Corruption and private equity activity: fear and loathing in emerging markets

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Abstract

Analysing 69,518 private equity transactions worldwide, we find that higher perceived corruption levels negatively affect private equity activity, measured as aggregate investment value as well as number of transactions. Investors deliberating investing in a particular country shy away from potential ethical and practical conflicts. Thus, the markedly high perceived corruption levels in emerging- and frontier markets obstruct local private equity markets, and ultimately private sector development overall. Corruption explains up to 30% of the gap in private equity activity between developing- and developed countries. We find indicative evidence of a non-linear relationship, implying that countries are considered as investable once sufficiently free from corruption. We do not confirm notions that corruption affects foreign- and domestic private equity capital flows differently.

1. Introduction

Governments and development organisations alike, in an attempt to solve the development conundrum, have turned their attention to the private sector since the 1990's. "Trade, not aid" became a clichéd aphorism. Private equity markets in developing countries started to emerge, providing capital to Small- and Medium Enterprises. Since the beginning of the financial crisis in 2007, private equity activity in emerging- and frontier markets has increasingly gained momentum and attention from investors.

Private equity investment brings numerous benefits to investors, local companies, and economies. Strong economic growth, increasing internationalization, and untapped potential in emerging markets create opportunities for investors to generate returns equal to or above those seen in developed markets. Local companies can benefit from expertise on financial- and governance structuring as well as operational excellence that industry leading investors bring along. Public policy makers expect to see the private sector develop, creating jobs and a healthy business climate, ultimately stimulating the economy.

However, despite the recent surge, private equity activity in developing countries falls drastically short of that in developed countries, both in absolute values as well as in percentages of GDP. Investors take into account a diverse set of factors when deciding to invest in particular countries, including but not limited to legal systems, financial markets, business climates, economic and societal characteristics, and corruption levels. Indeed, corruption levels are significantly higher in developing countries, and in surveys named as one of five main reasons for limited partners not to allocate capital to a country or region (Groh, 2009).

This paper provides the first in-depth quantitative analysis of the relationship between corruption levels and private equity activity worldwide. We expect corruption to hamper private equity investment. Considering the possibility that higher levels of corruption lead to a disproportionally larger dearth in invested capital, corruption is likely to bear more severe consequences for developing- than for developed markets. Finally, we investigate whether corruption hampers private equity activity by limiting a country's ability to attract foreign investment capital.

Our analysis is based on a newly compiled data set of 69,518 worldwide private equity transactions from 2006-2014. From existing research, we infer a broad set of legal, economic, and societal control variables, which together represent the key determinants of private equity activity. We find evidence of corruption as a barrier to private equity investment. According to our estimates, an improvement in corruption perceptions, leading to a one-standard-deviation increase

on Transparency International's Corruption Perceptions Index, yields a 67.6% increase in invested private equity capital. Thus, the model attributes c. 30% of the gap in logarithmic private equity investment between developing- and developed countries to the effect of corruption. The results prove to be robust for private equity activity in terms of logarithmic transactions volumes and numbers. We obtain statistically and economically significant findings when controlling for a comprehensive set of determinants of private equity activity, as well as for legal, economic, and societal aspects separately.

While corruption influences the overall investment decision between developed- and developing nations, it takes a lesser role in the capital allocation within these distinct groups of countries with broadly similar corruption characteristics, as indicated by separate analyses. A regression of private equity activity on corruption levels, as determined by quartiles on the Corruption Perceptions Index, supports the theory that countries may be considered more investable once sufficiently free from corruption. Correspondingly, improvements on low- or high corruption levels yield less pronounced effects on private equity investment. We do not find evidence that corruption affects capital flows from foreign- and domestic investors differently.

Empirical analyses of wide datasets including developing countries pose challenges. The prominent development economist William Easterly wrote that for economically poor performing countries with underfunded governments, "it is hard to keep statistical offices running" (2001:65). However frustrating and uncomfortable this reality is, we believe the data allow for an improved understanding of the underlying phenomena. As Leeds (2015: 32) puts it, the statistical challenge "is hardly a justification for shying away from a serious analysis of the subject". Hence, combined with a high degree of multicollinearity and a modest number of individual observations, imperfect data leads to frail results at times, requiring cautious interpretation.

Our paper contributes to the current literature on determinants of cross-country private equity activity. The broad selection of papers within this field turns a blind eye on the effects of corruption on private equity activity. Mauro (1995) describes the negative effect of corruption on overall investment levels in an economy, and in a comprehensive study on a large set of determinants, Lerner et al. (2009) suggest that buyouts appear to be sensitive to corruption. Our paper adds to existing research through the extensive dataset with worldwide coverage over a time period from 2006 to 2014.

In this paper, the phrase 'private equity activity' refers to the annual-average aggregate value of private equity investments over time, unless specified otherwise. We use the term 'corruption' intertwined with 'corruption levels' or 'CPI scores'. All relate to perceived corruption levels as

defined by Transparency International and measured through the Corruption Perception Index. Terms relating to 'developed' and 'world' countries relate to those countries classified as 'World Markets' by MSCI. Similarly, the terms 'developing-' and 'emerging-', and frontier' countries and markets refer to the MSCI classifications.

This paper is organized as follows. The next section develops testable hypotheses. The third section provides a literature review on emerging markets private equity and lays out a framework with key determinants in the investors' decision to invest in a country or region. Following a description of data collection and summary statistics, empirical analyses verify the effect of corruption, controlling for the influence of other key determinants. Finally, we discuss opportunities for future research and present concluding remarks.

2. Hypotheses

The private equity industry evolves constantly. The pioneering funds of the 1980s reaped in hefty returns primarily through financial engineering. Nowadays, financial- and governance engineering has become a commodity in an ever increasing competitive landscape. Fund managers often find such drivers of returns priced into entry valuations, and thus need to resort to alternative approaches to create returns.

As Lerner, Sorensen, and Strömberg (2009) describe, one such approach is through creating operational value-add. Fund managers take more active positions in their portfolio firms, influencing decisions from strategy to management replacement.

Fund managers also explore portfolio diversification in their quest for above-average returns in the industry. Building expertise and networks in an industry niche can increase the competitive position and potential for value-add of fund managers. Building international networks, local market expertise, and skill sets adapted to the context of emerging markets can yield improved risk-return characteristics in new, less competitive geographies. Leeds (2015) goes as far to define emerging market private equity as a separate asset class. Post-financial crisis emerging market private equity has gained momentum, garnering interest of private equity funds aiming for high returns.

It is within this context that we develop our hypotheses. Questioning the specific drivers of private equity activity in emerging markets, we advocate to examine each determinant on a granular level.

Investors in developed markets coin corruption as a key criterion in deciding whether to allocate capital to certain countries or regions (Groh, 2009). Although Mauro (1995) finds that corruption has an adverse impact on overall investment levels in a country, no such research has been done at the proposed granular level for private equity investments.

The evolutionary process of private equity investors expanding their geographic reach, and the apparent lack of research on corruption and private equity in emerging markets develop the central question for this paper: what is the effect of perceptions of corruption on private equity activity? Developing countries are perceived as generally more corrupt and receive less capital from investors in the private sector, both in equity and debt markets. These considerations give rise to the following hypothesis:

> Hypothesis 1: *Higher perceived corruption levels have a direct and significantly negative effect on private equity activity.*

We consider a non-linear relationship plausible. Above a certain perceived freedom from corruption, investors are likely to view countries as passing benchmarks. Hence, investors are likely to compare classes of countries with broadly similar corruption characteristics with each other, thus essentially creating a set of binary variables. Setting the highest-ranking countries on the Corruption Perceptions Index, i.e., mainly developed markets, as our benchmark, we expect:

> Hypothesis 2: *Changes in perceived corruption affect private equity activity in countries differently. Developing countries receive proportionally higher increases in capital allocation for similar improvements in perceived corruption.*

Knowledge of the local institutional and business climates is essential when conducting business in more corrupt countries. The inherent challenges and intricacies to investors require local networks and expertise. Hence, we expect corruption to disproportionally hinder foreign capital inflows, translating into lower levels of activity from foreign private equity investors:

> Hypothesis 3: *Countries with higher perceived corruption levels see less private equity activity from foreign domiciled investors as a percentage of total transactions.*

3. Literature review
This literature review is divided in two parts, each with separate aims: (i) we summarize the state of emerging market private equity to set out the importance and relevance of the topic concerning corruption as a key determinant to private equity activity, and; (ii) we then proceed to provide an

overview of existing literature on the key determinants of private equity activity. We use the determinants as the framework of control variables in which we will test perceived corruption.

We distinguish three actors in exploring the effects of private equity; (i) financial sponsors (i.e., private equity funds); (ii) the recipient (i.e., companies and employees), and; (iii) society and government. Distinguishing between the three actors is important for understanding the underlying motives and actions relating to private equity. We discuss the benefits to each actor below.

Private equity first gained momentum in the 1980s (Kaplan and Strömberg, 2008). Strömberg (2008) documents that the industry experienced tremendous growth since. Out of 21,397 leveraged buyout transactions from 1970-2007, over 40% materialized after January 2004. Furthermore, he finds that LBO transactions outside of North-America and Western Europe account for only 7% of transaction value over 2001-2007, despite private equity becoming a global phenomenon. Indeed, we show (Appendix I) that in our data set of 69,518 transactions from 2006 to 2014, deal value in Emerging- and Frontier Markets accounts for 11%, compared to an estimated 50% share of world output in 2015 (IMF, 2011). Private equity activity in developing markets remains low in absolute values, as well as in percentages of GDP.

Investor level

Private equity attracts investors with relatively high returns and the potential for active value creation. Particularly in developing markets, the demonstrable potential value-creation skill set is fundamental in capital allocation (Leeds, 2015). The weaknesses and inefficiencies characterizing emerging markets create opportunities for investors who are equipped with the financial resources and skill sets to bridge gaps and enhance performance. Information asymmetries and substandard investment climate manifest themselves in low entry multiples, implying elevated levels of returns (idem).

Private equity funds consistently and substantially outperform public markets (Harris et al., 2013). On average, buyout funds beat the S&P 500 by 20% to 27% over a fund's life, i.e., more than 3% per annum. Wilton (2012), finding similar results in emerging markets, claims that emerging market private equity returns have overtaken those in developed markets in more recent years (Appendix II). Hence, investors seeking improved returns find incentives to explore the opportunity emerging markets grant.

Firm level

Private equity bridges financing gaps, providing required capital to foster firm growth. Private equity funds create, on average, economic value at the firms it invests in (Kaplan and Strömberg,

2008). Jensen (1989) claims that leveraged buyouts are the superior organizational form, and hence will dominate the corporate landscape.

Proponents of private equity, such as Jensen (1989), and, in an emerging markets context, Leeds (2015), point at improved financial efficiency, governance, operations, human capital, and environmental policies. Empirical evidence on the effect of being acquired in a leveraged buyout on operating performance is largely positive. Operating income to sales, cash flow ratios, capital expenditures to sales and total factor productivity all improve.

Imposing strong investor monitoring, concentrated ownership and managerial discipline are key drivers of the private equity model (Jensen, 1989). Private equity investors often require management to maintain a stake in the company, ensuring proper long-term alignment of interests through illiquidity and a shared downside. Leverage, when used, further enhances discipline in cash management. Investors control boards of portfolio companies and actively engage in governance, especially in emerging markets (Leeds, 2015).

Private equity firms provide operational and industry expertise to their investments (Kaplan and Strömberg, 2008). They develop value creation plans, and assist in their implementation. Excellent industry networks frequently provide companies with a valuable lever in improving the strategic positioning and productivity, targeting additional acquisitions, and building human capital (Acharya et al., 2008; Gadiesh and MacArthur, 2008).

Portfolio firms benefit from tax deductions achieved by leverage. Private equity funds help optimize the capital structure, and have better access to credit markets (Kaplan and Strömberg, 2008). Firms operating in emerging markets can thus gain advantages with private equity involvement.

Societal level

Belke et al. (2003) and Fehn and Fuchs (2003) find that venture capital, a subset of private equity, is crucial for financing structural change, new firms and innovations. Hence, venture capital raises employment growth and job creation, which depends on the ability of innovative firms to obtain finance for risky projects. The ability of governments and venture capitalists to encourage and sustain technological innovation by entrepreneurial firms is a main source of employment growth (Belke et al., 2003). Kaplan and Strömberg (2008) find that employment at leveraged buyout firms in developed markets generally increases, though occasionally at lower rates than in industry peers. This finding is associated with pressures for increasing operating efficiency in acquired companies.

Research links venture capital to increased innovativeness. Hellman and Puri (2000) find that venture capital financing is related to product market strategies, outcomes of start-ups and a reduced time to bring products to the market. Similarly, Kortum and Lerner (2000) find that increases in venture capital activity are associated with industry-wide higher patenting rates.

Small and medium enterprises ('SMEs') account for large employment shares in most economies, and are the emerging private sector in poor countries which forms the base for future growth (Beck, 2007). SMEs are, however, more constrained in operations and growth than large enterprises, in particular concerning access to financial services. A 2014 survey, conducted by the World Bank among SMEs worldwide, shows that access to finance is the most prominent constraint experienced by entrepreneurs (Appendix III). As a result, their development is a priority for organizations committed to alleviating poverty by developing SMEs (Yago et al., 2007). State and donor-driven approaches to SME development have failed, and weak domestic equity and credit markets are traditionally closed to all but large companies (Leeds and Sunderland, 2003). Hence, other financial instruments, such as private equity, can fill these financing gaps.

A vibrant SME sector often accompanies economic, social, and political development (Yago et al., 2007), and increases tax revenues. Wilton (2012) shows that smaller investments in companies above a threshold of two million US Dollars do not lead to lower IRRs, and that returns on minority positions (which are more common in emerging markets) are similar to those of majority stakes.

Levine (1997) finds a positive, direct relationship between the functioning of financial systems, ranging from debt to equity markets, and long-run economic growth. Levine links evidence of the level of financial development to predictors of future rates of growth, capital accumulation, and technological change. Private equity funds are a cornerstone for commercialization and innovation in modern economies, fostering innovative and competitive firms (Groh, 2009).

Strömberg (2008) furthermore finds no evidence that the growth of private equity in developed markets comes at the expense of public stock markets. In developing markets in particular, private equity can play a role in promoting stock markets where IPOs are initiated. Private equity provides access to sectors under-represented in public markets (Wilton, 2012). Strömberg (2008) states that claims about short-termism and financial failure among private equity portfolio companies are not supported by evidence. Holding periods are often longer than perceived, and default rates are below public averages in the United States.

The shift of developing nations to more market based economies since 1990, and the lowering of barriers to trade and capital flow since 2000, have provided broader opportunities for investment in private equity (Wilton, 2012). Yet, despite the compelling incentives activity in emerging markets remains capricious. To understand why, we take a granular look at the determinants of private equity activity to establish a framework in which we test our hypotheses.

Determinants of Private Equity Activity

Existing research has not yet spoken a final verdict on the determinants of private equity activity (Lerner et al., 2009; Groh, 2009). A large share of literature focuses on particular criteria without comprehensively controlling for other determinants. Other research is grounded primarily on survey data, focuses on specific geographic regions, or measures not private equity activity, but a related variable. We identify and summarize the key determinants below.

Private equity requires costly management, extensive time to monitor investments, and is essentially illiquid (Chemla, 2005). As a result, asset size is an important determinant in allocation of resources to private equity. Hence, particular countries and regions might be more or less attractive by their mere GDP size and potential deal flow. Investments have to be large enough to cover management fees and facilitate sufficient returns for high-asset institutional investors. In addition, Lerner et al. (2009) show that growing wealth is reflected in a greater share of private equity in GDP. While Gompers and Lerner (1998) and Romain and van Pottelsberghe de la Potterie (2004) find a significant and positive effect of real GDP growth on private equity activity, Jeng and Wells (2000) reject this notion.

Private equity activity moves with stock market waves (Kaplan and Schoar, 2005). During periods of stress, the global financial cycle turns into a particularly dominant driver of capital flows in developing countries — an effect magnified by the host country's level of financial sector development (Nier et al., 2014). Köke (1999) suggests that reductions in macroeconomic risk favours private equity investment in Central Europe.

Michelacci and Suarez (2004) stress the importance of stock markets to the business environment, new firms and venture capitalists alike. Black and Gilson (1998) confirm the positive relationship of an active stock market with a strong venture capital market. Moreover, they find that the potential for IPO exits helps venture capitalists in establishing control clauses for potential exits in investments, further fostering activity. Jeng and Wells (2000) find that IPOs are the strongest driver of venture capital investing, in particular for later stage companies. However, Strömberg (2008) finds that private equity investments are most commonly exited through trade sales (38%). Increasingly important become secondary buyouts (24%), at the expense of IPOs

(13%). The limited and decreasing share of IPO exists thus contrasts the findings, especially in an emerging market context. Black and Gilson (1998) and Gompers and Lerner (2000) find that risk capital is accompanied with deep and liquid stock markets. Schertler (2003) confirms that stock markets have a significant, positive impact on venture capital investments.

