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Abstract

This paper investigates the influences of intrafirm geographic and cultural dispersion, the distance between the location of a firm's investments and its headquarters, on the firm's information environment. Specifically, using a sample of publicly traded real estate companies across the Asia-Pacific region, we examine how intrafirm geographic and cultural distance impacts a firm's capital acquisition costs. As a consequence of both the heavily regulated operating environment faced by these firms, as well as the capital intensive nature of this

industry, funding costs should be of pronounced importance to firms within this sector. Consistent with this paradigm, we find that firms with geographically disperse investments exhibit enhanced informational opacity. Specifically, firms with more geographically disperse investments exhibit higher capital acquisition costs than their more geographically concentrated counterparts. Similarly, firms with more culturally disparate investments also exhibit enhanced informational opacity, as evidenced by increased capital costs. Additionally, we present evidence that the impact of both physical and cultural distance is increasing following the global financial crisis. Taken together, our results provide strong evidence that both intrafirm geographic and cultural dispersion materially impact both an organization's information environment and funding costs.

Keywords
Transparency; Cost of capital; Geography; Cultural distance

Introduction

Finance has long recognized the importance of information acquisition and processing to the efficient pricing of securities, with market participants tending to reward informationally transparent firms with a lower cost of capital than their more opaque counterparts. The opacity of firms is generally viewed as being jointly determined by the firm's operations, investment activities, and disclosures. Firms adopting more transparent corporate structures, those investing in more easily identifiable and/or stable assets, and those providing enhanced disclosures are generally viewed as more informationally transparent.[1] Interestingly, and of central import to the current investigation, recent studies suggest that a firm's informational transparency may also be related to the "distance" between the firm and its investors. As outlined in more detail below, this emerging literature finds investor holdings in "local" companies tend to outperform holdings in companies that are more geographically distant. In general, these gains are attributed to "local" investors' abilities to more efficiently overcome information barriers, either through enhanced access to soft information or through reduced monitoring costs.

Additionally, the literature has also begun to recognize the impact culture exerts on market development and firm operations. Of note, Hofstede (1980) defines culture as "the collective mental programming of the human mind which distinguishes one group of people from another."[2] More specifically, culture exerts an impact on business beyond the legal and regulatory systems by defining perceptions and acceptable actions. Thus, culture serves to establish the "rules of the game" that market participants must follow. Moreover, evidence of the impact of cultural distance, the differences between the cultures of two areas, on the performance of cross-border operations is accumulating.[3]

While the existing literature focuses on the physical and cultural distance between market participants (i.e., a firm's proximity to either its investors or other firms), we focus on the geographic dispersion and cultural distance *within* a firm. More specifically, we examine how intrafirm physical proximity and cultural similarity (i.e., the distance between a firm's headquarters and its investments) influences the firm's informational opacity. Previewing our

results, we find evidence that as the physical and cultural distance within a firm increases the organization becomes more informationally opaque. In particular, firms characterized by larger geographic footprints and/or more cultural heterogeneity within the organization exhibit higher implied costs of capital than firms with smaller physical footprints and/or less cultural diversity. Moreover, we find the relations between both physical and cultural distance with the firm's cost of capital are magnified following the 2007 global financial crisis. Thus, we conclude these constructs represent value relevant components of a firm's information environment which must be proactively and strategically managed to ensure the welfare maximization of shareholders.

The remainder of this investigation is organized in the following manner. Section two reviews the existing literature on the importance of geography in financial markets, motivates the use of publicly traded Asia-Pacific real estate firms as a uniquely compelling natural laboratory in which to examine the relations between intrafirm physical and cultural distance and information opacity, and outlines the rationale for employing a firm's cost of capital to examine these issues. Section three outlines the data and empirical methods employed throughout this investigation to examine our focal hypotheses, while section four provides the results of this analysis. Finally, section five summarizes our key findings, highlights their implications, and concludes.

