-Kunt, and Levine's (2010)) World Bank Database. The logarithm of nominal dollar denominated GDP in 2008 is from IMF's World Economic Outlook Database. *Number of exchanges* within the country are counted from the Handbook of World Stock, Derivative, and Commodity Exchanges. *Insider trading rules index, Volume manipulation rules index, and Price manipulation rules index* are from Cumming, Johan, and Li (2011). Political constraints (*POLCON-III*) from Henisz (2002) measures the feasibility of policy changes within a country. The score ranges from 0 (total political discretion) to 1 (a change in current policies is infeasible). *Short-selling* feasibility is from Daouk, Lee, and Ng (2006). *Efficiency of judicial system* is the assessment of the efficiency and integrity of the legal environment as it affects business and is scaled from 0 to 10. A lower score represents lower efficiency level, as noted in La Porta et al. (1998). The *Accounting standards* variable is an index scaled from 0 to 100 and lower scores indicate weaker accounting standards (La Porta et al. (1998)). *Anti-director rights* is an index that ranges from zero to six with higher values representing stronger rights (La Porta et al. (1998)). *Age of stock exchange* is the age of the leading stock exchange from Jain (2005). *Cross-listing intensity* is defined as the value weighted proportion of firms cross listed as ADRs in the U.S. Its numerator is the market value (in millions U.S. $) of only the companies from a country that are cross-listed as ADRs in U.S. and the denominator of this variable is market capitalization of all listed companies (in millions US$) for that country from Datastream. Our list of cross-listed firms is obtained from the Bank of New York Mellon website at http://www.adrbnymellon.com/dr_directory.jsp for the beginning of each year and we obtain the firms' total market value from Datastream. *Volatility* is the standard deviation of the stock market return calculated by using Datastream and the World Federation of Exchanges database. *Legal origins* are dummy variables for French, German, and Scandinavian civil laws as well as English common law, and are abstracted from La Porta, Lopez-de-Silanes, Shleifer, and Vishny (1997). Annual market returns for each country are calculated using the MSCI Total Return Indexes (in U.S. $) from 2001 to 2009. Since MSCI indexes are unavailable for Iceland, Luxembourg, and Venezuela during our study period, alternative market returns are calculated for those countries using Datastream and the World Federation of Exchanges databases. Models [1], [2], [4], and [5] are from the Ancerno dataset while Models [3], [6], and [7] are from the IMF's CPIS dataset. The sample in Model [1] and [2] has 49 countries and uses quarterly data from the third quarter of 2004 to the fourth quarter of 2008, yielding 1,867 country-quarters in the final sample. As noted in the current draft, Ancerno provides quarterly data aggregated at the country level. The CPIS data set uses 45 of our original 49 countries for the period of 2001 to 2009. The data is in yearly format, yielding 269 country-years in the final sample. Standard errors are clustered by country and year following Petersen (2009). We winsorize *Liquidity* and *Execution Risk* variables at the 1st and 99th percentile values to eliminate any outliers. The results are robust to the inclusion of outliers.

Dependent variable	**Liquidity**	**Execution Risk**	**Equity Held by Foreigners/GDP**	**Total Volume (Buy plus Sell)/GDP**	**Net Buy Volume (Buy minus Sell)/GDP**	**Debt Held by Foreigners/GDP**	**Total Portfolio Investment by Foreigners/GDP**
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Intercept	69.27*	107.09	105.22***	30.05*	-1.03	96.64***	226.42***
Corruption	-547.39**	324.52	-500.27***	-265.46***	-10.34	-586.13***	-998.46***
Corruption^2	752.02*	-163.01	730.97***	367.75**	34.26	753.90***	1415.67***
Government involvement	-0.79**	1.96***	-0.6***	0.15	-0.09	-1.29***	-2.00***