Attracting credit financing is a key obstacle for early-stage firms (Greene, 1998). Debt financing remains limited, especially in emerging markets, restricting the potential for create value through leverage (Groh, 2009). Furthermore, investors potentially refrain from acquiring a firm when the enterprise value is too large to be financed by equity only.

Wilton (2012) and Lerner et al. (2009) emphasize fewer trade barriers as a reason for increased private equity intensity. Lower private equity activity is associated with the measures of operational engineering, and in particular the presence of barriers to free trade.

The institutional environment shapes firm dynamics and bears the potential to encourage the emergence and growth of new enterprises, in particular in emerging markets (Desai et al., 2006). Ribeiro et al. (2008) see institutional idiosyncrasies limit private equity in Brazil. Da Rin et al. (2005), Armour and Cumming (2006), and Groh (2009) all find evidence for the effects of government policies on private equity activity. Rather than subsidizing or providing privileged credit conditions to investors, policymakers ought to consider improving a wider set of policies (Da Rin et al., 2005). Government programs have often hindered rather than stimulated the development of private equity markets (Armour and Cumming, 2006).

Legal frameworks are one area of public policy with considerable influence. Investment returns increase with the quality of a legal system (Cumming et al., 2010). Cumming and Johan (2007) find that the perceived comparative dearth of regulations of private equity funds impedes institutional investor participation. Furthermore, institutional private equity capital allocation increases with the perceived importance of regulatory harmonization. Glaeser et al. (2001) conclude that financial markets benefit from legal protection of outside investors from expropriation by issuers and financial intermediaries. Cumming et al. (2008) provide evidence that differences in legality have a significant impact on the governance structure of investments in private equity. IPOs are more likely in countries with better legal standards (Cumming et al., 2006).

Similarly, countries with poorer investor protection, measured as the character of legal rules and quality of law enforcement, have smaller and narrower equity and debt markets (La Porta et al., 1997). Concentrated share ownership in larger public companies is negatively related to investor protection, consistent with the idea that small, diversified shareholders, often including private

equity funds, are less present in countries that do not adequately protect their rights (La Porta et al, 1998). The findings show contrasts between common and civil-law countries. Djankov et al. (2003; 2005) find evidence of higher efficiency and less procedural formalism in judicial processes under the rule of common law. La Porta et al. (2002) also find stronger protection of minority shareholders to support higher valuations through a reduction in the cost of capital. Lerner and Schoar (2005) expand these findings to increased returns in countries with better protection.

Svensson (1998) finds that the quality of property rights is linked to investment rates across countries. Knack and Keefer (1995) also find that the institutional protection of property rights is crucial to economic growth and investment. Furthermore, the security of property rights does not only increase the magnitude of investments, but also the efficiency of input allocation.

Romain and van Pottelsberghe de la Potterie (2004) find that higher tax income rates inhibit venture capital activity. Gompers and Lerner (1998) show that lower capital gains taxes foster private equity capital raisings, primarily driven by increased demand. Bruce (2000) shows that tax rates affect the development of businesses through their willingness to incur capital expenditures and investments. Similarly, Cullen and Gordon (2002) find taxes to affect rates of entrepreneurship. Groh (2009) claims that there is a spill-over effect into private equity activity.

Lazear (1990), and Blanchard (1997) show the effects of labour regulation on employment and economic growth. We expect stringent labour market policies to reduce a country's perceived attractiveness to private equity investors, since hiring and firing policies can inhibit the potential for operational value creation. Gilson (1999) and Hyde (1998) argue that the success of venture capital in California is related to weak enforcement of non-compete contractual clauses allowing for high-velocity labour markets. Variations in labour market restrictions correlate with variations in venture capital (Black and Gilson, 1998).

Gompers and Lerner (1998) find that both industrial and academic R&D spending are significantly and positively related to private equity activity, both for transaction values and numbers. Technological opportunities spur capital raising. Building on this research, Romain and Van Pottelsberghe de la Potterie (2004) find a strong and positive relationship between technological opportunity and growth of R&D expenditures on the one hand and private equity intensity on the other hand. Schertler (2003) shows that the number of R&D employees and amount of patents filed positively impacts private equity investments. A strong R&D culture, particularly in universities and national labs, encourages entrepreneurship and private equity financing (Megginson, 2004).

Balboa and Martí (2003) find that previous year's market performance and liquidity affects fundraising in private equity. Investor confidence is determined by the acceptance of private equity markets within a society, and the historical development of the market (Sapienza et al., 1996). A society's propensity to generate autonomous, risk-taking, innovative, competitively aggressive and proactive entrepreneurs and firms depends on its cultural foundation, shaping environmental conditions which affect the level of acceptance of risk capital (Lee and Peterson, 2000).

Chu and Hisrich (2001) find that, in the transitional economy of Hong Kong, private equity investors pay particular attention to the quality of the entrepreneur and management. Human capital is essential to further foster high technology in Asia. Karsai et al. (1998) and Bliss (1999) find similar results in central European countries. In addition, Karsai et al. find a need to develop investing skills of private equity general partners in order for them to be able to develop commercially successful enterprises. Limited availability of qualified general partners thus limits potential capital flows to investors in emerging markets. Furthermore, lacking management competence ranks highly as a reason for investment failure in emerging markets (Farag et al., 2004).

A survey conducted by Groh (2009) among emerging market private equity investors reveals that corruption and bribery are one of five key barriers to investments in the private sector of a particular country. Lerner et al. (2009) suggest that buyouts appear to be sensitive to corruption. Cumming et al. (2010) find, however, that private equity returns in Asia are higher in countries with higher levels of corruption, indicating an ability of investors to mitigate the potential negative impact of corruption through organizational change.

In his benchmark-setting corruption research, Mauro (1995) analyses indices of corruption and the effectiveness of judicial and political systems for a cross section of countries. He finds that corruption has a direct and negative relationship with overall economic investment levels. Malfunctioning government institutions constitute a severe obstacle to not only to investment, but also to entrepreneurship and innovation. As a consequence, this may directly hamper growth prospects.

Average corruption scores acquired from Transparency International from the period 2006-2014, equal to the time period used in our data set, show that developing countries suffer from substantially higher corruption levels. As categorized by MSCI, the average corruption score, where a high score indicates lower perceived corruption levels, of developed 'World Markets' is 78.1, of Emerging Markets 43.4, and of Frontier Markets 38.6.

Thus, we observe that in developing countries private equity activity levels remain low, while corruption thrives. For investors, companies, and governments alike, private equity can provide substantial benefits in these markets. While a survey by Groh (2009) finds that corruption is deemed a barrier to entry, and Mauro (1995) establishes a relationship between overall investment levels and corruption, a gap in the literature exists. We set out to quantitatively prove a direct and negative relationship between corruption and private equity activity levels.

Existing research often singles out specific criteria and specific geographies (Groh 2009). Our research focuses on corruption specifically, but controls for significant determinants of private equity activity as established in the literature review. Our dataset is across countries worldwide, but our findings will find particular relevance in developing countries.

4. Data collection

We distinguish three types of data from separate sources in our research. First, we collect worldwide aggregate private equity investment figures in terms of transaction values and numbers; second, we obtain a quantifiable proxy measure for our independent variable corruption; third, we find country characteristics by establishing a broad set of control variables. Thus, we link the cross-country aggregate private equity investment to proxies of the determinants of private equity activity, as identified in the literature review.

Classifying the control variables, we broadly follow the categorisation in Groh (20009): *Legal, Economic Activity, Capital Markets, Entrepreneurial Opportunities, Human and Social Environments,* and *Taxation*. We select 24 control variables that mutually cover the relevant determinants of private equity activity. Appendix IV lists the control variables as well as their definitions and sources.

In reference to Morgan Stanley Capital International ('MSCI'), a leading investment research firm known for its market indices, we classify countries either as a *World Market, Emerging Market,* or *Frontier Market*. Countries that do not fall in these categories show negligible private equity activity. In further regression analyses, we continue with the main three geographic classifications, leading to a 99.0% coverage in transaction numbers and 98.0% of transaction values. Appendix V presents a categorical break down of the countries subject to our analysis.

Private Equity Activity

Gathering the data for our designated dependent variable of *Aggregate Cross-County Private Equity Investment* ('Private Equity Investment'; 'Private Equity Activity') requires us to synthesize information from the granular level of individual investment transactions.

We define private equity investment as the acquisition of an equity stake in a business by one or more financial sponsors. We attribute the investment to the country of the target company's headquarters. Using the CapitalIQ database, we identify USD5.2 trillion in "Total Transaction Values" for the years 1995−2014, distributed across 113,709 individual private equity investments in 160 countries. We to construct our sample of transactions and select those transactions classified as "Merger/Acquisition", "Private Placement" and "Spin-off/Split-off". We then proceed with the investment types "Growth Capital", "Bridge", "Buyout", "Industry Consolidation", "Recapitalisation", "PIPES", and "Mezzanine". The acquirer must be an investment firm with a reported interest in companies of at least one of the following stages: "Incubation", "Seed/Start-up", "Early Venture", "Mid Venture", "Late Venture", "Emerging Growth", "Turnaround", "Middle Market", "Mature", or "Later Stage". We exclude transactions that are announced, but not closed within our timeframe.

CapitalIQ does not list transaction values for 35,916 out of the 113,709 transactions, potentially resulting in a bias towards larger or generally better covered transactions, countries, and regions. Using a methodology similar to Lerner et al. (2009), we estimate these missing individual transaction values by means of a multivariate OLS regression of the logarithmic total transaction value of the existing transactions on 64 dummy variables that cover the country and the income group, transaction types, industries, and years. With an R^2 of 43.5% and F-statistic of 1,068.2, we obtain acceptable results. The de-logarithmised results are plugged into our data set. Finally, we proceed to determine the aggregate deal volumes and numbers per country and year.

Corruption

Structuring the numerous determinants of private equity activity, we single out our independent variable *Corruption*. Corruption is, by its very nature, impractical to measure or quantify directly. Hence, in line with earlier research (e.g., Cumming et al., 2010), we identify Transparency International's Corruption Perceptions Index ('CPI') as an appropriate proxy measure.

The CPI serves as a robust assessment of public-sector corruption in individual countries, and, as a meta-score obtained from thirteen individual surveys and assessments of twelve different institutions, is sufficiently condensed for statistical inference. Criticized for its focus on public-

sector corruption, the CPI neither captures the effects of purely private corporate scandals, nor the involvement of foreign businesses in local corruption scandals. While this shortcoming potentially limits the scope of our results, we believe it does not interfere with our purpose of investigating the role of (perceived) corruption as a barrier to investment in different countries. Other criticism of the CPI addresses the harmonization of corruption levels in different regions of the same country. Levelling out such domestic differences should not impair the quality of our results, because it mirrors the degree of aggregation inherent to our analysis of cross-country private equity investment.

Sample selection issues

Following the approach of Lerner et al. (2009) to collecting private equity investment data, we encounter similar complications. First, selection bias results from our dependence on CapitalIQ's classification of potential buyers as investment firms according to the above criteria. Cross-checking with the corresponding Emerging Markets Private Equity Association database, Lerner et al. (2009) establish a 63% coverage rate of the 1,694 financial sponsors of private equity investors known to actively invest in emerging markets. They attribute the remainder of 37% to CapitalIQ's lack in coverage of both small, locally based- and government-owned funds as well as subsidiaries and joint ventures of larger industrial groups, whose deals are attributed to the controlling entity.

Second, availability bias results from CapitalIQ's establishment in 1999 and the inherent likelihood that (i) related efforts to back-file data from earlier years yielded imperfect outcomes; and (ii) data coverage for later years improved over time, as the database grew to become an industry-leading platform. Because the specific type of an individual investment is beyond its scope, indistinct classifications do not affect our analysis.

To counter the bias resulting from incomplete CapitalIQ coverage in earlier years, and to minimize the amount of missing data for control variables sourced from, amongst others, the World Bank, we proceed with our data analysis for the years 2006–2014. Hence, our dataset comprises of a total of 69,518 transactions in our specific geographies of interest.

Perfect proxy measures do not exist for many of the determinants of private equity activity identified in the literature review. We select our control variables based on (i) our assessment of the metric as the most appropriate proxy measure for the respective determinant, and (ii) acceptable coverage from reputable sources over the years and countries in our dataset. Undeniably, this trade-off may give room to concerns and criticisms of the used variables. However, given the available

resources, we believe to minimize measurement errors and noise by careful selection based on existing research, iterations, and testing.

5. Data analysis

We initiate the analysis by describing the data on private equity activity and corruption. Further, we proceed to test our hypotheses. We present stylized facts about global private equity activity based on summary statistics, and develop a preliminary understanding of the bilateral relationships within our data. The analysis of the correlation matrix additionally raises awareness of potential methodological pitfalls.

The high degree of multicollinearity in our data set inflates the standard errors of our estimates and, by that, hinders the identification of statistically reliable results at times. We cannot tackle the issue of multicollinearity by increasing the size of our data sample, since (i) beyond the 77 MSCI-classified Developed, Emerging and Frontier Markets, private equity activity is negligible and additional countries would introduce additional noise; (ii) many control variables take stable realizations per country over time, raising concerns that single observations are not independent of their respective realizations in prior years. This fact inhibits us from drawing on time-series evidence in pooled panel regressions.

In order to avoid reporting inflated significance levels, we conduct cross-country multivariate OLS regressions based on simple arithmetic means. Aiming to limit the estimation errors, we reduce the number of control variables by following a rigorous, quantitative approach.

We single out the most relevant drivers of private equity activity by conducting separate multivariate OLS regressions of private equity activity on corruption levels controlling for each of the following groups at a time: *Legal*, *Economic Activity*, *Capital Markets*, *Entrepreneurial Opportunities*, *Human and Social Environment*, and *Taxation*. We assess the general validity of the models based on goodness-of-fit (R^2) and lack-of-fit tests (significance level of the F-statistic). Running these analyses for the complete set of countries ('All Markets'), as well as for the subsets of developed- ('Developed') and developing countries ('Emerging & Frontier') enables us to develop a better understanding of potentially differing drivers of private equity investment in those areas of the world. The additional insight, however, is limited by larger standard errors of the estimates resulting from reduced sample sizes.

From these models, we select statistically significant variables with coefficients not equal to zero. Subsequently, we re-run the respective regressions of private equity investment on

corruption controlling exclusively for the selected control variables and evaluate the change in the above quality metrics. Thus, we identify twelve statistically significant determinants of private equity investment as suitable control variables, which we follow on to use in our comprehensive model.

We test Hypotheses 1 and 2 using the comprehensive model. Beyond providing robustness checks, different model specifications, i.e., private equity activity measured by logarithmic transaction values, logarithmic transaction numbers, and as a percentage of GDP, allow us to refine our understanding of the specific effect of corruption on private equity activity. Finally, we drop the assumption of a linear relationship between private equity activity and compare the effects of relative differences in general corruption levels, as determined by quartiles on Corruption Perceptions Index.

Subsequently, we test Hypothesis 3 allowing for the interaction between variables measuring corruption and the levels of activity from foreign private equity investors.

A. Summary Statistics

Based on the delineated criteria and excluding all transactions before 2006, we present a sample of 69,518 transactions with a total aggregate value of USD3.6 trillion—an average deal value of USD52 million. For *World Markets*, *Emerging Markets*, *Frontier Markets* and *others* (see definitions in Appendix V), we present break-downs of private equity activity by primary industry of the target company and transaction numbers in Appendix VI and by primary industry of the target company and transaction values in Appendix VII.

World Markets account for 86.0% of all transactions but 87.3% of transaction value, implying above-average individual deal values. Emerging- and Frontier Markets account for 11.6% and 1.5% of deals (10.0% and 0.8% of transaction value), respectively. We thus confirm earlier statements that the overwhelming majority of private equity activity concentrates in developed countries.

The dominant industries consist of the rather R&D intensive industries such as Information Technology, Industrials, and Healthcare as well as Consumer Discretionary. They mutually represent 79% of the number of deals, and 61% of the total transaction value. Information Technology alone represents 35% of the number of transactions, but merely 15% of transaction value. This could be explained by an increased concentration of venture capital investments in this

industry, usually coinciding with smaller investments. In Emerging Markets, the difference is particularly apparent: 29% of the transactions account for only 13% of the total transaction value.

In Emerging Markets, the private equity capital primarily flows into the Financials (23% of transaction value), Consumer Discretionary (20%), Information Technology (13%), and Industrials (11%) industries. Similarly, in Frontier Markets, the most prominent industry is Financials (34%), followed at a distance by Telecommunication Services (14%) and Industrials (11%). In stark contrast, the Financials industry represents merely 14% of value in World Markets. Splitting private equity activity by deal numbers, we obtain broadly similar results, except for the Financials and Telecommunication Services industries. Perhaps not surprisingly, deal sizes in these industries are larger in value and less in number.