Literature Review

Geographic Proximity

Economists have long recognized the potential benefits offered by international diversification, as well as the potential costs associated with home bias issues.[4] Only recently, however, has the literature begun to recognize the potential advantages associated with geographic proximity. The origins of this emerging location literature can be traced to Coval and Moskowitz (1999, 2001), who document significantly positive, risk-adjusted returns accruing to investors' "local" company investments.[5] Such out-performance suggests investors possess a distinct, competitive advantage in valuing "local" firms. One potential explanation for the local investor advantage derives from the nature of the information generation, collection, and transmission process. Specifically, a number of papers offer evidence consistent with the notion that market participants who are physically closer to a firm are uniquely positioned to access and capture valuable soft information regarding these "local" entities. For example, both Malloy (2005); Bae et al. (2008) find local analysts systematically provide better recommendations and more accurate forecasts than their more geographically distant counterparts. Similarly, Berry and Gamble (2013) argue local retail investors possess informational advantages, as they find security returns following earnings announcements are predicted by the trading patterns of local market investors, while Ghoul et al. (2013) explicitly use geographic distance as a proxy for information asymmetry.[6] Within a real estate context, Ling et al. (2016) examine the role of geography in explaining performance differentials across public and private real estate markets within the United States, while Adams et al. (2015) provide evidence on the potential importance of geographic proximity to a firm's risk management activities. Importantly, this latter paper demonstrates geographic proximity is fundamentally related to potential risk spill-over effects, and further suggests such effects are magnified during periods of economic

stress and uncertainty. Taken together, the above results strongly suggest geographic proximity plays an important role in the informational transparency of publicly traded (real estate) companies.[7]

The importance of geographic proximity between market participants is becoming increasingly apparent to both academic researchers and industry practitioners. We note that, within international real estate markets, the vast majority of real estate firms acquiring investment properties outside of their home country (i.e., where the firm is headquartered), retain local expertise in the form of independent, third-party advisors, appraisers, and/or investment managers to facilitate the acquisition, development, continuing operation, and/or divestiture of individual properties. Moreover, an Asia Pacific Real Estate Association (APREA) (2014) survey of nearly 200 institutional real estate investors and fund managers finds that while less than half believe it is important for a real estate firm's management to be located in the country where its shares are traded, over 84% reported firm management should be located in its area of operations. Based upon this survey evidence, institutional real estate market participants appear to clearly believe a local market presence is important to efficient portfolio allocation and management decision-making.

Cultural Distance

The role of culture is also receiving increased attention within the finance literature. For example, Guiso et al. (2006, 2009) find evidence that culture influences a nation's economic performance, as well as economic exchanges between countries. Similarly, Aggarwal and Goodell (2009a, b, 2010) find evidence that culture influences how a nation's financial system develops, while Zheng et al. (2012) find evidence that national culture helps to explain cross-country variation in corporate debt maturity structure. Finally, from an investments perspective, Chui et al. (2010) find that national culture influences the performance of momentum strategies. These findings are not entirely unexpected given that culture manifests itself in how people interact and make decisions, which in turn likely influences how firms operate along a variety of key dimensions.[8] For example, does the society readily embrace entrepreneurial risk taking or does it tend towards risk aversion? Does a short-term or long-term investment horizon drive decision making? How equally is power distributed across members of the group, and does the group accept and tolerate inequality or proactively work to limit, or eliminate, disparities across its members? Is gender equality prioritized, or does a masculine (feminine) world view predominate? Are personal and corporate goals, initiatives, and investment priorities driven by a pursuit of individualistic goals, or collectivistic aspirations?

In addition to presenting evidence regarding the impact of culture, the literature also presents evidence that investors are more confident evaluating firms, assets, or investment projects in countries that are culturally similar to the investors' own home country.[9] For example, Hofstede (1980); Jemison and Sitkin (1986); Morosini et al. (1998) all provide evidence that cultural distance, a measure of how dissimilar two cultures are, influences the performance of cross-border acquisitions. Furthermore, Beugelsdijk and Frijns (2010) find that cultural distance between markets influences the amount of foreign investment, while Anderson et al. (2011) similarly report institutionally managed funds invest less in culturally distant countries. Moreover, Beracha et al. (2014) find that institutional investors trade less frequently in

culturally distant countries, while Nahata et al. ([2014](#)) demonstrate that when the cultural distance between venture capitalist and portfolio firms is greater the likelihood of success increases. Continuing, Anita et al. ([2007](#)) observe that when the cultural distance between a multinational firm's headquarters and its foreign subsidiaries increases firm valuation decreases. Along these same dimensions, Steigner and Sutton ([2011](#)) examine the performance of cross-border mergers and acquisitions and find that when bidding firms have high levels of intangible assets, their long run performance is positively associated with the cultural distance between their home country and that of the target. Lastly, Cai and Zhu ([2015](#)) examine the underpricing of initial public offerings issued by foreign firms within the United States and find that the degree of underpricing is a function of the cultural distance between the US and the firm's country of origin. More explicitly, they find that the greater the cultural distance, the greater the degree of underpricing. Taken together, these results suggest cultural distance directly influences both information asymmetry and financial opacity.