Buy	-26.23***	-4.15					
Multi-Day	-37.88***	89.74					
Turnover	0	-0.05					
LOG(GDP)	2.39	-13.57***					
Number of exchanges	-1.01	0.15					
Insider trading rules index	1.26	-0.9	-4.14**	6.28***	-0.11		-13.93**
Volume manipulation rules index	7.38	16.6*					
Price manipulation rules index	-0.08	-2.45					
POLCON-III	-11.36	23.1	-32.81***	-47.68***	-1.62	-25.2	-79.46***
Short selling feasibility	-17.07***	12.44**					
Efficiency of judicial system	1.47	-7.41*	1.41	4.06**	0.35**	3.44**	4.97*
Accounting standards	-0.29	0.52					
Anti-director rights	-6.25***	3.33					
Age of stock exchange	0.01	0.01					
Cross-listing intensity	-0.11	0.3					
Equity Held by Foreigners/GDP	-0.12	-0.02					
Volatility	-42.94	869.44***					
French legal origin	9.46	-15.44	-10.13	8.73	-0.34	15.79	-20.46
German legal origin	-5.11	9.06	-10.15	20.76*	0.92	8.87	-9.15
Scandinavian legal origin	-12.84	23.54	-7.89	-13.31	-1.2	-17.57	-9.83
Market return(t)			3.73	-4.95	0.35		4.9
R^2	0.47	0.65	0.32	0.33	0.07	0.19	0.24
N	1867	1853	224	151	148	269	221

***, **, and * represent 1, 5, and 10% significance level respectively.

Table IV. Country Level Granger Causality Test

This table reports Granger causality tests between yearly changes in corruption (*Δ Corruption*$_{i,t}$ is defined as Corruption$_{i,t}$ minus Corruption$_{i,t-1}$) and yearly changes in *Equity Held by Foreigners/GDP* (Δ (Equity Held by Foreigners/GDP) $_{i,t}$), *Liquidity* (*Δ Liquidity*$_{i,t}$), and *Execution Risk* (*Δ Execution Risk*$_{i,t}$). The test is performed from 2001 to 2009 for Equity Held by Foreigners/GDP and from 2004 to 2008 for Liquidity and Execution Risk. We test the null hypothesis that Corruption does not Granger-cause *Foreign Equity Investment, Liquidity*, and *Execution Risk* and then whether Foreign Equity Investment, Liquidity, and Execution Risk do not Granger-cause *Corruption*. The dependent variables in Model [1], [3], and [5] are the yearly change in *Equity Held by Foreigners/GDP, Liquidity,* and *Execution Risk* for a country, respectively. The dependent variable in Model [2], [4], and [6] are the yearly change in corruption for a country. Statistical significance is based on heteroscedasticity-consistent standard error.

Dependent variable	**Δ (Equity Held by Foreigners/GDP) $_{i,t}$**	**Δ Corruption $_{i,t}$**	**Δ Liquidity $_{i,t}$**	**Δ Corruption $_{i,t}$**	**Δ Execution Risk $_{i,t}$**	**Δ Corruption $_{i,t}$**
	[1]	[2]	[3]	[4]	[5]	[6]
Intercept	-0.86	0.00043	-4.53***	0.00193	12***	0.00144
Δ Corruption $_{i,t}$	-271.05**		-337.02		405.33	
Δ Corruption^2 $_{i,t}$	443.5**		575.16*		-552.14	
Δ Corruption $_{i,t-1}$		0.50788***		0.53694***		0.53757***
Δ (Equity Held by Foreigners/GDP) $_{i,t}$		0.00001	0.08*	-0.00005	-0.05	-0.00003
Δ (Equity Held by Foreigners/GDP) $_{i,t-1}$	0.68***					
Δ Liquidity $_{i,t}$	0.03	-0.0001**		0.00002		
Δ Liquidity $_{i,t-1}$			0.46***			
Δ Execution Risk $_{i,t}$	0.00	0.00002	0.06			0.00003
Δ Execution Risk $_{i,t-1}$					0.72***	
Δ Government involvement $_{i,t}$	-0.24	-0.00081	-0.40	-0.00061	-0.32	-0.0007
Δ POLCON-III $_{i,t}$	5.34	-0.01203	-42.26***	-0.01323	-227.8***	-0.01198
Δ Insider trading rules index $_{i,t}$	-7.63**	-0.00088	1.73	-0.00056	-1.12	-0.00035
Δ Market return(t) $_{i,t}$	3.79**	0.00124				
Δ Turnover $_{i,t}$			0.02	0.00002	-0.01	0.00002
Δ Volume manipulation index $_{i,t}$			-0.43	-0.00122	1.13	-0.00164
Δ Price manipulation rules index $_{i,t}$			0.43	-0.00023	-0.65	-0.00016
Δ Cross-listing intensity $_{i,t}$			0.07	-0.00003	-0.29	-0.00005
Δ Volatility $_{i,t}$			-25.97**	-0.06043*	47.96*	-0.06723*
R^2	0.81	0.68	0.67	0.68	0.85	0.69
N	107	107	82	82	82	82