At industry levels, Emerging- and Frontier Markets take an above average share in Consumer Staples and Financials deal value. Telecommunication Services, in particular, sees a relatively large share of investments going to Frontier Markets. Thus, we conclude from these tables that private equity activity in developing countries primarily channels capital to industries covering more basic needs, such as infrastructure and staple goods and industrials.

Table 1 splits the yearly total transaction value by *World Markets*, *Emerging Markets*, and *Frontier Markets*. We observe dominant levels of activity in 2007, with USD825 billion nearly twice the volume of the second-highest year in 2006. In post-crisis 2009, private equity activity drops significantly to USD198 billion, followed by a mostly steady recovery until 2014.

Pre- and post-crisis, we see a clear shift in private equity allocation among the MSCI indices. In 2006−2008, the average investment in Emerging- and Frontier Markets accounted for 7.1% of the total annual deal volume. In 2009−2014, this share expanded to 14.4%, with 2009 itself as a record year with 17.2%.

However, these percentages must be evaluated in the context of overall declining levels of total investment. Indeed, the average absolute investment value in Emerging- and Frontier Markets grew only by 10.0%, from USD40.5 billion in 2006-2008 to USD44.5 billion in 2009-2014. Digging deeper we find 2006-2014 Compound Annual Growth Rates in the absolute investment values of -3.9% in Developed Markets on the one hand, and of +5.6% in Emerging Markets and +11.2% in Frontier Markets on the other hand.

Consistent with Leeds (2015), we support the notion that institutional investors view private equity in emerging markets as a separate asset class with risk- and return profiles significantly different from those in traditional markets. While the financial crisis may have affected

private equity levels in developed countries, it failed to obstruct the steady growth in developing countries. It remains an unanswered question whether this shift in capital allocation to emerging markets occurred as a consequence of changed perceptions of risk in developed markets, or as the result of a belief in the balanced growth story of developing countries.

Transaction Value (USDm)	MSCI Group					% of
Year	World Markets	Emerging Markets	Frontier Markets	Other	Total	Total
2006	444,403	32,398	1,721	6,102	**484,623**	13.4%
% of Row	*92%*	*7%*	*0%*	*1%*		
2007	765,313	47,779	4,902	7,103	**825,097**	22.8%
% of Row	*93%*	*6%*	*1%*	*1%*		
2008	374,261	30,986	3,621	25,474	**434,342**	12.0%
% of Row	*86%*	*7%*	*1%*	*6%*		
2009	159,632	31,003	3,188	4,640	**198,463**	5.5%
% of Row	*80%*	*16%*	*2%*	*2%*		
2010	249,988	27,609	2,496	8,117	**288,211**	8.0%
% of Row	*87%*	*10%*	*1%*	*3%*		
2011	278,418	50,848	2,541	3,267	**335,075**	9.3%
% of Row	*83%*	*15%*	*1%*	*1%*		
2012	274,048	46,147	2,423	5,234	**327,852**	9.1%
% of Row	*84%*	*14%*	*1%*	*2%*		
2013	286,159	43,592	3,356	3,828	**336,935**	9.3%
% of Row	*85%*	*13%*	*1%*	*1%*		
2014	322,966	49,914	4,033	7,825	**384,738**	10.6%
% of Row	*84%*	*13%*	*1%*	*2%*		
Total	**3,155,187**	**360,277**	**28,281**	**71,591**	**3,615,336**	
Row %	87.3%	10.0%	0.8%	2.0%		

Table 1. presents annual, aggregate private equity activity (measured in US Dollar transaction values) in Developed-, Emerging-, and Frontier Markets as classified by MSCI (See Appendix V) for the years 2006-2014.

Appendix VIII summarizes our data with respect to corruption. In 2006-2014, the average Corruption Perceptions Index score amounts to 78 (standard deviation 12.1) in World Markets, 43 (standard deviation 12.4) in Emerging Markets, and 39 (standard deviation 12.0) in Frontier Markets. Taking into account that higher scores indicate the perception of greater freedom from corruption, we conclude that developing countries are perceived as substantially more corrupt.

Between 2006 and 2014, corruption has, on average, worsened in World Markets (-4 points), while it improved in Emerging- (+5 points) and Frontier Markets (+3 points). At a country level, the top ten best performers, as measured by the absolute difference in score between 2014 and 2006, are each classified as either Emerging- or Frontier Markets. However, as these countries start from lower vantage points, they have more ground to gain. Perhaps more interesting, among the ten worst performers, we find seven World Markets and only three Frontier Markets (see Table 2)—two of which, Lebanon and Bahrain, suffered from civil unrest in this period. Thus, notable improvements among many developing countries might help close the prevalent gap in corruption perceptions.

Best Performers	Corruption Perceptions Index (0-100)				Worst Performers	Corruption Perceptions Index (0-100)			
				Absolute Percentage					Absolute Percentage
Country	MSCI Index	2006	2014	difference change	Country	MSCI Index	2006	2014	difference change
Poland	*Emerging Markets*	37	61	24 64.9%	Austria	*World Markets*	86	72	-14 -16.3%
Saudi Arabia	*Emerging Markets*	33	49	16 48.5%	Singapore	*World Markets*	94	84	-10 -10.6%
Ghana	*Frontier Markets*	33	48	15 45.5%	Oman	*Frontier Markets*	54	45	-9 -16.7%
Croatia	*Frontier Markets*	34	48	14 41.2%	Lebanon	*Frontier Markets*	36	27	-9 -25.0%
Philippines	*Emerging Markets*	25	38	13 52.0%	Hong Kong	*World Markets*	83	74	-9 -10.8%
Romania	*Frontier Markets*	31	43	12 38.7%	United Kingdom	*World Markets*	86	78	-8 -9.3%
Serbia	*Frontier Markets*	30	41	11 36.7%	Spain	*World Markets*	68	60	-8 -11.8%
Bosnia and Herze.	*Frontier Markets*	29	39	10 34.5%	Bahrain	*Frontier Markets*	57	49	-8 -14.0%
Brazil	*Emerging Markets*	33	43	10 30.3%	Finland	*World Markets*	96	89	-7 -7.3%
Indonesia	*Emerging Markets*	24	34	10 41.7%	Australia	*World Markets*	87	80	-7 -8.0%

Table 2. lists the best and worst performing countries (measured by the absolute difference in scores) on Transparency International's Corruption Perceptions Index between 2006-2014.

Figure 1 points to the relationship between Corruption Perception Index scores and average private equity investment as a percentage of GDP over the period 2006-2014. World-, Emerging-, and Frontier markets are identified by separate markers. We interpret this graph as first indicative evidence of a relationship between the two variables, as illustrated by higher investment levels for countries with higher levels of perceived freedom from corruption.
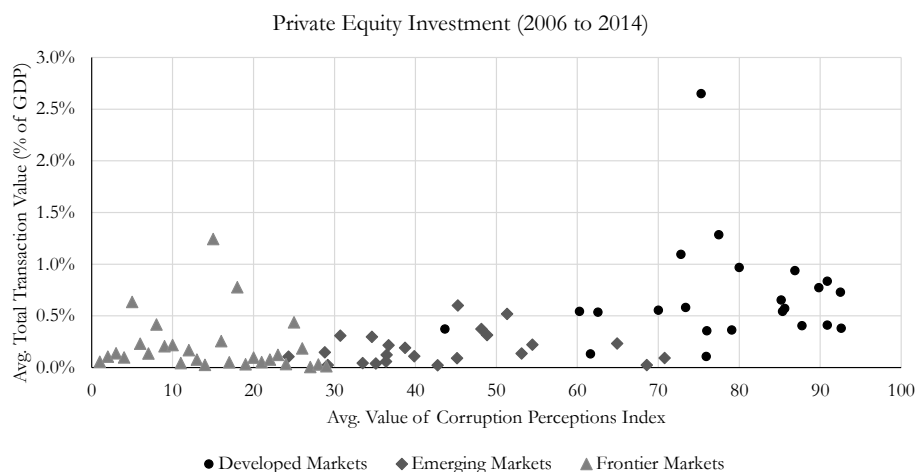
Fig. 1. shows a scatter plot of all 77 countries included in our research, setting off average scores on Transparency International's Corruptions Perceptions Index against private equity activity relative to GDP (measured in annual-average total transaction values as a percentage of GDP) for the years 2006-2014. Groups are identified by their markers.

B. Correlation matrix

Table 3 presents univariate tests in the form of a correlation matrix. The resulting correlations allow for preliminary insight into the specific bilateral relationships observed in the data. Appendix IX presents summary statistics of the dependent-, independent-, and control variables. The total private equity transaction value shows a strongly positive, statistically significant relationship to perceived corruption scores (0.58), consistent with Hypothesis 1 (recall that higher corruption scores imply greater freedom of corruption).

20 out of 24 control variables show significant correlative relationships with the total private equity transaction value. Choosing the main determinants of private equity activity, identified in the literature review, as control variables, the observed correlations confirm our selection criteria. Only the control variables measuring trade, unemployment, labour freedom, and time spent on tax issues do not show significant correlations.

Of the significant relationships, all are positive except for the variables measuring GDP growth (-0.35), bank non-performing loans (-0.39), and number of tax payments (-0.42). The negative correlation of GDP growth to private equity activity could initially strike as surprising. However, knowing that GDP base shows a strong positive correlation (0.87), a lower vantage point for a country often implies that such countries can grow faster, which can also be seen in the negative correlation (-0.22) between GDP and GDP growth. Hence, higher GDP growth is correlated with lower private equity investment levels, without implying any form of causality.

21 out of 24 control variables show significant correlative relationships with the Corruptions Perceptions Index, our chosen proxy measure of corruption. We see particularly strong, positive correlations with performance on enforcing contracts (0.61), GDP per capita (0.83), the ease of starting a business (0.59), R&D expenditure (0.68), logistics performance (0.84), and urban population as a percentage of total (0.60). Unsurprisingly, most of these variables involve bureaucratic processes, i.e., filings for patents or new businesses, customs filings at harbours, or legal protection through contract enforcement. Moreover, wealthier countries are perceived as less corrupt, as indicated by the positive correlation of GDP per capita with the Corruption Perceptions Index.

We find significant negative relationships to corruption with the variables measuring GDP growth (-0.44), GDP growth per capita (-0.50), bank non-performing loans (-0.48), number of tax payments (-0.53) and time spent on tax issues (-0.38).

Among the control variables, we also find some strongly correlated relationships. Naturally, GDP growth and GDP growth per capita (0.90), and market capitalisation and the volume of stocks traded (0.91) show strong correlations. However, the underlying mechanics of strong correlations between GDP per capita and logistical performance (0.81), GDP per capita and the urban population as a percentage of total (0.72), and R&D expenditures and logistics performance (0.71) are less obvious.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)	(26)
(1) Total Transaction Value	1.00	0.58	0.31	0.46	0.25	0.87	0.57	-0.02	-0.13	-0.35	-0.28	0.51	-0.20	-0.39	0.25	0.48	0.24	0.22	0.67	0.49	0.80	0.41	0.18	0.37	-0.42	0.03
(2) Corruption Perceptions Index		1.00	0.39	0.61	0.11	0.33	0.83	0.31	-0.14	-0.44	-0.50	0.43	-0.19	-0.48	0.29	0.35	0.59	0.50	0.68	0.46	0.84	0.60	0.34	0.08	-0.53	-0.38
(3) Protecting (Minority) Investors DTF			1.00	0.20	0.57	0.21	0.28	0.23	-0.14	-0.15	-0.12	0.54	-0.09	-0.30	0.36	0.35	0.30	0.49	0.25	0.19	0.39	0.19	0.38	0.09	-0.27	-0.20
(4) Enforcing Contracts DTF				1.00	0.04	0.27	0.56	0.39	-0.06	-0.40	-0.32	0.43	-0.10	-0.25	0.26	0.33	0.30	0.46	0.53	0.50	0.61	0.52	0.16	-0.11	-0.40	-0.18
(5) Common Law					1.00	0.14	-0.07	0.16	-0.14	0.15	0.13	0.45	0.19	-0.12	0.34	0.34	0.09	0.31	0.10	0.20	0.15	-0.11	0.34	0.23	0.05	-0.07
(6) GDP						1.00	0.44	-0.24	-0.25	-0.22	-0.18	0.37	-0.22	-0.37	0.13	0.40	0.13	-0.07	0.50	0.38	0.65	0.36	0.08	0.50	-0.33	0.12
(7) GDP per capita							1.00	0.23	-0.12	-0.54	-0.64	0.35	-0.27	-0.38	0.21	0.31	0.52	0.37	0.61	0.49	0.81	0.72	0.31	0.06	-0.59	-0.33
(8) Trade								1.00	-0.17	-0.07	-0.11	0.18	-0.02	-0.07	0.64	0.48	0.25	0.52	0.01	0.03	0.27	0.24	0.33	-0.35	-0.17	-0.23
(9) Unemployment									1.00	-0.35	-0.23	-0.04	-0.05	0.39	-0.13	-0.17	-0.24	-0.03	-0.17	-0.09	-0.21	-0.14	-0.22	-0.29	0.17	0.00
(10) GDP growth										1.00	0.90	-0.34	0.15	-0.13	-0.04	-0.13	-0.21	-0.16	-0.40	-0.24	-0.47	-0.29	0.09	0.12	0.18	0.19
(11) GDP per capita growth											1.00	-0.18	0.15	-0.05	-0.06	-0.12	-0.34	-0.12	-0.33	-0.15	-0.49	-0.44	0.01	-0.01	0.29	0.30
(12) Getting Credit DTF												1.00	-0.02	-0.27	0.30	0.34	0.20	0.47	0.42	0.34	0.53	0.15	0.35	-0.04	-0.08	-0.09
(13) Real interest rate													1.00	-0.03	-0.05	-0.08	-0.15	-0.04	-0.00	-0.27	-0.22	-0.19	-0.23	0.03	0.13	0.04
(14) Bank Nonperforming loans														1.00	-0.28	-0.31	-0.46	-0.27	-0.36	-0.10	-0.49	-0.37	-0.16	-0.30	0.42	0.16
(15) Market Cap															1.00	0.91	0.16	0.63	0.05	0.05	0.34	0.30	0.29	0.13	-0.20	-0.14
(16) Stocks traded, total value																1.00	0.19	0.58	0.24	0.15	0.48	0.31	0.28	0.32	-0.26	-0.12
(17) Ease of Starting a Business DTF																	1.00	0.31	0.33	0.13	0.51	0.38	0.28	0.17	-0.50	-0.35
(18) New business density																		1.00	0.12	0.21	0.33	0.38	0.36	-0.11	-0.32	-0.20
(19) Research and development expenditure																			1.00	0.57	0.71	0.44	0.04	0.15	-0.32	-0.13
(20) Labour force with tertiary education																				1.00	0.43	0.49	0.17	0.04	-0.15	-0.13
(21) Logistics performance index																					1.00	0.59	0.26	0.25	-0.54	-0.27
(22) Urban population																						1.00	0.26	0.09	-0.54	-0.16
(23) Labor Freedom																							1.00	-0.02	-0.18	-0.14
(24) Corporate Tax Rate																								1.00	-0.13	0.08
(25) Number of tax payments																									1.00	0.22
(26) Time spent on tax issues																										1.00

Table 3. shows the correlation matrix. This table presents Pearson correlation coefficients across cross-country private equity activity (measured in annual-average logarithmic total transaction values), corruption (measured by the Corruption Perceptions Index), and selected variables (defined in Appendix IV) as used in the regression analyses. Correlations greater than 0.19, 0.22 and 0.29 (grey-scaled) in absolute value are statistically significant at, respectively, the 10%, 5%, and 1% levels.

The high extent of correlations shows that the chosen variables constitute suitable controls in our attempt to distil the untainted effect of corruption on private equity activity. However, the significant degree of multicollinearity increases estimation errors. Combined with a limited number of observations, the sheer amount of variables introduces larger standard errors to our estimates and inhibits our ability to infer statistically significant conclusions from a comprehensive regression model. We therefore reduce the number of control variables following a rigorous quantitative framework.

C. Empirical results

We proceed by regressing grouped variables as outlined by Groh (2009), to filter insignificant variables, or variables measuring similar effects. We start with the above 24 control variables as an exhaustive list of key determinants of private equity activity, and group them across the categories *Legal*, *Economic Activity*, *Capital Markets*, *Entrepreneurial Opportunities*, *Human and Social Environment* and *Taxation*.