While the extant literature presents evidence regarding the impact of the physical and cultural distance between market participants, we explore the impact of physical and cultural distance within the firm. Specifically, we explore how the physical and cultural distance between a firm's headquarters and the location of its cash flow generating assets influences its financial market transparency. Ex-ante, we expect that as intrafirm physical and cultural distance increases the firm will become more informationally opaque. In other words, we expect company outsiders (e.g., investors, analysts, regulators, etc.) will find the firm harder to value/understand when it is spread over a larger physical area, or has properties located in countries which are more culturally dissimilar. Further, the resulting valuation difficulty should manifest itself in the form of tangible, value relevant economic consequences. As such, the current investigation explores the impact of both geographic and cultural distance on financial market opacity by examining each firm's implied cost-of-capital.[10]

Why Asia-Pacific Real Estate Firms?

To effectively identify and isolate the relations between intrafirm geographic and cultural distance and a firm's opacity, it is critically important to control for as many potential sources of extraneous variation as possible. As informational transparency is likely to differ markedly across industries and market sectors, to assist in this process we restrict our analysis to a single industry. Additionally, an ideal sample would focus on a subset of firms for which informational transparency issues may be uniquely important. Therefore, we focus exclusively on publicly traded real estate companies (e.g., REITs, listed property trusts, and developers) across the Asia-Pacific region. Focusing on this specific industry provides a number of compelling advantages. First, unlike industries with high levels of investment in intangible assets, research and development expenditures, and/or intellectual property rights, real estate firms generally hold portfolios of easily identifiable, tangible assets.[11] Furthermore, as space markets continue to be highly localized, the cashflows accruing to these assets are largely a function of the economic conditions prevailing in the local market area in which each individual asset is physically located.[12] Both of these factors help us more effectively identify the true geographic and cultural exposure faced by each sample firm.

Second, the unique regulatory environment in which these firms operate further motivates the use of this industry as a laboratory for the current investigation. Real estate firms around the world are typically viewed as being capital constrained. Firms choosing to pursue REIT status typically face high regulatory mandated payout ratios which effectively prohibit them from retaining large enough sums of capital to endogenously fund capital expansion activities. Even for those firms not facing mandatory payout requirements, the large scale of many commercial real estate investment activities necessitates active and continuing engagement with broader financial markets. As documented by Amihud and Mendelsohn (1986, 2000), financial market transparency has been shown to influence a firm's cost of capital, and thus, real estate firms with a frequent need to access external capital markets are likely to place a high value on both financial market transparency and the resultant reduction in their cost of capital.

Third, while each of the aforementioned advantages suggests commercial real estate markets are a good laboratory for our examination, Asia-Pacific real estate markets offer one final advantage over their U.S. and European counterparts – high levels of cross-border investment. While U.S. based real estate companies typically hold relatively few, if any, properties outside of the United States, Asia-Pacific real estate firms exhibit a significant proclivity toward investing across international borders. To illustrate this point, we note that firms within our sample disclosed investment property holdings across 47 different countries. A more complete description of our sample is provided in the Data and Methodology section, while a comprehensive listing of the geographic locations for all 9876 investment properties held by sample firms is provided in Appendix 1.

Cost of Capital Considerations

The extant literature demonstrates that both corporate and managerial policies, practices, and procedures which increase a firm's informational opacity also effectively serve to increase its cost of capital. For example, Anglin et al. (2011) suggest that as information asymmetries between investors and managers increase, so too does the firm's cost of capital. Similarly, Danielsen et al. (2009, 2014) demonstrate that enhanced accounting disclosures reduce information barriers between firms and investors, engender positive certification effects regarding the company's continuing operations, and thereby lead to reductions in the organization's capital acquisition costs. Perhaps most closely related to the current investigation, Cashman et al. (2015) examine REITs and listed property trusts across the Asia-Pacific region and find evidence that increased exposure to political risk increases both a firm's cost of raising external equity and its weighted average cost of capital. While these studies provide support for the conceptual framework we utilize, namely, that increasing informational opacity increases a firm's cost of capital, to the best of our knowledge the existing literature has not yet explored the impact of either intrafirm geographic or cultural distance on firm opacity.