***, **, and * represent 1, 5, and 10% significance level respectively.

Table V. Effects of Corruption on the Cost of Equity Capital at the Country Level

We conduct a regression analysis where the dependent variable is the cost of capital for our sample countries. The main explanatory variables, *Corruption* and *Government Involvement*, are defined in Table I. The proxy for cost of equity capital is the *excess return over T-bill (ERT)*. Excess return in U.S. dollars is defined as the raw return from the country's stock market index minus the one month U.S. T-bill rate (in percentage form). The data on raw returns at monthly frequency is obtained from Datastream country indices section from 2001 to 2009 from 46 countries. Database yields 4,626 country-months in the final sample when the Government Involvement variable is not included in the model. We compute *Excess world return* by subtracting the risk-free rate from the gross world market return (in percentage). Based on Fama and French (1993) three-factor model, *HML* is the spread in returns between portfolios of value and growth stocks. *SMB* is the spread in returns between portfolios of small and large size stocks. *UMD* is the spread in returns between portfolios of previous winner and loser stocks. Standard errors are clustered by country and year following Petersen (2009).

Dependent variable	**Excess return over t-bill (ERT)**	**Excess return over t-bill (ERT)**
	[1]	[2]
Corruption	61.577**	69.098**
Corruption ^{2}	-92.237**	-104.974**
Government involvement		0.098*
Excess world return	1.133***	1.115***
HML	0.06	0.095*
SMB	0.058	0.052
UMD	0.035*	0.032
Country Fixed Effects Dummies	Yes	Yes
R^2	0.43	0.39
N	4626	3858

***, **, and * represent 1, 5, and 10% significance level respectively.

Table VI.

Simultaneous Equations Approach to assess Country Level Corruption

Panel A: Stage I

Corruption and Government Involvement are first orthogonalized and cleaned of any multi-collinearity with macro-institutional variables in the regressions below:

Corruption$_{it}$=f_1*(Government Involvement, Efficiency of Judicial system, French legal origin, German legal origin, Scandinavian legal origin)* + $v_{i,t}$

Government Involvement $_{it}$=f_2*(Corruption, French legal origin, German legal origin, Scandinavian legal origin, POLCON-III)* + $u_{i,t}$

Variable definitions are the same as those in Tables I and III. Statistical significance is based on White's heteroscedasticity-consistent standard errors.

Dependent variable	**Corruption**	**Government Involvement**
	[1]	[2]
Intercept	0.444***	2.192
Corruption		21.017***
Government involvement	0.003***	
Efficiency of judicial system	-0.032***	
French legal origin	-0.014	2.983***
German legal origin	-0.026***	3.823**
Scandinavian legal origin	-0.019***	-0.043
POLCON-III		-7.448
R^2	0.659	0.192
N	131	131

***, **, and * represent 1, 5, and 10% significance level respectively.

Table VI. Simultaneous Equations Approach … continued

Panel B: Stage II

Orthogonalized Nonlinear Corruption ($v_{i,t}$) and Government Involvement ($u_{i,t}$) variables from Panel A are used in Panel B. After estimating Equation (3) and (4), the system of equations for *Liquidity, Execution Risk, Equity Held by Foreigners/GDP, Debt Held by Foreigners/GDP,* and *Total Portfolio Investment by Foreigners/GDP* can be estimated via a panel data set as follows:

Liquidity$_{i,t}$=f_3*(Corruption Residual, Government Involvement Residual, Control variables)* + ε_s