Legal

We find that freedom from corruption is relevant to private equity investors controlling for quality and effectiveness of a country's legal system by means of a regression of the logarithmic total transaction value on the Corruption Perceptions Index. We control for variables measuring the protection of (minority) investors, strength of enforcing contracts, and with a dummy variable for legal systems rooted in common law (Table 4). The independent variables are mutually significant at the 1% level, and explain 38.5% of the variation in the dependent variable. While we find a positive effect of the Corruption Perceptions Index, with a t-statistic of 3.61 significant at the 1% level, the individual factor estimates for each control variable lack certainty, presumably due to multicollinearity.

We re-run the regression excluding 'Protecting (Minority) Investors DTF', with a t-statistic of 0.1 the least significant variable. The fit of the reduced model improves as indicated by an increase in the F-statistic from 11.1 to 15.0, with a negligible reduction in R^2. We now find a positive influence of legal systems rooted in common law, which is significant at the 10% level with a t-statistic of 2.02. The t-statistic of the CPI variable increases moderately.

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier	All Markets	Developed	Emerging & Frontier
Unit of Measurement	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)
Corruption Perceptions Index	0.0543 ***	-0.0184	-0.0001	0.0538 ***	-0.0127	0.0020
Protecting (Minority) Investors DTF	-0.0021	-0.0348	0.0069	-	-	-
Enforcing Contracts DTF	0.0317	-0.0116	0.0396	0.0317	-0.0176	0.0390
Common Law	1.1534	1.5052	0.6800	1.1145 *	0.5557	0.7699
Constant	0.1602	11.8466 ***	1.1612	0.0716	9.8667 ***	1.4663
Obersavtions	76	23	53	76	23	53
R-Squared	0.3847	0.1363	0.0732	0.3846	0.0699	0.0717
F-Statistic	11.0959 ***	0.7104	0.9476	14.9975 ***	0.4760	1.2608

Table 4. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on corruption (measured by the Corruption Perceptions Index) controlling for Legal influences (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. On the left hand, we report the results of the initial analysis. On the right hand, we report the results of reduced-form models, i.e., after excluding the variables with the least significant coefficient estimates. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

The results indicate that an investor-friendly legal framework and incorruptible institutions combine to provide an attractive investment environment. We explain this finding through two essential influences on the effectiveness of any legal proceeding: (i) the ruling law must provide a framework for just and effective decision making. La Porta (1998) emphasizes such an appeal of common law to financial investors; (ii) the just and objective implementation of such laws requires the freedom from corruption of the acting institutions and individuals. This explanation is consistent with evidence from the correlation matrix. While the CPI and the common law dummy variable are loosely positively correlated, the positive correlations of the CPI with both the 'Protecting (Minority) Investors' and the 'Enforcing Contracts' DTFs are statistically significant at the 1% level, indicating a strong relationship between corruption and the perceived effectiveness of judicial proceedings.

Separate regressions for the subsets of developed- and developing countries produce the following main results. While the legal environment is an important determinant in the investment decision between developed countries on the one hand and developing countries on the other, it takes a minor role in the specific investment decision within both of these groups. This conclusion stems from the substantially lower R^2, larger constants and lack of any significant factor estimates. Across the complete dataset, the estimated effect of the CPI is significantly positive. While in both

subsamples the estimated factors are not significant, the estimate for developing countries (with lower average CPI scores) is marginally positive and its counterpart in developed countries is negative. This could indicate a non-linear relationship to the extent that the influence of freedom from corruption diminishes once a country is considered sufficiently free from corruption.

Economic Activity

We control for the influence of key indicators of economic activity, including measures for logarithmic GDP and -GDP per capita, trade as a percentage of GDP, unemployment as a percentage of the total labour force, and the respective increases in logarithmic GDP and -GDP per capita. We find that perceived corruption is a barrier to private equity investment, at a 1% significance level. The chosen independent variables explain 87.8% of the variation in the logarithmic total transaction values, and are mutually significant at the 1% level with an F-statistic of 68.7 (Table 5).

At the 1% level, we find a significant positive impact of logarithmic GDP and, at the 10% level, of trade as percentage of GDP, unemployment, and the growth in GDP per capita. Due to the partial redundancy, growth in GDP per capita does no longer constitute a statistically significant influence when excluding the growth in GDP. The large factor estimate with opposing signs and a high correlation back this explanation and lead us to exclude both variables when we re-run the regression.

The reduced model yields an R^2 of 86.5% and an F-statistic of 112.0, indicating mutual significance of the independent variables CPI, GDP, trade and unemployment at the 1% level. Private equity investment increases with the CPI and logarithmic GDP (at the 1% level) as well as with Trade and Unemployment (at the 5% level).

The level of corruption affects the aggregate private equity investment through its influence on key economic indicators and its capacity as a proxy of other socioeconomic factors. In line with Chemla (2005), the large impact of logarithmic GDP emphasizes the importance of a steady deal flow that arises from sufficient economic size. Confirming Wilton (2012) and Lerner et al. (2009), trade fuels private equity investment as investors often seek to create value by generating growth and entering new markets. Counterintuitively, private equity investment increases with unemployment. Billington (1999) gives a potential explanation, showing a similar relationship between unemployment and the location of Foreign Direct Investment by suggesting that unemployment rates point to easily available and comparably cheap labour.

Examining the two subsets of developed- and developing markets, we see that the effect of corruption, though not significant in either group, is stronger in developing countries. We find that the effect of trade in developed countries is less pronounced than in developing countries, with the latter estimate statistically significant at the 5% level. We attribute this to the stronger variation in trade levels across developing nations, potentially a result of less widespread use of trade agreements. While we do not find clear evidence in the descriptive statistics, we consider the sample standard deviation in developed countries to be inflated by few extreme outliers in small, highly service-oriented developed nations, such as Hong Kong and Singapore.

ECONOMIC ACTIVITY

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier	All Markets	Developed	Emerging & Frontier
Unit of Measurement	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)
Corruption Perceptions Index	0.0426 ***	0.0175	0.0300	0.0263 ***	-0.0027	0.0047
GDP	1.2926 ***	1.1353 ***	1.3263 ***	1.3875 ***	1.0622 ***	1.3073 ***
GDP per capita	-0.1195	0.3989	-0.2448	-	-	-
Trade	0.0048 *	0.0021	0.0138 **	0.0058 **	0.0027	0.0135 **
Unemployment	0.0621 *	0.0942	0.0669 *	0.0747 **	0.0488	0.0727 **
GDP growth	-12.9067	57.9529	-9.3254	-	-	-
GDP per capita growth	16.6601 *	-66.5797	14.5245	-	-	-
Constant	-12.8070 ***	-14.2300	-12.6371 ***	-14.3658 ***	-6.9559 *	-13.3454 ***
Obersavtions	75	23	52	75	23	52
R-Squared	0.8778	0.8372	0.7916	0.8491	0.7660	0.7567
F-Statistic	68.7263 ***	11.0163 ***	23.8735 ***	98.4980 ***	14.7343 ***	36.5453 ***

Table 5. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on corruption (measured by the Corruption Perceptions Index) controlling for indicators of Economic Activity (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. On the left hand, we report the results of the initial analysis. On the right hand, we report the results of reduced-form models, i.e., after excluding the variables with the least significant coefficient estimates. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

Capital Markets

Corruption is also an essential determinant of private equity investment when accounting for the differences in both the development and quality of the local capital markets. The control variables measure the ease of getting credit, real interest rates, the percentage of non-performing bank loans, total market capitalisation of locally listed stocks as a percentage of GDP, and the total trading volume as a percentage of GDP. Table 6 reports an R^2 of 63.5% and an F-statistic of 15.9. Hence,

the independent variables possess substantial explanatory power and are mutually significant at the 1% level.

We find a positive impact of 'Stocks Traded' and a negative impact of 'Market Capitalisation' at a 1% significance level, a potential consequence of partial redundancy in these variables with a correlation of 0.91. While excluding either of these variables does not improve the results of our estimation, mutually disregarding these key characteristics of domestic capital markets undermines our attempt to identify a comprehensive set of relevant control variables. We therefore opt to include both measures. We identify significant, positive coefficient estimates for the CPI and the 'Getting Credit DTF' at the 5% confidence level.

Running the reduced regression model, the mutual significance of the independent variables further increases, as indicated by the F-statistic of 23.0, paired with a small decrease in explained variation to 61.8%. The individual significance levels of the factor estimates remain unaffected. Further modifications, such as an interaction term of market capitalisation and stocks traded as a percentage of GDP, failed to yield additional insight.

The results highlight relevance of both the development and quality of local capital markets and corruption as determinants of private equity activity. Increased scrutiny for publicly listed companies and the dependence of developing capital markets on foreign investors, who are often bound to strict legal and governance standards, serve as potential explanations. The ease of obtaining debt capital favours investment as investors often resent to financial leverage in order to enforce management's cash flow focus and generate additional returns. Confirming Black and Gilson (1998) and Gompers and Lerner (2000), we find that liquid stock markets, i.e., stocks traded as a percentage of GDP, attract investment. Contrary, we find that sizeable, voluminous stock market capitalisations impede investment. Again, we attribute this finding to the partial redundancy of the two stock market measures. Moreover, the market capitalisation includes information about varying valuation levels over time and across markets, which in turn affect the investment decisions of private equity funds. Hence, the presence of cyclicality might cause the market capitalisation to be an imperfect measure of stock market size.

Analysing the subsets of developed- and developing countries, we find further evidence for a non-linear influence of corruption. While freedom from corruption drives private equity investment across the complete dataset, the estimated effect is negative within both groups of countries. In other groups of control variables, we find certain differences in the relevant determinants for each group of countries. However, the requirements for local capital markets are

identical, backing the hypothesised importance of foreign investors and their respective investment criteria for developing capital markets.

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier	All Markets	Developed	Emerging & Frontier
Unit of Measurement	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)
Corruption Perceptions Index	0.0261 **	-0.0065	-0.0341 *	0.0281 **	-0.0082	-0.0340 *
Getting Credit DTF	0.0305 **	0.0195	0.0208	0.0300 **	0.0209	0.0215
Real interest rate	0.0634	-0.0166	0.0593	-	-	-
Bank Nonperforming loans	-0.0276	0.0087	-0.0098	-	-	-
Market Cap	-0.0219 ***	-0.0157 ***	-0.0060	-0.0215 ***	-0.0158 ***	-0.0054
Stocks traded, total value	0.0394 ***	0.0255 ***	0.0439 ***	0.0387 ***	0.0256 ***	0.0436 ***
Constant	1.8823	6.5469 **	3.6832 ***	1.9729 **	6.5260 ***	3.8486 ***
Obersavtions	62	22	40	62	22	40
R-Squared	0.6350	0.5842	0.5952	0.6177	0.5833	0.5621
F-Statistic	15.9455 ***	3.5124 **	8.0870 ***	23.0244 ***	5.9498 ***	11.2308 ***

Table 6. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on corruption (measured by the Corruption Perceptions Index) controlling for indicators of the development and quality of Capital Markets (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. On the left hand, we report the results of the initial analysis. On the right hand, we report the results of reduced-form models, i.e., after excluding the variables with the least significant coefficient estimates. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

Entrepreneurial Opportunities

The control variables in the group concerning entrepreneurial opportunities measure the ease of starting a business, the density of new businesses and expenditures on research and development as a proxy for innovation. Contrary to the other control groups of control variables, we find a non-significant coefficient estimate of 0.0287 for the CPI (Table 7). The R^2 of the model is 44.3% and the F-Statistic of 11.5 points to mutual significance of the independent variables at the 1% confidence level.

Both the factors density of new businesses and the ease of starting a business are insignificant. Despite high correlations with private equity activity, the variables could be imperfect proxies for innovation, entrepreneurial spirit, and institutional stimulation. Confirming Gompers and Lerner (1998), R&D expenditure as a percentage of GDP is positive and significant at the 1% confidence level. We infer that technological opportunities spur the investment climate and attract investors across the private equity field.

Running the reduced model regression with only R&D expenditure as a control variable increases the F-Statistic to 22.6, does not yield further insight.

Models specified to the regions change the sign of the CPI scores in both the overall, and the reduced model. Though insignificant, this again suggests that corruption matters when making a large step from developing to developed countries, but less so within the separate groups of country with broadly similar corruption characteristics. R&D expenditure is significant and positive in 'Emerging- & Frontier' markets, but not in 'Developed' markets.

ENTREPRENEURIAL OPPORTUNITIES

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier	All Markets	Developed	Emerging & Frontier
Unit of Measurement	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)
Corruption Perœptions Index	0.0287	-0.0147	-0.0236	0.0265	-0.0118	-0.0298
Ease of Starting a Business DTF	-0.0153	0.0351	-0.0065	-	-	-
New business density	0.0407	-0.0722	-0.0172	-	-	-
Research and development expenditure	1.0276 ***	-0.4103	1.3470 **	0.9783 ***	-0.1121	1.3480 ***
Constant	3.4471 ***	7.4577 **	4.7027 ***	2.7758 ***	8.8172 ***	4.5323 ***
Obersavtions	63	22	41	63	22	41
R-Squared	0.4427	0.1100	0.2305	0.4302	0.0270	0.2264
F-Statistic	11.5166 ***	0.5252	2.6966 **	22.6485 ***	0.2634	5.5596 ***

Table 7. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on corruption (measured by the Corruption Perceptions Index) controlling for indicators of Entrepreneurial Opportunities (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. On the left hand, we report the results of the initial analysis. On the right hand, we report the results of reduced-form models, i.e., after excluding the variables with the least significant coefficient estimates. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

Human & Social Environment

Our control variables describe the human and social environment by measuring logistical and infrastructure performance, the extent of urbanization, labour freedom and the percentage of labour force with tertiary education. The model (Table 8) explains 69.0% of the variation, with mutually significant independent variables at the 1% confidence level, as indicated by an F-Statistic of 26.8. Across all markets, we find a negative effect of the CPI, which is significant at 5% level—an opposing estimate compared to the other results.

For the other control variables, the coefficient estimates for the labour force with tertiary education and logistical performance are positive and significant the 5% and 1% levels respectively.

Qualified labour force is thus a suitable proxy measure for the quality of entrepreneurial and management competence, as established by Chu and Hisrich (2001) and Farag et al. (2004). Logistic performance is closely linked to the infrastructural quality, a crucial aspect for manufacturers alike.

We run the reduced model with the significant variables, which improves the F-Statistic to 45.0, but has little effect otherwise. Models specific for the 'Developed-' and 'Emerging- & Frontier' markets consistently yield significant, but negative coefficient estimates for the CPI, though the effect seen is larger in developed markets. Labour force with tertiary education has stronger positive effects in developed markets.

HUMAN AND SOCIAL ENVIRONMENT

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier	All Markets	Developed	Emerging & Frontier
Unit of Measurement	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)
Corruption Perceptions Index	-0.0366 **	-0.0877 **	-0.0447 *	-0.0361 **	-0.0866 ***	-0.0450 *
Labour force with tertiary education	0.0472 **	0.0878 *	0.0197	0.0426 **	0.0759 *	0.0181
Logistics performance index	4.8706 ***	5.7820 ***	3.7304 ***	4.6870 ***	5.4686 ***	3.6709 ***
Urban population	-0.0118	-0.0290	-0.0028	-	-	-
Labor Freedom	0.0052	0.0097	0.0021	-	-	-
Constant	-9.2170 ***	-8.6902	-5.4507 *	-9.0220 ***	-8.8636	-5.2749 **
Obersavtions	66	23	43	66	23	43
R-Squared	0.6904	0.4762	0.3757	0.6851	0.4399	0.3749
F-Statistic	26.7608 ***	3.0916 **	4.4535 ***	44.9661 ***	4.9741 **	7.7956 ***

Table 8. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on corruption (measured by the Corruption Perceptions Index) controlling for indicators of the Human and Social Environment (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. On the left hand, we report the results of the initial analysis. On the right hand, we report the results of reduced-form models, i.e., after excluding the variables with the least significant coefficient estimates. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

Taxation

Finally, we group control variables related to taxation. The variables cover both the extent of taxation measured through profit tax, and the aspects of tax related bureaucracy. Perceived corruption scores are statistically relevant at the 1% level. Table 9 shows a positive coefficient estimates for the CPI is positive with an effect of 0.0683. The model explains 49.5% of the variation, with an F-Statistic of 16.9, indicating mutually significant independent variables at the 1% level with good explanatory power.

Out of three control variables, the number of tax payments is the only non-significant. The positive direction of the profit tax variable, be it small, could strike as remarkable. However, higher corporate tax rates could be associated with more economically developed nations with corresponding institutions. Indeed, the correlation matrix suggest the correlation between the profit tax and GDP is strong at 0.50. However, Romain and van Pottelsberghe de la Potterie (2004) and Gompers and Lerner (1998) find opposite directions for income- and capital gains tax, respectively.

Running the reduced regression model without the number of tax payments confirms the initial findings. R-Squared falls to 48.3%, the F-Statistic rises to 21.8 and we see a falling constant. All remaining variables stay significant.