Data and Methodology

Data

In assembling our sample, we begin by identifying all Asia-Pacific real estate companies (e.g., REITs, listed property trusts, real estate operating companies, and development firms)

followed by SNL Financial that trade on the Australian Stock Exchange, Bombay Stock Exchange, Hong Kong Stock Exchange, Singapore Exchange, or Tokyo Stock Exchange at any point from January 2000 to December 2013.[13] We then match each SNL firm to Bloomberg, which provides daily stock prices. We use firm ticker symbol, institution name, and stock exchange to match observations between the two databases. Firms for which we are unable to obtain matching Bloomberg data are removed from the sample. This results in a sample of 160 real estate firms, headquartered in six distinct countries, investing in 9876 properties, which are spread across 47 countries. Table 1 provides a breakdown of both the countries where sample firms are headquartered and where their investment properties are physically located, while Appendix 2 provides a comprehensive listing of all sample firms by the country in which they are headquartered. We note that while nearly 60% of our sample real estate firms are headquartered in Hong Kong or Singapore, less than 20% of the properties in our sample are located within these same two jurisdictions. Additionally, we note that a robust 17.6% of the investment properties held by sample firms are located in countries outside of the six nations in which our sample firms are headquartered. These two facts clearly reflect the willingness and ability of many Asia-Pacific real estate firms to engage in cross-border investment activities. On the other hand, somewhat less obvious from these raw numbers is the inter-country variation in foreign investment proclivity. While considerably more than half of all sample firms headquartered in Australia, Hong Kong, and Singapore invest internationally, only 7 of the 42 sample firms headquartered in China, India, and Japan engage in international investments. This country level variation motivates our use of country level fixed effects throughout the empirical analysis which follows.

Table 1 Geographic distribution of sample companies and properties

Headquarter country	# of real estate firms	% of total firms	# of properties	% of total properties	Foreign properties / Total properties	% with foreign properties
Australia	23	14.38%	1941	19.65%	19.50%	62.03%
China	7	4.38%	1503	15.22%	0%	0%
Hong Kong	48	30.00%	1161	11.76%	43.91%	77.75%
India	8	5.00%	162	1.64%	0%	0%
Japan	27	16.88%	2573	26.05%	1.37%	25.31%
Singapore	47	29.38%	799	8.09%	52.05%	84.41%
Other	0	0.00%	1737	17.59%		
Total	160	100%	9876	100%		

This table provides a breakdown of the headquarter locations of the real estate firms in our sample, as well as the geographic location distribution of all properties owned by sample firms

Estimating the Cost of Capital

In examining the market's reaction to a firm's decisions regarding the physical footprint and cultural diversity of its investment property portfolio, we employ each firm's cost of debt, cost of equity, and weighted average cost of capital as our key dependent variables of interest. Each firm's cost of debt is estimated simply as its annual total interest expenses divided by its total debt.[14] Turning to equity acquisition costs, we follow the prior literature and estimate each firm's cost of equity via a residual income valuation model.[15] Conceptually, the value of a firm at any point in time should be approximately equal to its current book value plus the present value of any future abnormal earnings. Thus, algebraically:

$$P_{i,0} = B_{i,0} + \sum_{t=1}^{\infty} \frac{E_{i,t} - r_{i,e} B_{i,t-1}}{(1+r_{i,e})^t} \text{ (1)}$$

where:

P_0 current stock price for firm i

$B_{i,0}$ current book value of equity for firm i

$B_{i,t}$ book value of equity for firm i at time t

$r_{i,e}$ required rate of return on equity for firm i

$E_{i,t}$ net income during period t for firm i.

In operationalizing this model, Lee et al. (1999) find that the quality of their estimation of current firm values is insensitive to the choice of the forecast horizon beyond 3 years. Thus, in order to have a closed-form expression, we employ a three year forward looking window for future earnings to estimate each firm's cost of equity. Furthermore, following the previous real estate literature, to mitigate problems associated with lack of analyst forecast estimates regarding future earnings, we assume perfect foresight and recursively solve Eq. (1) for the firm's required rate of return on equity. Market data required to estimate this relation are obtained directly from Bloomberg, while the accounting data necessary to estimate component weights from a book value perspective are obtained from SNL Financial. Finally, to estimate each firm's weighted average cost of capital (WACC), we sum the estimated costs of each capital component multiplied by their proportional weights, which are defined based upon each firm's market leverage ratio. Hence, algebraically:

$$WACC_{i,t} = W_{Di,t}(r_{Di,t})(1 - T_{i,t}) + W_{ei,t}(r_{ei,t}) \text{ (2)}$$

where:

$W_{Di,t}$ weight of debt in the capital structure of firm i at time t

$r_{Di,t}$ cost of debt for firm i at time t

$T_{i,t}$ marginal tax rate of firm i at time t (equal to zero for most REITs)

$W_{ei,t}$ weight of equity in the capital structure of firm i at time t

$r_{ei,t}$ cost of equity for firm i at time t.