Execution Risk$_{i,t}$=f_3*(Corruption Residual, Government Involvement Residual, Control variables)* + ε_s

Equity Held by Foreigners/GDP$_{i,t}$=f_3*(Corruption Residual, Government Involvement Residual, Control variables)* + ε_s

Debt Held by Foreigners/GDP$_{i,t}$=f_3*(Corruption Residual, Government Involvement Residual, Control variables)* + ε_s

Total Portfolio Investment by Foreigners/GDP$_{i,t}$=f_3*(Corruption Residual, Government Involvement Residual, Control variables)* + ε_s

Variable definitions are the same as those on Tables I and III. Standard errors are clustered by country and year following Petersen (2009). We winsorize *Liquidity* and *Execution Risk* variables at the 1st and 99th percentile values to eliminate any outliers. The results are robust to the inclusion of outliers. Models [1] and [2] are from Ancerno while Models [3], [4], and [5] are from CPIS dataset.

Dependent variable	**Liquidity**	**Execution Risk**	**Equity Held by Foreigners/ GDP**	**Debt Held by Foreigners/ GDP**	**Total Portfolio Investment by Foreigners/GDP**
	[1]	[2]	[3]	[4]	[5]
Intercept	5.23	206.41***	-2.5	-55.22***	-6.18
Corruption residual	-86.56***	143.1*	-133.56***	-163.00***	-303.83***
Government involvement residual	-1.28***	1.8***	-1.04***	-1.91***	-3.05***
Buy	-26.26***	-4.13			
Multi-Day	-37.86***	89.76***			
Age of stock exchange	0	0.06			
Turnover	0.035	-0.06			
POLCON-III	-14.3	52.82	-33.89***	-26.13	-76.16**
LOG(GDP)	5.31***	-15.89***			
Short selling feasibility	-11.02***	-4.98			
Cross-listing intensity	-0.16	0.64**			
Number of exchanges	-2.84***	0.51			
Efficiency of judicial system	3.65*	-10.59**	6.92***	12.08***	17.3***
Accounting standards	-0.98***	0.34			
Price manipulation rules index	1.03	-4.22**			
Volume manipulation rules index	-4.66	24.77***			
Insider trading rules index	-0.64	-0.64	-4.32**		-14.37**
Anti-director rights	1.91	-6.05**			
Volatility	-7.86	801.16***			
French legal origin	-14.82**	8.22	-15.37*	11.9	-33.5
German legal origin	-12.02**	5.04	-8.28	11.73	-6.92
Scandinavian legal origin	1.66	14.42	0.72	-6.14	8.18
Equity Held by Foreigners/GDP	0.04	0.13			
Market return(t)			3.38		4.47
Regional dummies	Yes	Yes			
R^2	0.49	0.66	0.29	0.18	0.23
N	1867	1853	224	269	221

***, **, and * represent 1, 5, and 10% significance level respectively.

Table VII. Further Evidence on Deterioration in Liquidity: Firm Level Analysis of the U.S. Foreign Corrupt Practices Act

The dependent variables are *Liquidity, Execution Risk, and Buy Shares/Shares Outstanding %*. *Liquidity* is the product of minus one and total trading cost, which is defined as the sum of the brokerage commission and market impact measure in basis points. More negative values represent higher trading cost or lower liquidity while higher numbers imply better liquidity. Market impact measure is calculated as: Price Impact = (Execution Price – Open of the Day Price) / Open of the Day Price * Trade Indicator. The results remain the same when we use Prior Day Close Price as an alternative benchmark. The sample is based on intraday trading activity for 27 firms from 2000 to 2009, yielding 53,861 firm-days in the final sample. *Execution Risk* is the standard deviation of institutional trading cost (our liquidity measure) following Anand, Puckett, Irvine, and Venkataraman (2010) in basis points. Standard deviation is calculated daily. In other words, we take the standard deviation of liquidity measure of all individual transactions for that firm for that particular day. Regressions from Model [1] to Model [6] are in transaction (trade) level. *Buy Shares/Shares Outstanding %* is daily total shares bought divided by shares outstanding in percentage. *Post-Corruption* variable is equal to one for the entire sample period after the corruption case was filed or equal to zero before the filing date for the corruption case. *Firm size* is market capitalization in thousands of dollars. *Volume* is total number of shares of a stock traded on that day. *Market Return* is the CRSP Equal-Weighted daily return. *Buy* is an indicator variable for the direction. *Return %* is the daily return for the stock (expressed in percentage). *Trend* is a time trend equal to 1 for the year 2000, 2 for year 2001 etc. Standard errors are clustered by firm and year following Petersen (2009).