Splitting the data into 'Developed-' and 'Emerging & Frontier' markets, we find that corruption is not significant anymore. The positive effect of higher profit taxes in developed market appears substantially stronger in developed countries. The taxation model fits developed markets (R²: 0.50) better than emerging and frontier markets (R²: 0.20).

TAXATION

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier	All Markets	Developed	Emerging & Frontier
Unit of Measurement	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)	LN ($m)
Corruption Perceptions Index	0.0683 ***	-0.0357	0.0097	0.0760 ***	-0.0348	0.0268
Profit tax	0.0875 ***	0.1402 ***	0.0486	0.0914 ***	0.1412 ***	0.0548
Number of tax payments	-0.0157	-0.0066	-0.0211	-	-	-
Time spent on tax issues	0.0018 **	-0.0094 *	0.0018 **	0.0018 **	-0.0095 *	0.0018 **
Constant	-0.9087	8.2897 **	2.2540	-1.7595	8.1229 **	0.8176
Obersavtions	74	22	52	74	22	52
R-Squared	0.4953	0.5008	0.2505	0.4831	0.5002	0.2003
F-Statistic	16.9300 ***	4.2636 **	3.9281 ***	21.8118 ***	6.0053 ***	4.0070 **

Table 9. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on corruption (measured by the Corruption Perceptions Index) controlling for the influence of Taxation (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. On the left hand, we report the results of the initial analysis. On the right hand, we report the results of reduced-form models, i.e., after excluding the variables with the least significant coefficient estimates. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R², and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

Comprehensive Model – Private Equity Activity measured in Logarithmic Total Transaction Values

Our prior analyses reveal freedom from corruption to favour private equity investment when separately controlling for key indicators covering *Legal* aspects, *Economic Activity*, *Capital Markets*, and *Taxation*. Controlling for the influence of *Entrepreneurial* Opportunities, we find further non-significant indication of a positive effect, while controlling for the influence of the *Human and Social Environment* produces a contradictory result with a significant, negative effect of the CPI. While these results lend credibility to our hypothesis of corruption as a barrier to private equity investment, another explanation might stress the Corruption Perception Index's characteristics as a proxy of socioeconomic and societal characteristics, which are not covered in the categorically separated regressions. We turn to a comprehensive model, i.e., a regression of the logarithmic total transaction values on the Corruption Perceptions Index and the most relevant control variables as identified in the previous regressions. The following discussion of our results draws on Table 10 for the values of estimates and the assessment of their statistical quality, as well as on Appendix X for the interpretation of the estimates. If appropriate, we touch upon differences between the two subsets of developed- and emerging- and frontier markets.

The independent- and control variables are mutually significant at the 1 % level, with an F-statistic of 32.2. The variables mutually possess substantial explanatory power, as indicated by an R^2 of 90.1. An assessment of our results concerning the impact of corruption on private equity investment requires a review of all individual factor estimates, an assessment of their quality and their interpretation. Out of 77 countries in the subset, we find complete data for 60 countries. The accuracy of individual factor estimates suffers from the relatively high number of fourteen estimated coefficients, including the constant. Multicollinearity in the data inflates the standard errors of the estimates. In this light, we consider any evidence of individual significance strong proof of the respective variable's relevance to cross-country private equity activity.

Controlling for the comprehensive set of indicators, we identify the level of corruption as an integral, underlying determinant of cross-country private equity activity, thus confirming Hypothesis 1. We find a positive factor estimate of 0.0316 with a t-statistic of 2.38, indicating significance at the 5% confidence level. Hence, a reduction in perceived corruption, resulting in an increase in the Corruption Perceptions Index by one standard deviation, increases the absolute private equity investment, i.e., private equity activity measured in US Dollars, by 67.6% (see Appendix X; Benoit, 2011). While the estimate may strike high, countries suffering from high perceived corruption, i.e., those countries that stand to gain the most ground, often have private equity activity levels at such low levels that the absolute US Dollar increase is limited. Furthermore,

the large cross-country variation in CPI scores does not translate to variation in the CPI scores per country over time. This stickiness of corruption over time implies that a one-standard-deviation improvement in CPI scores requires long time frames. Between 2006 and 2014, only Poland achieved such substantial improvements (see Table 2), translating into an increase in the annually invested private equity capital by more than 50% over the same period.

Separate regressions for the subsets of developed- and developing countries do not yield reliable results concerning the effect of corruption on private equity activity, i.e., the factor estimates for the CPI. The non-significant estimates show a positive value in developing countries (average CPI: 40.7) and a negative value in developed countries (average CPI: 78.1). We partially attribute the insignificant results to further reduction of sample sizes. Nevertheless, we use the results in an attempt to refine our understanding of the exact form of the relationship. First, be it on different levels, CPI scores in both subsets show similar levels of dispersion with standard deviations of 12.4 and 12.5. Larger variation in CPI scores across all countries, with a standard deviation of 21.2, defines a considerable part of the differences in private equity activity, while smaller differences in CPI scores do not allow for reliable insight into the capital allocation to specific countries. The significance of the factor estimates in all countries, and non-significance of the respective factor estimates in the subsets suggest that major differences of perceived corruption have disproportionately stronger influence on private equity activity compared with minor ones. This implies that countries might see effects on private equity activity only if perceived corruption levels change by several points over time. Secondly, consistent with Hypothesis 2, in developed countries, we see a minor non-positive effect of freedom on corruption on private equity activity. Again, this points to a non-linear effect of corruption on private equity activity. We elaborate further on this hypothesis in the section *Corruption Quartiles*.

We review the estimates and coefficients of the control variables to assess the overall quality of our model. In our assessment of the coefficient estimates, we interpret the estimated effect of an increase in the independent variables by one standard deviation on private equity activity measured in US Dollars ('absolute private equity investment'), in order to facilitate an intuitive understanding and the comparability of the effects (see Appendix X). Where differences with the separate regression analyses exist, we elaborate on how we attribute these findings.

COMPREHENSIVE MODEL - TRANSACTION VALUES

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier
Unit of Measurement	LN ($m)	LN ($m)	LN ($m)
Corruption Perceptions Index	0.0316 **	-0.0164	0.0228
Legal			
Common Law	0.8179 *	0.8001	0.4086
Economic Activity			
GDP	1.1010 ***	0.6594	1.3138 ***
Trade	0.0035	0.0020	0.0127
Unemployment	0.0945 ***	0.1101	0.0884 *
Capital Markets			
Getting Credit DTF	-0.0060	-0.0111	-0.0008
Market Cap	-0.0031	-0.0137	0.0056
Stocks traded, total value	0.0031	0.0137	-0.0073
Entrepreneurial Activity			
Research and development expenditure	0.2725	0.3138	0.7198 *
Human and Social Environment			
Labour force with tertiary education	0.0016	0.0057	-0.0174
Logistics performance index	0.1646	1.2740	-1.1727
Taxation			
Corporate Tax Rate	-0.0022	0.0315	-0.0017
Time spent on tax issues	0.0005	-0.0093 **	0.0005
Constant	-11.7602 ***	-5.2075	-11.1072 ***
Obersavtions	60	22	38
R-Squared	0.9010	0.9465	0.8191
F-Statistic	32.2203 ***	10.8901 ***	8.3570 ***

Table 10. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transactions values) on corruption (measured by the Corruption Perceptions Index) controlling for the relevant indicators covering Legal aspects, Economic Activity, Capital Markets, Entrepreneurial Investments, Human and Social Environment, and Taxation, as selected in Tables 4−9 (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

Countries with legal systems rooted in common law receive more private equity investment. We find a factor estimate of 0.8179, which is significant at the 10% level with a t-statistic of 2.30. For countries with a common-law legal system the dummy variable takes the value of one, otherwise zero. Logarithmic total transaction values increase 0.82%, the equivalent of a

126.6% increase in the amount of US Dollars invested by private equity funds. Though in line with other literature, such as La Porta et al. (1998), this result is likely to be inflated by the United States and United Kingdom, by a margin the two largest private equity markets. Accordingly, we find a smaller effect in 'Emerging- & Frontier' markets.

Economic Activity strongly influences private equity activity. Significant at the 1% confidence level with a t-statistic of 5.30, the coefficient estimate of 1.1010 indicates a strong, positive impact of GDP. An increase in logarithmic GDP by one standard deviation translates into a 154.5% increase in absolute private equity investment. Unemployment rates drive investment, as indicated by the positive coefficient estimate of 0.0945, which is statistically significant at the 1% level with a t-statistic of 3.35. A rise in the unemployment rate by one standard deviation triggers a 44.3% increase in absolute private equity investment. We find merely weak evidence to support the notion that higher levels of trade benefit private equity activity.

The comprehensive model offers poor evidence of *Capital Markets* as key determinants of private equity activity. We attribute this contradiction compared to Table 6 to (i) increased uncertainty in our estimates resulting from the larger number of independent variables, and (ii) the ability of other control variables to partly explain the variation in the variables describing the development and quality of capital markets. No factor estimate is individually significant. The direction of the effect of access to credit financing changes, compared to a positive value in Table 6. For every increase by one standard deviation in the 'Getting Credit DTF', we find a 10.5% decrease in private equity capital invested. Every upward-notch by one standard deviation in the market capitalisation as a percentage of GDP reduces absolute private equity investment by 14.8%. We find a positive effect of trading volumes. Every one-standard-deviation increase in Stocks Traded as a fraction of GDP increases absolute private equity investment by 13.8%. In 'Emerging- & Frontier' Markets, the switch in signs between the coefficients for market capitalisation and trading volumes reiterates the assumed partial redundancy and multicollinearity.

We find that *Entrepreneurial Opportunities*, which arise in innovative societies and economies, attract private equity investors. The non-significant coefficient of 0.2725 for 'Research and Development Expenditure' as a percentage of GDP, however, does not allow for a firm judgement over its relevance. In the model, an increase in R&D spending by one standard deviation translates into a 33.2% surge in the private equity capital invested. We find this effect to be stronger and statistically significant at 10% in emerging markets.

We find slight, positive effects of the variables covering *Human and Social Environment* on private equity activity. With a non-significant coefficient of 0.1646, an improvement in the

perceived quality of a country's infrastructure, measured by an increase in the 'Logistics Performance Index' by one standard deviation, causes an 8.9% increase in absolute private equity investment. Likewise, the non-significant coefficient for the fraction of 'Labour Force with Tertiary Education' does only have a minor influence. Based on the non-significant coefficient of 0.0016 an increase in the availability of highly skilled labour force, leading to an increase in said fraction by one standard deviation, translates into a 1.7% increase in private equity activity. However, unstable and non-significant coefficients for the two subsets undermine the credibility of the estimates further.

Evidence of the influence of taxation is weak, with small and non-significant coefficient estimates. We obtain a non-significant, negative factor of -0.0022 for Corporate Tax Rates. Hence, a tax reduction by one standard deviation stimulates an additional 1.8% in absolute private equity investment. Based on the non-significant, positive coefficient of 0.0005, private equity activity is estimated to increase by 18.9% for increase in 'Time Spent on Tax Issues' by one standard deviation.

We conclude that corruption, among predominantly economic and legal aspects, acts as an important determinant of cross-country private equity activity. Based on the average logarithmic total transaction values (Developed: 7.8; Emerging & Frontier: 3.8) and CPI scores (Developed: 78.1; Emerging & Frontier: 40.7), our model attributes c. 30% of the gap between private equity investment in developed- and developing countries to differences in perceived corruption levels.[1] A high degree of multicollinearity and limited degrees of freedom in our estimations, resulting from limited sample size and a large number of independent variables, increase the standard errors of our individual coefficient estimates and thus inhibit firm conclusions at times. However, with our selection of variables, approach and multiple analyses we consider our results and its implications to hold firmly.

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[1] The gap between developing- and developed markets in the average CPI scores amounts to 37.4 points. According to our estimates, developing countries can therefore attract c. 1.2 in additional logarithmic private equity investment by closing this gap. This is equivalent to c. 30% of the difference in average logarithmic total transaction values.

Comprehensive Model – Alternative Specifications

We add to and test our findings by means of varying model specifications. Thus, we replace the logarithmic private equity transaction values with the logarithmic transaction numbers. For comparability, we restrain from changing any of the control variables. Hence, the comprehensive model is otherwise identical in construction.

Table 11 presents a positive coefficient estimate for perceived corruption, which is significant at the 5% confidence level. The factor of 0.0285 translates to an increase by 61.0% in number of deals, for each improvement by one standard deviation on the Corruption Perception Index (see Appendix XI). The alternative model specification delivers similarly reliable results, as indicated by an R^2 of 85.8% and an F-statistic of 21.4. The regressions for the subsets of country groups show positive, slightly smaller factors for the CPI, but are not individually significant.

The coefficient estimates for the common law dummy, GDP, and unemployment rates remain individually significant and positive. Compared to the analysis of logarithmic transaction values, the analysis of logarithmic transaction numbers yields a more pronounced coefficient estimate for research and development expenditure, which is individually significant at a 10% level—a potential indication that innovation attracts venture capital rather than buyout capital, translating in larger numbers of smaller deals. Furthermore, we find a positive, though small and insignificant effect of access to credit financing.

Hence, we confirm the robustness of our results to varying model specifications. Separate regressions of private equity activity, measured by both transaction values and numbers, yield mostly consistent findings with respect to the directions and sizes of individual relationships as well as the mutual and individual significance of the respective estimates. Furthermore, the results also add additional insight. Average deal size in developed markets is higher than in emerging and frontier markets, potentially altering the magnitude of the effect. Knowing that corruption affects private equity activity in terms of transaction values and numbers has further implications.

For example, given the importance of a vibrant and growing SME sector, developing countries increasingly try to foster such entrepreneurial, private sector opportunities (Beck, 2007; Yago et al., 2007). Governments in these countries may well focus on number of deals over the aggregate size of deals. The positive effects of private equity, moreover, might affect economies differently whether it is invested in few large companies, or many smaller ones. It is not unlikely that markets relatively new to private equity will initially attract investors allocating smaller stakes of their risk capital. Hence, the smaller deals could form a catalyst or stepping stone to larger ones.

Indeed, smaller deal sizes give more way for risk diversification. Hence, a policy trying to attract more private equity investments could involve a strategy aiming at number of deals over total transaction value.

COMPREHENSIVE MODEL - TRANSACTION NUMBERS

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier
Unit of Measurement	LN (Deals)	LN (Deals)	LN (Deals)
Corruption Perceptions Index	0.0285 **	0.0126	0.0131
Legal			
Common Law	0.6201 *	0.7570	0.1624
Economic Activity			
GDP	0.8026 ***	0.8586	0.7924 ***
Trade	0.0028	0.0054	0.0083
Unemployment	0.0782 ***	0.1232	0.0519
Capital Markets			
Getting Credit DTF	0.0016	-0.0122	0.0080
Market Cap	-0.0038	-0.0143	0.0042
Stocks traded, total value	0.0025	0.0094	-0.0054
Entrepreneurial Activity			
Research and development expenditure	0.3174 *	0.5689	0.5141 *
Human and Social Environment			
Labour force with tertiary education	0.0047	-0.0077	-0.0064
Logistics performance index	-0.6584	-1.4559	-1.3369
Taxation			
Corporate Tax Rate	0.0099	0.0381	0.0105
Time spent on tax issues	0.0001	-0.0097 **	0.0002
Constant	-8.4697 ***	-3.3900	-6.4807 ***
Obersavtions	60	22	38
R-Squared	0.8579	0.8917	0.7329
F-Statistic	21.3566 ***	5.0686 **	5.0657 ***

Table 11. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transactions numbers) on corruption (measured by the Corruption Perceptions Index) controlling for the relevant indicators covering Legal aspects, Economic Activity, Capital Markets, Entrepreneurial Investments, Human and Social Environment, and Taxation, as selected in Tables 4−9 (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

Another alternative model specification measures private equity activity in transaction values as a percentage of GDP. Under this approach, a multivariate OLS regression on the unchanged independent variables fails to produce reliable results (see Appendix XII). A drop in both R^2 to 46.2% and the F-statistic to 3.0, indicating mutual significance of the independent variables at the 1% confidence level, implies a lower explanatory power of this model specification—though both values still indicate a certain extent of goodness-of-fit. Although individually insignificant in most instances, the signs of the estimated coefficients across all countries reiterate previous findings. However, we find no significant effect of corruption on private equity activity. We confirm the individual significance of the common-law dummy at the 5% confidence level and of the unemployment rate at the 10% confidence level, with t-statistics of 2.6 and 2.1 respectively. We believe the results of previous analyses better suit our hypotheses, due to stable findings with respect to the signs of the coefficient estimates and higher explanatory powers of the particular models' specifications, i.e., the functional form with investment as a percentage of GDP appears less appropriate for our purposes.

Corruption Quartiles

By nature, corruption is not directly quantifiable. Picking up on previous differences in the results between the complete dataset and the subsets, we drop the assumption of a linear relationship between the Corruption Perceptions Index and private equity activity. Allowing for the identification of a non-linear relationship, such as the dominance of relative levels of corruption over precise differences in the index scores, we divide the countries in our sample into quartiles according to their Corruption Perceptions Index scores (see Appendix XIII).