Distance Metrics
Physical Geography

In order to calculate physical distance, we start by obtaining the geographic locations (i.e., addresses) of each firm's headquarters, as well as every property in which the firm held an investment stake at any point in time over our sample period. We then map (i.e., geocode) these locations to obtain precise latitude and longitude coordinates for each observation. Next, using these coordinates we estimate the Haversine (great circle) distance between each firm's headquarters location and each of its associated investment property holdings. Finally, we calculate the average geographic distance between the firm's headquarters and its investment properties.[16] Specifically, we use the following equation:

$$Avg\_distance_{i,t} = \frac{1}{m} \sum_{p}^{m} \{3963.1 miles \times cos^{-1}[\sin(lat\_P_{i,t,p}) \times \sin(lat\_H_{i,t}) + \cos(lat\_P_{i,t,p}) \times \cos(lat\_H_{i,t}) \times \cos(long\_P_{i,t,p} - long\_H_{i,t}) \ (3)$$

where:

m the total number of investment property interests held by firm i at month t

$lat\_P_{i,t,p}$ the latitude of property p's location for firm i at month t

$lat\_H_{i,t}$ the latitude of the headquarters location of firm i at month t

$long\_P_{i,t,p}$ the longitude of property p's location for firm i at month t

$long\_H_{i,t}$ the longitude of the headquarters location of firm i at month t.

To the extent increasing the physical scope of a firm's operations hinders the information generation, collection, processing, or dissemination capability of market participants, we would expect firms characterized by a wider geographic scope of operations (e.g., a larger average distance between their headquarters and investment property locations) to be more informationally opaque. As such, we anticipate our average distance metric to be positively related to a firm's implied cost of capital.

Cultural Distance Proxies

We again note that the premise of our investigation is to evaluate the impact of intrafirm distance on the information environment surrounding the firm. Accordingly, we anticipate that as the cultural distance within a firm increases the firm will become more informationally opaque. While measuring physical distance is relatively straightforward, measuring culture distance is somewhat more difficult. To quantify the social characteristics that comprise

culture, we turn to the field of social psychology. Early work by Hofstede (1980, 2001); Franke et al. (1991), as well as more recent investigations by House et al. (2004); Minkov (2007); Anderson et al. (2011), provide the benchmark indices we employ to investigate the impact of culture on a firm's information environment. Specifically, we rely on two widely used metrics – Hofstede Scores and GLOBE Indices -- to measure culture and calculate intrafirm cultural distance.

Hofstede scores are obtained from Geert Hofstede's website (www.geert-hofstede.com/) and are designed to measure six distinct cultural dimensions. These factors include assessments of a society's attitudes and responses with respect to issues of: 1) Power Distance, 2) Individualism versus Collectivism, 3) Masculinity versus Femininity, 4) Uncertainty Avoidance, 5) Long Term versus Short Term Orientation, and 6) Indulgence versus Restraint. More detailed descriptions of each of these dimensions (as well as all sample variables) may be found in Appendix 3. Operationally, these six factors are combined to create two separate culture indices. First, following Kogut and Singh (1988) we exclude information regarding both a country's Long Term Orientation and proclivity towards Indulgence and construct an average index of cultural distance using the original four dimensions of cultural identity (Hofstede 4 Factor Index) proposed by Hofstede. Second, following the work of Franke et al. (1991); Minkov (2007), which together provide the conceptual foundations for extending Hofstede's original four dimensions to its current six, we also construct an average index of cultural distance using all six Hofstede dimensions (Hofstede 6 Factor Index). For those countries in which Hofstede individual dimension scores are unavailable, we replace missing values with the average value across all nations for that specific year and month.[17]

To ensure our empirical results are not driven by idiosyncratic factors specific to the construction of these Hofstede metrics, for robustness we also employ two cultural distance metrics derived from Global Leadership and Organizational Behavior Effectiveness (GLOBE) Indices. These GLOBE scores were first introduced by House et al. (2004), and encompass the following nine dimensions of culture: 1) Performance Orientation, 2) Uncertainty Avoidance, 3) In-Group Collectivism, 4) Power Distance, 5) Gender Egalitarianism, 6) Humane Orientation, 7) Institutional Collectivism, 8) Future Orientation, and 9) Assertiveness. As with our Hofstede metrics, one of our GLOBE indices (Globe 9 Factor Index) employs the entire set of available factors, while our second index employs a more parsimonious subset. Specifically, following Anderson et al. (2011), we create a more restricted GLOBE index (Globe 4 Factor Index) which includes only the following four cultural dimensions: Future Orientation, Assertiveness, In-Group Collectivism, and Uncertainty Avoidance. As with our Hofstede Indices, for countries in which GLOBE dimension scores are unavailable, we replace the missing values with the average value across all nations for that specific year and month.[18]