Dependent variable	**Liquidity**	**Liquidity**	**Liquidity**	**Execution Risk**	**Execution Risk**	**Execution Risk**	**Buy Shares/Shares Outstanding %**
	[1]	[2]	[3]	[4]	[5]	[6]	[7]
Intercept	-525.808***	-538.441***	-539.675***	368.232***	367.208***	367.434***	0.0629***
Post-Corruption	-44.769*	-43.957*	-43.18*	75.025**	74.8**	74.814**	-0.0186***
Ln (Firm Size)	0.334	-6.277	-8.554				
1/Price	-1321.541***	-1562.155***	-1573.08***				
Ln (Volume)		9.031	11.97				
Volatility			-15.437		15.732**	15.628**	
Buy	47.681***	48.837***	48.699***	-72.726***	-72.721***	-72.729***	
Market Return (CRSP Equal)						-252.313	
Return %							0.0009
Trend	49.871***	48.744***	48.219***	-14.798***	-14.826***	-14.835***	0.0021**
R^2	0.005	0.005	0.005	0.001	0.001	0.001	0.002
N	5566169	5566169	5566169	92872	92872	92872	49893

***, **, and * represent 1, 5, and 10% significance level respectively.

Table VIII. Further Evidence: Firm Level Cost of Equity Capital and the U.S. Foreign Corrupt Practices Act

In Model [1] we assess the changes in the firms cost of capital. The dependent variable is the daily return of the firm in excess of the risk free rate (expressed in percentage). Sample period includes period of [+2, +90] days after the announcement when the post-corruption dummy is set equal to 1 as well as the benchmark period of [-90,-2] before the announcement when the post-corruption dummy is set to 0. In model [2] we use excess daily return over three days valuation adjustment period [-1, +1] as the dependent variable. *Mkt-rf* is market return in excess of the return on the 1-month U.S. Treasury bill return. *HML* is the spread in returns between portfolios of value and growth stocks. *SMB* is the spread in returns between portfolios of small and large size stocks. *UMD* is the spread in returns between portfolios of previous winner and loser stocks. Days -1, 0, and + 1 are excluded in the regression in Model [1]. The sample is based on 27 firms from 2000 to 2009, yielding 4,780 firm-days in the final sample. Standard errors are clustered by firm and year following Petersen (2009).

Dependent variable	**Cost of Equity Capital (Sample includes post corruption period and benchmark period)**	**Valuation adjustment period [-1,+1] and benchmark period**
	[1]	[2]
Post-Corruption	0.101**	
Announcement Effect		-0.391**
Mkt-rf	1.265***	1.304***
HML	-0.049	-0.088
SMB	-0.025	0.003
UMD	-0.05	0.03
Firm Fixed Effects Dummies	Yes	Yes
R^2	0.4768	0.533
N	4780	2484

***, **, and * represent 1, 5, and 10% significance level respectively.

Table IX. Economic Significance of Corruption's Impact on Liquidity, Foreign Investment, and Cost of Capital at the Country Level

These calculations for Liquidity and Foreign Equity Investments are based on parameter estimates reported in Table III for Model [1] and Models [3] respectively. Calculations for Cost of Capital are based on parameter estimates reported in Table V for Model [1]. Parameter estimates for both the linear and nonlinear forms of the corruption variable are used when the estimates are significant at the 10% level or lower.

Dependent Variables	**Liquidity (bps)**	**Foreign Equity Investments / GDP (%)**	**Cost of Capital (%)**
Average Effect	-79.40	-70.82	8.63
Median Effect	-68.33	-61.33	7.49
Indifference Point for Corruption	0.36	0.34	0.33