We select the top quartile, comprising of countries with Corruption Perceptions Index score exceeding 70.2, as our reference group and create dummy variables for country membership in each the lower three quartiles of Corruption Perceptions Index scores. Controlling for the comprehensive set of relevant determinants of private equity activity, we then run a multivariate OLS regression of the logarithmic annual-average total transaction values on these indicators of relative corruption levels. With an R^2 of 90.4% and an F-statistic of 27.6, the independent variables possess substantial explanatory power and are mutually significant at the 1% level (Table 12).

Statistically significant at the 10% level, coefficient estimates of -1.1499 (t-statistic: 2.14) and -1.3629 (t-statistic: 2.16) for the lower two quartiles confirm the previously identified, pronounced and negative effect of perceived corruption on cross-country private equity activity. The non-significant coefficient estimate of -0.3256 for the third quartile further indicates a negative impact of slightly elevated corruption levels. Based on logarithmic private equity transaction

numbers, the above analysis yields consistent, yet individually non-significant coefficient estimates for the corruption-quartile dummy variables (Appendix XIV).

COMPREHENSIVE MODEL - CPI QUARTILES

Private Equity Activity in:	All Markets
Unit of Measurement	LN ($m)
Corruption Perceptions Index	
Q2 < CPI <= Q3	-0.3256
Q1 < CPI <= Q2	-1.1499 *
Min < CPI <=Q1	-1.3629 *
Legal	
Common Law	0.8913 **
Economic Activity	
GDP	1.0376 ***
Trade	0.0014
Unemployment	0.0861 **
Capital Markets	
Getting Credit DTF	-0.0074
Market Cap	-0.0026
Stocks traded, total value	0.0026
Entrepreneurial Activity	
Research and development expenditure	0.2484
Human and Social Environment	
Labour force with tertiary education	0.0006
Logistics performance index	0.6463
Taxation	
Corporate Tax Rate	-0.0036
Time spent on tax issues	0.0005
Constant	-9.7575 ***
Obersavtions	60
R-Squared	0.9041
F-Statistic	27.6673 ***

Table 12. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on relative corruption levels (measured by dummy variables indicating membership in one of the lower three quartiles on the Corruption Perceptions Index) controlling for the relevant indicators covering Legal aspects, Economic Activity, Capital Markets, Entrepreneurial Investments, Human and Social Environment, and Taxation, as selected in Tables 4−9 (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. For the regression model, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

The pattern in our coefficient estimates supports our second hypothesis of a non-linear dependence of private equity investment on corruption. The results predict the transition from the second quartile to the third quartile, i.e., from the bottom 50% to the top 50% of countries, to yield the most pronounced gains in attractiveness to private equity investors, as indicated by the large difference between the respective coefficient estimates.

Investor geographies

We do not find sufficient evidence in support of Hypothesis 3. Analysis shows that there is no relationship between perceived corruption levels and the geography of investors, i.e., differences in perceived corruption levels do not affect the extent of foreign- or locally driven private equity markets.

In our regression, we use the perceived corruption levels, the fraction of the total number of deals involving at least one foreign investor (qualified on the investor's headquarters), and their interaction term in attempt to explain the average number of private equity transactions per country from 2006 to 2014, controlling for GDP (Table 13). Despite significant, positive coefficient estimates for the CPI and GDP, confirming earlier findings, the variables measuring foreign activity and interaction are insignificant. Based on logarithmic private equity transaction values, the above analysis yields unstable results (Appendix XV). We therefore do not see the potential for a reliable interpretation of the estimates.

Globally, we attribute this to larger local private equity presence in developed markets. While we expect USA domiciled private equity funds to invest to some extent in emerging markets, vice versa we deem equivalent activity less likely. However, the results of the regression run separately on 'Emerging- & Frontier' markets are equally unsatisfactory. We interpret the apparent non-existence of the relationship in developing countries to the following aspects: (i) fewer qualified and active private equity funds in developing countries, thus increasing foreign investor presence as a percentage of total, despite higher corruption levels; (ii) the data on private equity transactions in developing countries from CapitalIQ is biased towards deals that involve foreign investors (see section 4. Data Collection), and; (iii) higher perceived corruption levels may have similar effects on local- and foreign investors.

INTERACTION STUDY - INVESTOR LOCATION - TRANSACTION NUMBERS

Private Equity Activity in:	All Markets	Developed	Emerging & Frontier
Unit of Measurement:	LN (Deals)	LN (Deals)	LN (Deals)
Corruption and Investor Location			
Corruption Perceptions Index	0.0290 **	0.0237	-0.0209
Deals w/ Foreign Investors	-0.0085	0.0127	-0.0299 *
Interaction Term	-0.0002	-0.0004	0.0003
Economic Activity			
GDP	0.6100 ***	0.7498 ***	0.4935 ***
Constant	-5.2393 ***	-6.9570	-1.8252
Obersavtions	76	23	53
R-Squared	0.8355	0.6763	0.7153
F-Statistic	90.1717 ***	9.4032 ***	30.1493 ***

Table 13. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction numbers) on corruption (measured by the Corruption Perceptions Index), the percentage of deals with foreign-investor involvement, and a corresponding interaction term controlling for GDP (see Appendix IV for definitions, measurement, and sources). The analysis is based on annual averages over the period 2006−2014. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

6. Conclusion

This paper presents the first quantitative in-depth study of the relationship between private equity investment and corruption, based on newly assembled data of 69,518 private equity transactions. We control for a comprehensive set of economic, legal, and societal determinants of private equity activity. Our research stresses the adverse effects of perceived corruption levels on private equity activity. We estimate that c. 30% of the gap in annual logarithmic private equity investment between developed- and developing countries are attributable to corruption.

An increase in the Corruption Perception Index by one standard deviation, roughly equivalent to improving from the level of South-Africa to that of the United Arab Emirates, fosters a 67.6% increase in US Dollar private equity investment. Nevertheless, corruption does not significantly influence capital allocation decisions within the subsets of developed- and developing markets, implying a non-linear relationship. We find some evidence that countries around the median corruption score, those countries in the second and third quartile, receive relatively larger

private equity capital increases for similar improvements in perceived corruption. This finding suggests that countries may be considered more investable once sufficiently free from corruption. We do not find evidence suggesting a relationship between corruption and the domicile of the private equity investor, thus affecting foreign- or domestic capital flows differently.

Regressions based on varying model specifications, altering both dependent and independent variables, confirm the robustness of our findings. However, reliable statistical data, in particular for private equity, is scarce in developing countries, potentially introducing a bias towards large, prominent, and generally better-covered developed markets in our data set. Measurement differences among national statistical offices may affect the control variables. Furthermore, multicollinearity inflates the standard errors. Overall, this requires us to interpret the results cautiously.

Our research gives rise to additional, unanswered questions. We concisely define three areas for future research. First, the relationship between investor geographies and the geographical distribution of private equity activity calls for further analysis. One possible determinant of a fund manager's appetite to invest in a country with greater corruption, could be the corruption levels in the country in which the fund manager is domiciled. Private equity investors domiciled in more corrupt countries build experience in dealing with the ethical and practical challenges corruption imposes. Thus, the experience may make the investor more willing to take up the challenges in other such markets. If the relationship were to be proved, this has implications for the direction of efforts developing governments might take to attract foreign private capital inflows.

Second, the findings in this paper are based on perceived corruption levels in the public sector. Appropriate on a country level, the findings do not necessarily translate directly into specific industries. Interaction between industry- and overall perceived corruption levels in a country can yield deeper, specific insights. We suggest a potential negative relationship between public- and private sector corruption levels, i.e., private equity fund managers investing in countries with high perceived public corruption levels, may attempt to mitigate risks by picking in industries that are less prone to corruption.

Third, it appears promising to research the interaction between our research and that of Cumming et al. (2010), who find that higher corruption levels relate to higher returns for private equity investors in Asia. Improved returns could be a result of limited private equity activity, resulting in less elevated entry valuations. Similarly, higher corruption levels impose larger risk, which might drive investors to invest only in those companies that promise higher expected returns from the outset. Alternatively, the returns could be driven by increased potential for operational

value-add in countries with higher corruption. The interplay between the variables of perceived corruption, private equity activity, and private equity returns, may thus deserve further study.

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Appendix
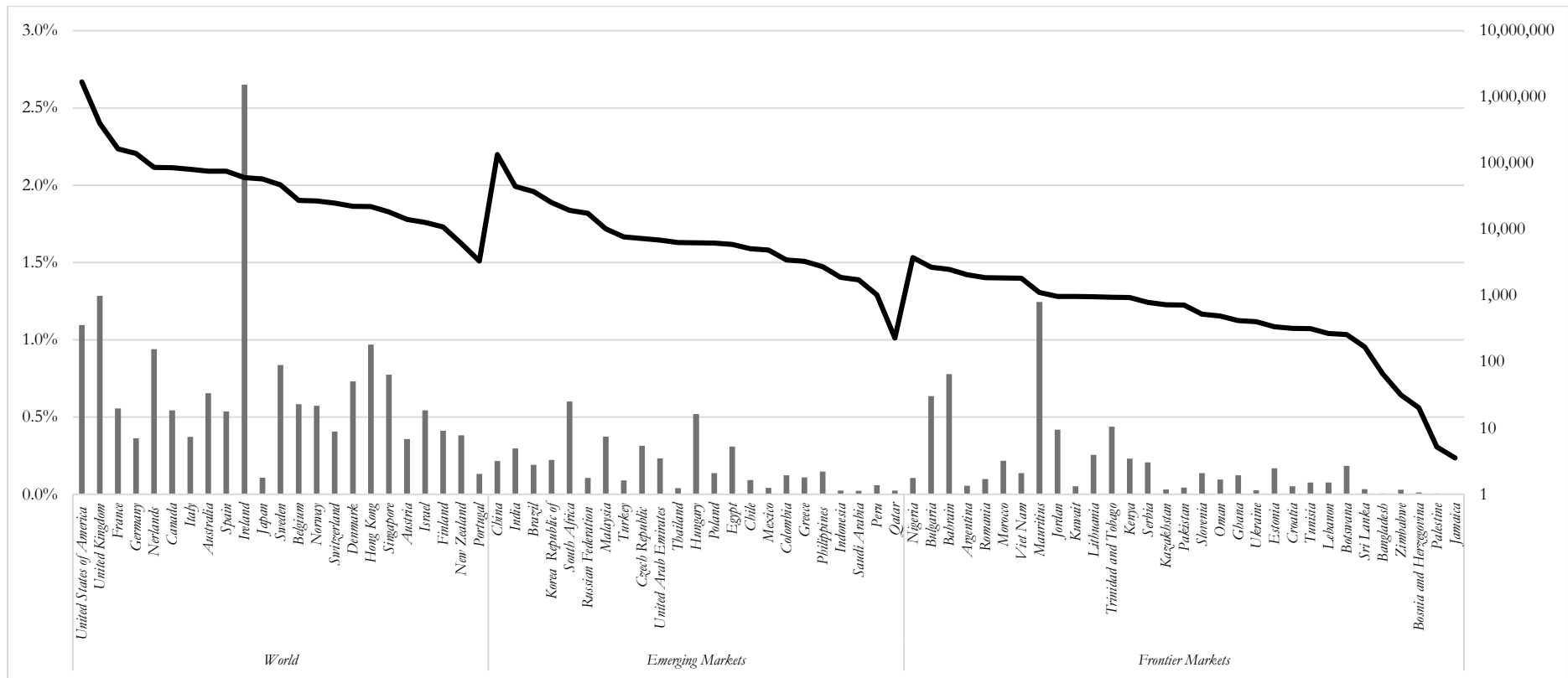
I. Average private equity investment per year as % of GDP (left axis, bar chart) and as the total US Dollar logarithmic absolute value (right axis, line chart) 2006-2014. Countries are grouped by MSCI classification.

Comparative Net "End-to-End" Returns as of June 30, 2011		
United States Private Equity Index	*Western Europe Private Equity Index*	*Emerging Markets VC & PE Index*
3 Years	**6.6%**	**1.1%**	**11.2%**
5 Years	**10%**	**11.3%**	**15.5%**
10 Years	**11.4%**	**19.3%**	**12.1%**
15 Years	**12.5%**	**18.8%**	**9.7%**

II. Returns on public indices. End-to-end returns for various time periods ending June 30,2011 on public market baskets (Wilton, 2012 – adapted from Cambridge Associates)

Percentage of respondents
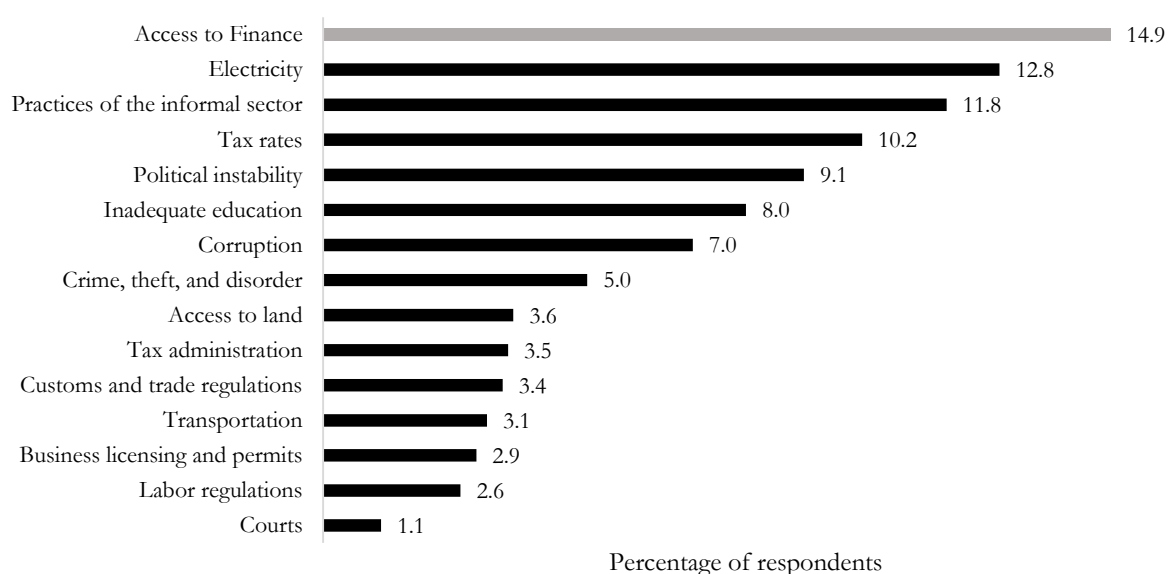
III. Constraints for growth. Reported percentages of SME managers across worldwide geographies experiencing issues in growing their businesses (Leeds, 2015 – Adapted from The World Bank (2014), ***Enterprise Surveys***)**

Category	Variable	Definition	Source
Legal	Common Law (1 is Common Law, 0 is Other)	Dummy variable indicating whether a country's legislative system is based on Common Law or another system (e.g. Civil Law).	La Porta et al. (1998)
	Enforcing Contracts DTF	Measures the time and cost for resolving a commercial dispute through a local first-instance court. In addition, this year it introduces a new measure, the quality of judicial processes index, evaluating whether each economy has adopted a series of good practices that promote quality and efficiency in the commercial court system.	World Bank Doing Business
	Protecting (Minority) Investors DTF	Measures the strength of minority shareholder protections against misuse of corporate assets by directors for their personal gain as well as shareholder rights, governance safeguards and corporate transparency requirements that reduce the risk of abuse.	World Bank Doing Business
Economic Activity	Total GDP (LN, current $m)	GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. Dollar figures for GDP are converted from domestic currencies using single year official exchange rates. For a few countries where the official exchange rate does not reflect the rate effectively applied to actual foreign exchange transactions, an alternative conversion factor is used.	World Bank, OECD
	GDP per Capita (LN, current $)	GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars.	World Bank, OECD
	GDP Growth (annual %)	Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2005 U.S. dollars. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources.	World Bank, OECD
	Unemployment (% of total labour force)	Unemployment refers to the share of the labour force that is without work but available for and seeking employment.	International Labour Organization
	Trade (% of GDP)	Trade is the sum of exports and imports of goods and services measured as a share of gross domestic product.	World Bank, OECD
Capital Markets	Stocks traded (total value as % of GDP)	The value of shares traded is the total number of shares traded, both domestic and foreign, multiplied by their respective matching prices. Figures are single counted (only one side of the transaction is considered). Companies admitted to listing and admitted to trading are included in the data. Data are end of year values.	World Federation of Exchanges database.
	Market Capitalisation (% of GDP)	Market capitalisation (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies. Investment funds, unit trusts, and companies whose only business goal is to hold shares of other listed companies are excluded. Data are end of year values.	World Federation of Exchanges database.