Our cultural distance metric is a weighted average of the cultural distance between the firm headquarters nation's cultural values and the cultural index values of those nations in which its investment properties are located. Specifically, for each firm-month we calculate the percentage (based on the number of properties) of each firm's investment property portfolio holdings that are located within each country.[19] We then multiply these country specific portfolio location weights by individual country cultural distance measures which are found by taking the absolute value of the difference between the index values for the country where a

firm's properties are located and the index value for the country where the firm's headquarters is located. This procedure is repeated for each of the cultural indices examined. Mathematically:

$$IndividualCulturalDistanceMeasure_{i,t,d} = \sum_c (\frac{NIP_{i,t,c}}{TNIP_{i,t}} \times CD_{i,t,c,d}) \text{ (4)}$$

where:

$NIP_{i,t,c}$ the total number of investment property interests located in country c, held by firm i, at month t,

$TNIP_{i,t}$ the total number of investment property interests held by firm i, at month t,

$CD_{i,t,c,d}$ the level of cultural distance between firm i's headquarter country and properties located in country c, at month t, along cultural difference dimension d.

Control Variables

Following Cashman et al. (2016), to provide a complete and robust econometric specification we also control for both the general business environment and firm specific characteristics. A comprehensive list of these controls, along with a detailed description of their construction and/or measurement, is provided in Appendix 3.[20] In addition, we also control for each firm's exposure to political risk. Cashman et al. (2014, 2016, 2015) all present evidence that the political risk associated with the location of a firm's investments impacts its operations, organizational structure, and ability to raise capital. To account for this possibility, we utilize four measures previously employed in the existing literature to control for political risk.[21] Specifically, the four metrics we employ are: 1) a Disclosure Index, reported by the World Bank, designed to measure the quality and quantity of corporate disclosures with respect to ownership and financial information; 2) an Operations Risk Index (ORI), reported by Business Risk Services, designed to measure the business friendly nature of the overall political and regulatory environment; 3) a Remittance and Repatriation of Capital (R-Factor) Index, also reported by Business Risk Services, designed to measure the relative ease of capital flows across jurisdictional boundaries; and 4) a Political Risk Index (PRI), reported by Business Risk Service, designed to measure the sociopolitical conditions of a country. To facilitate readability and ease interpretation, each of these indices have been (re)scaled such that positive values indicate increased risk exposure along that particular dimension. Consistent with the existing literature, we use the geographic (country) location of every individual real estate property held by each firm in the sample to estimate (investment property location weighted average) measures of each firm's exposure to political risk. Specifically, for each of our four political risk proxies we create firm specific political risk index values as follows:

$$PoliticalRiskMeasure_{i,t} = \sum_c (\frac{NIP_{i,t,c}}{TNIP_{i,t}} x CountryLevelRiskMetric_{t,c}) \text{ (5)}$$

where:

$NIP_{i,t,c}$ the total number of investment property interests located in country c, held by firm i, at month t,

TNIP $_{i,t}$ the total number of investment property interests held by firm i, at month t, and.

Country Level refers to one of the four political risk indices outlined above:

Risk Metric $_{t,c}$ Disclosure, Operations Risk, R-Factor, and Political Risk.

Furthermore, we control for a firm's foreign investment experience. Specifically, we control for the firm's entrance into a "new country" (i.e. its acquisition of a property in a country where the firm did not previously have an equity investment), the amount of time the firm has been engaged in cross border investing, an indicator variable identifying those firms whose headquarters location and exchange trading venue are in different countries, the percentage of the firm's investment properties that are located in foreign countries, and an indicator variable identifying those firms who employ foreign denominated debt within their capital structure. Conceptually, the acquisition of a property in a "new" country may make the firm more informationally opaque. For example, it may well take a non-trivial investment of managerial time and/or other company resources to fully integrate these new and diverse investments into the company's operational framework and risk management apparatus. Similarly, the market has to learn about the firm's ability to operate within this new environment, including their ability to coordinate activities across a broader geographic footprint and manage the risks inherent in operating across additional political jurisdictions. Jointly, these effects may well increase uncertainty surrounding the vitality of the firm's operations, and thus be associated with increased capital costs.