	Bank Non-Performing Loans (% of total gross loans)	Bank nonperforming loans to total gross loans are the value of nonperforming loans divided by the total value of the loan portfolio (including nonperforming loans before the deduction of specific loan-loss provisions). The loan amount recorded as nonperforming should be the gross value of the loan as recorded on the balance sheet, not just the amount that is overdue.	International Monetary Fund, Global Financial Stability Report
	Real Interest Rate (%)	Real interest rate is the lending interest rate adjusted for inflation as measured by the GDP deflator. The terms and conditions attached to lending rates differ by country, however, limiting their comparability.	IMF, using World Bank data on GDP deflator
	Getting Credit DTF (0-100)	Measures the strength of credit reporting systems and the effectiveness of collateral and bankruptcy laws in facilitating lending.	World Bank Doing Business
Entrepre-neurial Opportunities	Starting a Business DTF	Measures the paid-in minimum capital requirement, number of procedures, time and cost for a small- to medium-sized limited liability company to start up and formally operate. To make the data comparable across 189 economies, Doing Business uses a standardized business that is 100% domestically owned, has start-up capital equivalent to 10 times income per capita, engages in general industrial or commercial activities and employs between 10 and 50 people one month after the commencement of operations, all of whom are domestic nationals.	World Bank Doing Business
	New Business Density (new registrations per 1,000 people ages 15-64)	New businesses registered are the number of new limited liability corporations registered in the calendar year.	World Bank
	Research and Development Expenditure (% of GPD)	Expenditures for research and development are current and capital expenditures (both public and private) on creative work undertaken systematically to increase knowledge, including knowledge of humanity, culture, and society, and the use of knowledge for new applications. R&D covers basic research, applied research, and experimental development.	UNESCO Institute for Statistics
Human and Social Environment	Labour Force with Tertiary Education (% of labour force)	Labour force with tertiary education is the share of the total labour force that attained or completed tertiary education as the highest level of education.	International Labour Organization
	Logistics Performance Index (0-5)	Logistics Performance Index overall score reflects perceptions of a country's logistics based on efficiency of customs clearance process, quality of trade- and transport-related infrastructure, ease of arranging competitively priced shipments, quality of logistics services, ability to track and trace consignments, and frequency with which shipments reach the consignee within the scheduled time. The index ranges from 1 to 5, with a higher score representing better performance.	World Bank and Turku School of Economics
	Urban Population (% of total)	Urban population refers to people living in urban areas as defined by national statistical offices. It is calculated using World Bank population estimates and urban ratios from the United Nations World Urbanization Prospects.	World Bank
	Labour Freedom Index (0-100)	A quantitative measure that considers various aspects of the legal and regulatory framework of a country's labour market, including regulations concerning minimum wages, laws inhibiting layoffs, severance requirements, and measurable regulatory restraints on hiring and hours worked.	Heritage Foundation

Tax	Profit Tax (% of commercial profit)	Profit tax is the amount of taxes on profits paid by the business.	KPMG Global
	Number of Tax Payments (number per year)	Tax payments by businesses are the total number of taxes paid by businesses, including electronic filing. The tax is counted as paid once a year even if payments are more frequent.	World Bank Doing Business
	Time Spent on Tax Issues (hours per year)	The time it takes to prepare, file and pay (or withhold) the corporate income tax, value added or sales tax, and labour taxes, including payroll taxes and social contributions (in hours per year).	World Bank Doing Business

IV. Variable definitions. Groups, names (unit of measurement), definition and source of control variables used in our analyses.

World Market	Emerging Market	Frontier Market
East Asia & Pacific	**East Asia & Pacific**	**East Asia & Pacific**
Australia	China*	Viet Nam
Hong Kong	Indonesia	
Japan	Korea, Republic of	**Europe & Central Asia**
New Zealand	Malaysia	Bosnia and Herzegovina
Singapore	Philippines	Bulgaria
	Thailand	Croatia
Europe & Central Asia		Estonia
Austria	**Europe & Central Asia**	Kazakhstan
Belgium	Czech Republic	Lithuania
Denmark	Greece	Romania
Finland	Hungary	Serbia
France	Poland	Slovenia
Germany	Russia	Ukraine
Ireland	Turkey	
Israel		**Latin America & Caribbean**
Italy	**Latin America & Caribbean**	Argentina
Netherlands	Brazil	Jamaica
Norway	Chile	Trinidad and Tobago
Portugal	Colombia	
Spain	Mexico	**Middle East & North Africa**
Sweden	Peru	Bahrain
Switzerland		Jordan
United Kingdom	**Middle East & North Africa**	Kuwait
	Egypt	Lebanon
North America	Qatar	Morocco
Canada	Saudi Arabia	Oman
United States of America	United Arab Emirates	Palestine
		Tunisia
	South Asia	
	India	**South Asia**
		Bangladesh
	Sub-Saharan Africa	Pakistan
	South Africa	Sri Lanka
		Sub-Saharan Africa†
		Botswana
		Ghana
		Nigeria
		Kenya
		Mauritius
		Zimbabwe

V. Break-down of geographic regions as per MSCI definition. Countries subsequently grouped under their World Bank regional definition.

* Data sources differ in approaching Taiwan as a separate country or as part of China. Our research, for practical reasons, includes Taiwan as part of China.

† MSCI classifies the West African Economic and Monetary Union ('WAEMU'), consisting of Benin, Burkina Faso, Ivory Coast, Guinea-Bissau, Mali, Niger, Senegal and Togo, as a single market entity under Frontier Markets. We exclude these countries from our country-level analyses.

Number of Transactions	MSCI Group				
Primary Sector	World Markets	Emerging Markets	Frontier Markets	Other	Total
Consumer Discretionary	8,717	1,824	166	79	**10,786**
Row %	81%	17%	2%	1%	
Column %	15%	23%	16%	11%	16%
Consumer Staples	1,924	462	105	67	**2,558**
Row %	75%	18%	4%	3%	
Column %	3%	6%	10%	10%	4%
Energy	1,486	144	21	27	**1,678**
Row %	89%	9%	1%	2%	
Column %	2%	2%	2%	4%	2%
Financials	2,861	700	193	170	**3,924**
Row %	73%	18%	5%	4%	
Column %	5%	9%	19%	25%	6%
Healthcare	9,316	656	53	45	**10,070**
Row %	93%	7%	1%	0%	
Column %	16%	8%	5%	7%	14%
Industrials	8,419	1,031	115	73	**9,638**
Row %	87%	11%	1%	1%	
Column %	14%	13%	11%	11%	14%
Information Technology	21,648	2,303	223	75	**24,249**
Row %	89%	9%	1%	0%	
Column %	36%	29%	22%	11%	35%
Materials	2,997	434	56	48	**3,535**
Row %	85%	12%	2%	1%	
Column %	5%	5%	6%	7%	5%
Telecommunication Services	540	91	32	22	**685**
Row %	79%	13%	5%	3%	
Column %	1%	1%	3%	3%	1%
Utilities	674	157	26	38	**895**
Row %	75%	18%	3%	4%	
Column %	1%	2%	3%	5%	1%
Unclassified	1,194	232	26	48	**1,500**
Row %	80%	15%	2%	3%	
Column %	2%	3%	3%	7%	2%
Total No.	**59,776**	**8,034**	**1,016**	**692**	**69,518**
Row %	86.0%	11.6%	1.5%	1.0%	

VI. presents the aggregate number of private equity transactions in Developed-, Emerging-, and Frontier Markets as classified by MSCI (See Appendix V) for the years 2006-2014. Transactions are further divided by their industry definition as classified by CapitalIQ (where applicable).

Transaction Value (USDm)	MSCI Group				
Primary Sector	**World Markets**	**Emerging Markets**	**Frontier Markets**	**Other**	**Total**
Consumer Discretionary	676,110	72,300	1,897	13,719	**764,026**
Row %	*88%*	*9%*	*0%*	*2%*	
Column %	*21%*	*20%*	*7%*	*19%*	21%
Consumer Staples	118,635	24,180	2,454	1,582	**146,851**
Row %	*81%*	*16%*	*2%*	*1%*	
Column %	*4%*	*7%*	*9%*	*2%*	4%
Energy	180,800	24,117	1,404	6,682	**213,003**
Row %	*85%*	*11%*	*1%*	*3%*	
Column %	*6%*	*7%*	*5%*	*9%*	6%
Financials	449,172	83,053	9,718	15,098	**557,040**
Row %	*81%*	*15%*	*2%*	*3%*	
Column %	*14%*	*23%*	*34%*	*21%*	15%
Healthcare	351,169	14,415	620	4,470	**370,675**
Row %	*95%*	*4%*	*0%*	*1%*	
Column %	*11%*	*4%*	*2%*	*6%*	10%
Industrials	482,063	41,264	3,102	2,815	**529,243**
Row %	*91%*	*8%*	*1%*	*1%*	
Column %	*15%*	*11%*	*11%*	*4%*	15%
Information Technology	501,297	45,643	922	3,902	**551,763**
Row %	*91%*	*8%*	*0%*	*1%*	
Column %	*16%*	*13%*	*3%*	*5%*	15%
Materials	148,405	21,081	1,468	3,908	**174,861**
Row %	*85%*	*12%*	*1%*	*2%*	
Column %	*5%*	*6%*	*5%*	*5%*	5%
Telecommunication Services	81,563	12,913	4,074	16,779	**115,329**
Row %	*71%*	*11%*	*4%*	*15%*	
Column %	*3%*	*4%*	*14%*	*23%*	3%
Utilities	139,733	17,496	1,069	1,587	**159,884**
Row %	*87%*	*11%*	*1%*	*1%*	
Column %	*4%*	*5%*	*4%*	*2%*	4%
Unclassified	26,241	3,817	1,553	1,051	**32,661**
Row %	*80%*	*12%*	*5%*	*3%*	
Column %	*1%*	*1%*	*5%*	*1%*	1%
Total No.	**3,155,187**	**360,277**	**28,281**	**71,591**	**3,615,336**
Row %	87.3%	10.0%	0.8%	2.0%	

VII. presents the aggregate transaction value in millions of US Dollars for all private equity transactions in Developed-, Emerging-, and Frontier Markets as classified by MSCI (See Appendix V) for the years 2006-2014. Transactions are further divided by their industry definition as classified by CapitalIQ (where applicable).

Transparency International Corruption Perceptions Index (0-100)						
Country	MSCI Index	2006	2014	Average 2006-2014	Absolute difference	Percentage change
Total (average)	**World Markets**	81	76	78	-4	-5.4%
Standard Deviation		*12.1*	*11.4*	*12.1*		
Total (average)	**Emerging Markets**	41	46	43	5	13.4%
Standard Deviation		*12.4*	*12.2*	*12.4*		
Total (average)	**Frontier Markets**	38	41	39	3	8.0%
Standard Deviation		*13.2*	*11.9*	*12.0*		
Argentina	*Frontier Markets*	29	34	31	5	17.2%
Australia	*World Markets*	87	80	85	-7	-8.0%
Austria	*World Markets*	86	72	76	-14	-16.3%
Bahrain	*Frontier Markets*	57	49	50	-8	-14.0%
Bangladesh	*Frontier Markets*	20	25	24	5	25.0%
Belgium	*World Markets*	73	76	73	3	4.1%
Bosnia and Herzegovina	*Frontier Markets*	29	39	35	10	34.5%
Botswana	*Frontier Markets*	56	63	60	7	12.5%
Brazil	*Emerging Markets*	33	43	39	10	30.3%
Bulgaria	*Frontier Markets*	40	43	39	3	7.5%
Canada	*World Markets*	85	81	85	-4	-4.7%
Chile	*Emerging Markets*	73	73	71	0	0.0%
China	*Emerging Markets*	33	36	37	3	9.1%
Colombia	*Emerging Markets*	39	37	36	-2	-5.1%
Croatia	*Frontier Markets*	34	48	44	14	41.2%
Czech Republic	*Emerging Markets*	48	51	49	3	6.3%
Denmark	*World Markets*	95	92	92	-3	-3.2%
Egypt, Arab Rep.	*Emerging Markets*	33	37	31	4	12.1%
Estonia	*Frontier Markets*	67	69	66	2	3.0%
Finland	*World Markets*	96	89	91	-7	-7.3%
France	*World Markets*	74	69	70	-5	-6.8%
Germany	*World Markets*	80	79	79	-1	-1.3%
Ghana	*Frontier Markets*	33	48	42	15	45.5%
Greece	*Emerging Markets*	44	43	40	-1	-2.3%
Hong Kong	*World Markets*	83	74	80	-9	-10.8%
Hungary	*Emerging Markets*	52	54	51	2	3.8%
India	*Emerging Markets*	33	38	35	5	15.2%
Indonesia	*Emerging Markets*	24	34	29	10	41.7%
Ireland	*World Markets*	74	74	75	0	0.0%
Israel	*World Markets*	59	60	60	1	1.7%
Italy	*World Markets*	49	43	44	-6	-12.2%
Jamaica	*Frontier Markets*	37	38	34	1	2.7%
Japan	*World Markets*	76	76	76	0	0.0%
Jordan	*Frontier Markets*	53	49	48	-4	-7.5%
Kazakhstan	*Frontier Markets*	26	29	26	3	11.5%

VIII. Corruption Perception Index scores per country. Countries grouped per MSCI Index definition (see Appendix V). Absolute scores for 2006 and 2014, averages over the period, absolute differences, and percentage changes are reported (1/2)

Transparency International Corruption Perceptions Index (0-100)						
Country	MSCI Index	2006	2014	Average 2006-2014	Absolute difference	Percentage change
Kenya	Frontier Markets	22	25	23	3	13.6%
Korea, Rep.	Emerging Markets	51	55	54	4	7.8%
Kuwait	Frontier Markets	48	44	44	-4	-8.3%
Lebanon	Frontier Markets	36	27	27	-9	-25.0%
Lithuania	Frontier Markets	48	58	51	10	20.8%
Malaysia	Emerging Markets	50	52	48	2	4.0%
Mauritius	Frontier Markets	51	54	53	3	5.9%
Mexico	Emerging Markets	33	35	33	2	6.1%
Morocco	Frontier Markets	32	39	36	7	21.9%
Netherlands	World Markets	87	83	87	-4	-4.6%
New Zealand	World Markets	96	91	93	-5	-5.2%
Nigeria	Frontier Markets	22	27	25	5	22.7%
Norway	World Markets	88	86	86	-2	-2.3%
Oman	Frontier Markets	54	45	50	-9	-16.7%
Pakistan	Frontier Markets	22	29	26	7	31.8%
Peru	Emerging Markets	33	38	36	5	15.2%
Philippines	Emerging Markets	25	38	29	13	52.0%
Poland	Emerging Markets	37	61	53	24	64.9%
Portugal	World Markets	66	63	62	-3	-4.5%
Qatar	Emerging Markets	60	69	69	9	15.0%
Romania	Frontier Markets	31	43	40	12	38.7%
Russian Federation	Emerging Markets	25	27	24	2	8.0%
Saudi Arabia	Emerging Markets	33	49	43	16	48.5%
Serbia	Frontier Markets	30	41	37	11	36.7%
Singapore	World Markets	94	84	90	-10	-10.6%
Slovenia	Frontier Markets	64	58	62	-6	-9.4%
South Africa	Emerging Markets	46	44	45	-2	-4.3%
Spain	World Markets	68	60	63	-8	-11.8%
Sri Lanka	Frontier Markets	31	38	34	7	22.6%
Sweden	World Markets	92	87	91	-5	-5.4%
Switzerland	World Markets	91	86	88	-5	-5.5%
Thailand	Emerging Markets	36	38	35	2	5.6%
Trinidad and Tobago	Frontier Markets	32	38	36	6	18.8%
Tunisia	Frontier Markets	46	40	41	-6	-13.0%
Turkey	Emerging Markets	38	45	45	7	18.4%
Ukraine	Frontier Markets	28	26	25	-2	-7.1%
United Arab Emirates	Emerging Markets	62	70	65	8	12.9%
United Kingdom	World Markets	86	78	77	-8	-9.3%
United States	World Markets	73	74	73	1	1.4%
Vietnam	Frontier Markets	26	31	29	5	19.2%
Zimbabwe	Frontier Markets	24	21	21	-3	-12.5%

VIII (cont'd). Corruption Perception Index scores per country. Countries grouped per MSCI Index definition (see Appendix V). Absolute scores for 2006 and 2014, averages over the period, absolute differences, and percentage changes are reported (2/2)