Conversely, it is possible that as firms spend more time investing internationally, the market becomes more familiar with both the firm's international activities and their ability to manage and mitigate potential risk exposure along this dimension. Therefore, as the duration of a firm's international investment experience increases, we would expect both uncertainty surrounding the firm's operations and the resulting cost of capital to decline. The decision to list in a country other than the nation in which the firm is headquartered adds an additional layer of complexity that the market must contend with. As such, ex-ante we anticipate such firms will be more informationally opaque, and therefore characterized by higher capital acquisition costs.[22] Moreover, as with the duration of a firm's international experience, the portion of the firm's investments located in foreign countries may proxy for international expertise which may mitigating risk exposure. Lastly, while the use of foreign denominated debt by a firm adds an additional layer of complexity to their operations, risk management function, and resulting valuations, these potential costs may well be offset by lower capital costs associated with accessing a broader potential investor base, more complete disclosures necessary to satisfy multiple regulatory authorities, risk reduction through matching the currency of expected revenues and liabilities, and/or positive signaling effects regarding the firm's market power and position.

Methodology

Our empirical investigation proceeds in two stages. We first provide descriptive statistics and univariate comparisons designed to allow the reader to gain insight into the nature of both the firms in our sample and the Asia-Pacific real estate markets in which they operate, as well as their comparability to alternative real estate firms and markets around the world. We next

proceed to the multivariate portion of our analysis where we examine the influence of intrafirm physical and cultural distance on a firm's information environment, simultaneously controlling for a broad array of firm and market characteristics. As outlined above, if the physical scope of the firm's property holdings and/or the cultural distance between its assets influences the firm's information environment, the effects should manifest themselves in the form of higher cost of capital estimates.

Throughout the multi-variate portion of our analysis, our cost of capital regressions employ the following general form[23]:

$$Cost\ of\ Capital_{i,t}$$
$$= \alpha_0 + \beta_1 PhysicalDistance_{i,t} + \beta_{2-5} CultureDistance_{i,t}$$
$$+ \beta_{6-9} PoliticalRiskMeasures_{i,t}$$
$$+ \beta_{10-18} BusinessEnvironmentMeasures_{i,t}$$
$$+ \beta_{19-37} GeneralFirmCharacteristics_{i,t} + \beta_{38-42} ForeignExperience_{i,t}$$
$$+ FixedEffects + \varepsilon_{i,t}$$

(6)

A significant, positive coefficient on β_1 in Eq. 6 would be consistent with a firm's intrafirm physical distance creating information barriers, lowering the financial market transparency of the firm, and thereby raising the firm's cost of capital. Similarly, a significant positive coefficient on β_2 in Eq. 6 would be consistent with intrafirm cultural distance contributing to increased informational opacity, valuation difficulties for sample firms, and, as a consequence, increased capital costs.

Empirical Results

Descriptive Statistics

Table 2 presents descriptive statistics for each variable employed throughout our analysis. The weighted average cost of capital (WACC) for sample firms averaged 8.7% across our sample period, with the component costs of debt and equity estimated at 2.9% and 13.6%, respectively.[24] Each estimate appears to be economically reasonable, and very much in line with ex-ante expectations.

Table 2 Descriptive statistics

	N	Mean	Median	Std Dev	Min	Max
Cost of capital metrics						
Weighted average cost of capital	14,497	0.087	0.076	0.055	0.013	0.330
Cost of debt (r_d)	14,497	0.029	0.022	0.025	0.000	0.172
Cost of equity (r_e)	14,497	0.136	0.108	0.096	0.023	0.422
Distance metrics						
Geographic distance						
Physical distance (in 1000 miles)	14,497	0.985	0.439	1.363	0.000	6.781