SUMMARY STATISTICS

Variable	All countries						Developed Markets						Emerging & Frontier Markets					
	Obs.	Mean	Median	Std. Dev.	Min	Max	Obs.	Mean	Median	Std. Dev.	Min	Max	Obs.	Mean	Median	Std. Dev.	Min	Max
Dependent Variable																		
Private Equity Activity (Log. Transaction Values)	77	5.0	4.9	2.6	0.2	11.7	23	7.8	7.5	1.4	5.5	11.7	54	3.8	3.7	2.0	0.2	9.1
Private Equity Activity (Log. Transaction Numbers)	77	2.5	2.0	1.7	0.1	7.9	23	4.4	4.1	1.3	2.7	7.9	54	1.7	1.5	1.1	0.1	5.3
Private Equity Activity (Percentage of GDP)	77	0.3%	0.2%	0.4%	0.0%	2.7%	23	0.7%	0.6%	0.5%	0.1%	2.7%	54	0.2%	0.1%	0.2%	0.0%	1.2%
Independent Variable																		
Corruption Perceptions Index	76	52.0	46.5	21.3	21.2	92.6	23	78.1	79.1	12.4	43.6	92.6	53	40.7	38.7	12.5	21.2	70.8
Legal																		
Protecting (Minority) Investors DTF	77	58.0	56.7	15.0	30.0	96.7	23	67.2	63.3	17.4	30.0	96.7	54	54.0	53.3	12.0	30.0	86.7
Enforcing Contracts DTF	77	61.5	63.8	13.7	20.8	90.5	23	72.4	75.6	10.1	41.3	90.5	54	56.9	58.2	12.4	20.8	80.4
Common Law	77	0.2	0.0	0.4	0.0	1.0	23	0.4	0.0	0.5	0.0	1.0	54	0.2	0.0	0.4	0.0	1.0
Economic Activity																		
GDP	77	12.2	12.3	1.7	9.0	16.5	23	13.5	13.1	1.2	11.9	16.5	54	11.6	11.7	1.5	9.0	15.4
GDP per capita	77	9.3	9.3	1.3	6.5	11.3	23	10.7	10.7	0.3	10.0	11.3	54	8.7	8.8	1.1	6.5	11.1
Trade	77	92.2	78.2	61.2	23.9	410.4	23	106.6	70.7	97.6	28.1	410.4	54	86.0	80.8	35.8	23.9	162.9
Unemployment	75	8.0	7.2	4.9	0.4	26.8	23	7.2	6.7	3.6	3.0	19.9	52	8.3	7.3	5.3	0.4	26.8
GDP growth	77	0.1	0.1	0.0	0.0	0.2	23	0.0	0.0	0.0	0.0	0.1	54	0.1	0.1	0.0	0.0	0.2
GDP per capita growth	77	0.1	0.1	0.0	0.0	0.2	23	0.0	0.0	0.0	0.0	0.1	54	0.1	0.1	0.0	0.0	0.2
Capital Markets																		
Getting Credit DTF	77	63.9	62.5	18.4	14.1	100.0	23	76.6	81.3	14.5	50.0	100.0	54	58.4	60.5	17.2	14.1	97.7
Real interest rate	69	9.2	4.0	36.0	-4.2	301.8	22	4.5	4.0	2.6	0.2	10.0	47	11.4	4.3	43.6	-4.2	301.8
Bank Nonperforming loans	72	5.6	3.4	4.6	0.5	18.0	23	3.3	2.6	3.4	0.5	14.1	49	6.6	4.6	4.7	0.6	18.0
Market Cap	74	68.0	42.2	113.4	8.4	950.7	23	114.2	67.3	189.4	27.6	950.7	51	47.1	32.0	39.5	8.4	231.3
Stocks traded, total value	74	39.2	14.8	74.9	0.0	562.1	23	85.4	52.5	116.5	5.2	562.1	51	18.4	4.9	28.1	0.0	127.3
Entrepreneurial Activity																		
Ease of Starting a Business DTF	77	64.6	67.8	17.1	17.0	91.7	23	75.9	74.6	8.7	61.9	91.7	54	59.8	60.0	17.6	17.0	86.7
New business density	67	3.5	2.2	4.2	0.0	24.8	22	5.7	3.8	5.8	0.6	24.8	45	2.4	1.4	2.6	0.0	10.7
Research and development expenditure	71	1.2	0.8	1.0	0.0	4.2	23	2.2	2.2	0.9	0.7	4.2	48	0.6	0.5	0.6	0.0	3.5
Human and Social Environment																		
Labour force with tertiary education	67	24.8	24.9	10.6	2.5	50.1	23	32.5	32.2	7.9	16.6	48.7	44	20.7	19.9	9.5	2.5	50.1
Logistics performance index	74	3.2	3.2	0.5	2.4	4.1	23	3.8	3.9	0.2	3.3	4.1	51	2.9	3.0	0.3	2.4	3.7
Urban population	77	67.0	71.9	20.8	9.1	100.0	23	81.5	81.1	11.0	59.8	100.0	54	60.8	63.6	21.0	9.1	98.3
Labor Freedom	76	65.0	65.0	14.9	29.0	96.4	23	70.4	74.7	18.8	36.8	96.4	53	62.6	61.2	12.3	29.0	85.7
Taxation																		
Corporate Tax Rate	74	26.2	25.4	8.4	10.0	55.0	22	28.6	28.6	7.5	12.5	45.9	52	25.2	25.0	8.6	10.0	55.0
Number of tax payments	77	23.0	13.8	20.8	3.3	114.3	23	10.8	10.4	5.9	3.5	33.1	54	28.2	19.3	22.7	3.3	114.3
Time spent on tax issues	77	293.2	227.4	330.7	12.0	2,600.0	23	164.7	156.5	78.4	63.0	344.4	54	347.9	247.6	379.6	12.0	2,600.0

IX. presents the descriptive statistics of the variables used in the analyses. We determine the statistics for the complete data set as well as for the two subsets 'Developed Markets' and 'Emerging & Frontier Markets'.

COMPREHENSIVE MODEL - TRANSACTION VALUES

	Unit of Measurement	Estimated Coefficient	Average Value	Standard Deviation	Change in Private Equity Activity ($m)
	Unit	Number	Number	Number	% per Std Dev
Corruption Perceptions Index	Index (0-100)	0.0316 **	55.6	21.1	67.6%
Legal					
Common Law	Dummy	0.8179 *	0.2	0.4	54.0%
Economic Activity					
GDP	LN ($m)	1.1010 ***	12.5	1.5	154.5%
Trade	% of GDP	0.0035	89.4	53.1	18.5%
Unemployment	% of Labor Force	0.0945 ***	8.3	4.5	44.3%
Capital Markets					
Getting Credit DTF	Index (0-100)	-0.0060	65.9	17.4	-10.5%
Market Cap	% of GDP	-0.0031	59.4	48.4	-14.8%
Stocks traded, total value	% of GDP	0.0031	36.3	44.2	13.8%
Entrepreneurial Activity					
Research and development expenditure	% of GDP	0.2725	1.3	1.1	33.2%
Human and Social Environment					
Labour force with tertiary education	% of Labor Force	0.0016	25.6	10.6	1.7%
Logistics performance index	Index (0-5)	0.1646	3.3	0.5	8.9%
Taxation					
Corporate Tax Rate	% of Profits	-0.0022	26.1	8.0	-1.8%
Time spent on tax issues	Hours per Year	0.0005	289.9	354.8	18.9%
Constant	-	-11.7602 ***	-	-	-

X. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on corruption (measured by the Corruption Perceptions Index) controlling for the relevant indicators covering Legal aspects, Economic Activity, Capital Markets, Entrepreneurial Investments, Human and Social Environment, and Taxation, as selected in Tables 4−9 (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. For every variable and the constant, we report the coefficient estimates (see Table 11). Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level. We present the units of measurement of the control variables and, all else being equal, determine the effect of a one-standard-deviation increase in the independent variables on absolute private equity investment (measured in US Dollars).

COMPREHENSIVE MODEL - TRANSACTION NUMBERS

	Unit of Measurement	Estimated Coefficient	Average Value	Standard Deviation	Change in Private Equity Activity
	Unit	Number	Number	Number	% per Std Dev
Corruption Perceptions Index	Index (0-100)	0.0285 **	55.6	21.1	61.0%
Legal					
Common Law	Dummy	0.6201 *	0.2	0.4	36.6%
Economic Activity					
GDP	LN ($m)	0.8026 ***	12.5	1.5	154.0%
Trade	% of GDP	0.0028	89.4	53.1	14.7%
Unemployment	% of Labor Force	0.0782 ***	8.3	4.5	36.3%
Capital Markets					
Getting Credit DTF	Index (0-100)	0.0016	65.9	17.4	2.9%
Market Cap	% of GDP	-0.0038	59.4	48.4	-18.6%
Stocks traded, total value	% of GDP	0.0025	36.3	44.2	11.3%
Entrepreneurial Activity					
Research and development expenditure	% of GDP	0.3174 *	1.3	1.1	39.6%
Human and Social Environment					
Labour force with tertiary education	% of Labor Force	0.0047	25.6	10.6	5.0%
Logistics performance index	Index (0-5)	-0.6584	3.3	0.5	-24.1%
Taxation					
Corporate Tax Rate	% of Profits	0.0099	26.1	8.0	8.0%
Time spent on tax issues	Hours per Year	0.0001	289.9	354.8	3.9%
Constant	-	-8.4697 ***	-	-	-

XI. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction numbers) on corruption (measured by the Corruption Perceptions Index) controlling for the relevant indicators covering Legal aspects, Economic Activity, Capital Markets, Entrepreneurial Investments, Human and Social Environment, and Taxation, as selected in Tables 4−9 (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. For every variable and the constant, we report the coefficient estimates (see Table 11). Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level. We present the units of measurement of the control variables and, all else being equal, determine the effect of a one-standard-deviation increase in the independent variables on absolute private equity investment (measured in US Dollars).

COMPREHENSIVE MODEL - TRANSACTION VALUES AS % OF GDP

Private Equity Acivity in:	All Markets	Developed	Emerging & Frontier
Unit of Measurement	% of GDP	% of GDP	% of GDP
Corruption Perceptions Index	9.5E-05	-3.3E-04	-1.1E-05
Legal			
Common Law	4.1E-03 **	5.7E-03	-1.6E-03
Economic Activity			
GDP	7.4E-04	-2.2E-03	-8.4E-05
Trade	2.1E-05	8.5E-07	3.3E-05
Unemployment	2.5E-04 *	4.3E-04	6.2E-05
Capital Markets			
Getting Credit DTF	-2.1E-06	7.7E-05	3.9E-05
Market Cap	-1.8E-05	-9.3E-05	3.0E-05 *
Stocks traded, total value	5.2E-06	6.4E-05	1.1E-06
Entrepreneurial Activity			
Research and development expenditure	-3.4E-04	3.6E-04	3.6E-04
Human and Social Environment			
Labour force with tertiary education	-1.6E-05	1.4E-04	-7.8E-05
Logistics performance index	3.6E-04	2.4E-02	-2.9E-03
Taxation			
Corporate Tax Rate	-1.1E-04	-2.4E-04	-1.9E-05
Time spent on tax issues	1.7E-07	-3.2E-05	8.1E-07
Constant	-1.2E-02	-3.0E-02	7.0E-03
Obersavtions	60	22	38
R-Squared	0.4618	0.8092	0.5009
F-Statistic	3.0367 ***	2.6107 *	1.8527 *

XII. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transactions values as a percentage of GDP) on corruption (measured by the Corruption Perceptions Index) controlling for the relevant indicators covering Legal aspects, Economic Activity, Capital Markets, Entrepreneurial Investments, Human and Social Environment, and Taxation, as selected in Tables 4–9 (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006–2014. Since the effect of market size is also accounted for in the formulation of the dependent variable, we do not explicitly control for GDP. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

Top Quartile (Reference Group)	Third Quartile	Second Quartile	First Quartile
100 >= CPI > 70.2	*70.2 >= CPI > 46.5*	*46.5 >= CPI > 35.2*	*35.2 >= CPI > 0*
East Asia & Pacific	**East Asia & Pacific**	**East Asia & Pacific**	**East Asia & Pacific**
Australia	Korea, Republic of	China*	Indonesia
Hong Kong	Malaysia		Philippines
Japan		**Europe & Central Asia**	Thailand
New Zealand	**Europe & Central Asia**	Bosnia and Herzegovina	Viet Nam
Singapore	Czech Republic	Bulgaria	
	Estonia	Croatia	**Europe & Central Asia**
Europe & Central Asia	France	Greece	Kazakhstan
Austria	Hungary	Italy	Russia
Belgium	Lithuania	Romania	Ukraine
Denmark	Poland	Serbia	
Finland	Portugal	Turkey	**Latin America & Caribbean**
Germany	Slovenia		Argentina
Ireland	Spain	**Latin America & Caribbean**	Jamaica
Netherlands		Brazil	Mexico
Norway	**Middle East & North Africa**	Colombia	
Sweden	Bahrain	Peru	**Middle East & North Africa**
Switzerland	Israel	Trinidad and Tobago	Egypt
United Kingdom	Jordan		Lebanon
	Oman	**Middle East & North Africa**	
Latin America & Caribbean	Qatar	Kuwait	**South Asia**
Chile	United Arab Emirates	Morocco	Bangladesh
		Saudi Arabia	India
North America	**Sub-Saharan Africa**	Tunisia	Pakistan
Canada	Botswana		Sri Lanka
United States of America	Mauritius	**Sub-Saharan Africa**	
		Ghana	**Sub-Saharan Africa**
		South Africa	Kenya
			Nigeria
			Zimbabwe

XIII. Break-down of geographic regions based on quartile scores on the Corruption Perception Index. Countries subsequently grouped under their World Bank regional definition. Per quartile outer limit scores are reported at the top.

* Data sources differ in approaching Taiwan as a separate country or as part of China. Our research, for practical reasons, includes Taiwan as part of China.

† MSCI classifies the West African Economic and Monetary Union ('WAEMU'), consisting of Benin, Burkina Faso, Ivory Coast, Guinea-Bissau, Mali, Niger, Senegal and Togo, as a single market entity under Frontier Markets. We exclude these countries from our country-level analyses.

COMPREHENSIVE MODEL - CPI QUARTILES

Private Equity Activity in:	All Markets
Unit of Measurement	LN (Deals)
Corruption Perceptions Index	
Q2 < CPI <= Q3	-0.3428
Q1 < CPI <= Q2	-0.9018
Min < CPI <=Q1	-1.0360
Legal	
Common Law	0.6511
Economic Activity	
GDP	0.7028 ***
Trade	0.0010
Unemployment	0.0723 **
Capital Markets	
Getting Credit DTF	0.0010
Market Cap	-0.0036
Stocks traded, total value	0.0026
Entrepreneurial Activity	
Research and development expenditure	0.3195 *
Human and Social Environment	
Labour force with tertiary education	0.0044
Logistics performance index	-0.1065
Taxation	
Corporate Tax Rate	0.0101
Time spent on tax issues	0.0001
Constant	-6.7211 ***
Obersavtions	60
R-Squared	0.8539
F-Statistic	17.1491 ***

XIV. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction numbers) on relative corruption levels (measured by dummy variables indicating membership in one of the lower three quartiles on the Corruption Perceptions Index) controlling for the relevant indicators covering Legal aspects, Economic Activity, Capital Markets, Entrepreneurial Investments, Human and Social Environment, and Taxation, as selected in Tables 4−9 (see Appendix IV for definitions, measurement, and sources of control variables). The analysis is based on annual averages over the period 2006−2014. For the regression model, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.

INTERACTION STUDY - INVESTOR LOCATION - TRANSACTION VALUES

Private Equity Activity in:	All Markets	Developed	Emerging & Frontier
Unit of Measurement:	LN ($m)	LN ($m)	LN ($m)
Corruption and Investor Location			
Corruption Perceptions Index	0.0167	0.0142	-0.0193
Deals w/ Foreign Investors	-0.0327 *	0.0094	-0.0446 *
Interaction Term	0.0002	-0.0001	0.0004
Economic Activity			
GDP	1.0268 ***	1.0393 ***	0.9337 ***
Constant	-6.8787 ***	-7.3496	-4.2362
Obersavtions	76	23	53
R-Squared	0.8682	0.7396	0.7651
F-Statistic	116.8806 ***	12.7837 ***	39.0872 ***

XV. presents the results of multivariate OLS regressions of cross-country private equity activity (measured by annual-average logarithmic transaction values) on corruption (measured by the Corruption Perceptions Index), the percentage of deals with foreign-investor involvement, and a corresponding interaction term controlling for GDP (see Appendix IV for definitions, measurement, and sources). The analysis is based on annual averages over the period 2006−2014. On the left hand, we report the results of the initial analysis. Additionally, we present separate estimates for the subsets of Developed Markets and Emerging & Frontier Markets as classified by MSCI (see Appendix V). For the separate regression models, we report the number of observations, the goodness-of-fit measure R^2, and the F-statistic as an indicator of mutual significance of the used variables. For every variable and the constant, we report the coefficient estimates. Statistical significance is indicated by one star at the 10% confidence level, two stars at the 5% confidence level, and three stars at the 1% confidence level.