	N	Mean	Median	Std Dev	Min	Max
Cultural distance indices						
Hofstede 4 factor index	14,497	0.373	0.074	0.794	0.000	5.288
Hofstede 6 factor index	14,497	0.356	0.094	0.644	0.000	3.590
GLOBE 4 Factor Index	14,497	1.036	0.300	1.449	0.000	5.932
GLOBE 9 Factor Index	14,497	1.100	0.346	1.471	0.000	7.331
Control variables						
Political risk metrics						
Disclosure	14,497	0.815	0.808	0.107	0.500	1.000
ORI	14,497	0.618	0.634	0.069	0.380	0.757
R-Factor	14,497	0.700	0.728	0.161	0.385	0.970
PRI	14,497	0.557	0.560	0.116	0.350	0.760
Business environment measures						
UK Law	14,497	0.727	0.917	0.345	0.000	1.000
Bank dominated	14,497	0.186	0.000	0.389	0.000	1.000
GAAP	14,497	0.303	0.000	0.460	0.000	1.000
Time to export	14,497	11.936	10.901	4.854	6.000	27.000
Property acquisition complexity	14,497	25.169	28.000	14.519	4.033	94.985
Market cap / GDP	14,497	171.032	121.335	132.969	19.356	606.004
Broadband per 100	14,497	18.697	21.747	9.211	0.021	37.516
Education Spending	14,497	14.024	13.471	5.390	6.051	25.014
Female labor force participation	14,497	54.549	55.617	7.520	26.900	69.000
General firm characteristics						
Market cap ($Millions)	14,497	3469.680	1162.460	5765.060	6.998	52,644.310
MtoB	14,497	1.158	0.940	0.995	0.120	8.552
Leverage	14,497	0.689	0.539	0.619	0.000	4.235
Asset tangibility	14,497	0.537	0.542	0.054	0.079	0.753
Total assets (in $1000s)	14,497	5,527,630	2,009,384	8,776,906	206	66,174,868
Profitability	14,497	0.057	0.055	0.065	−0.675	0.488
Secured debt	14,497	49.308	46.419	41.404	0.000	100.000
Rate debt	14,497	0.418	0.000	0.493	0.000	1.000
Split rating	14,497	0.050	0.000	0.218	0.000	1.000
Asset age	14,497	5.960	6.000	3.253	1.000	13.000
Repurchases	14,497	0.028	0.000	0.165	0.000	1.000
Operating leverage	14,497	1.713	1.217	3.096	−4.078	10.739
Lease payments	14,497	0.000	0.000	0.002	0.000	0.034

	N	Mean	Median	Std Dev	Min	Max
# of countries	14,497	3.010	2.000	3.260	1.000	18.000
Development	14,497	0.584	1.000	0.493	0.000	1.000
REIT Status	14,497	0.365	0.000	0.482	0.000	1.000
# of Properties	14,497	50.152	31.000	51.488	1.000	317.000
Single country	14,497	0.445	0.000	0.497	0.000	1.000
Home indicator	14,497	0.318	0.000	0.466	0.000	1.000
Foreign experience						
Entrance	14,497	0.001	0.000	0.033	0.000	1.000
Foreign tenure	14,497	96.147	90.000	65.057	0.000	787.000
Headquarter ≠ Exchange	14,497	0.052	0.000	0.222	0.000	1.000
Foreign properties/Total properties	14,497	0.339	0.158	0.372	0.000	1.000
Foreign debt indicator	14,497	0.374	0.000	0.484	0.000	1.000

This table provides basic descriptive statistics (sample size, mean, median, standard deviation, minimum, and maximum) for the variables considered in the analysis. Appendix 3 provides a detailed description and definition of each variable

Turning to our focal distance metrics, we find our sample of publicly traded Asia-Pacific real estate firms hold investments across a broad geographic area. The average distance between a company's headquarters and its investment properties is nearly 1000 miles. Epitomizing the international nature of this industry, Federation Centres is headquartered in Australia, but has held shopping center interests across Australia, New Zealand, and the United States. The average geographic distance between the company's headquarters in Melbourne and its hundreds of investment properties was literally thousands of miles over much of our sample period.[25]

With respect to cultural distance, the economic intuition is more complex. Each of our metrics are correlated (see Table 3 for specific correlations), with an underlying index based upon a 100 point scale. In calculating these distances, as outlined above, we take the squared deviations and standardize them by the cross-national variance of the index.[26] This provides a measure of how distinct the cultures of those nations in which the firm invests are from the national culture associated with the firm's headquarters location. Operationally, we are relatively unconcerned with the absolute value of these indices, but rather are primarily concerned with the marginal impact of changes in these indices on the capital acquisition costs of the firm. Comfortingly, the data in Table 2 suggest considerable variation exists along each of these cultural distance metrics, thus providing a robust framework and set of benchmarks with which to investigate our focal relations.

Table 3 Intrafirm physical and cultural distance correlation matrix

Pearson correlation coefficients
N = 14,497, Prob > |r| under H0: Rho = 0

	Physical distance	Hofstede 4 Factor index	Hofstede 6 Factor index	GLOBE 4 Factor index	GLOBE 9 Factor index	Disclosure	ORI	R-Factor
Hofstede 4 Factor Index	0.5801 (<.0001)							
Hofstede 6 Factor Index	0.6341 (<.0001)	0.9722 (<.0001)						
GLOBE 4 Factor Index	0.4357 (<.0001)	0.6677 (<.0001)	0.6821 (<.0001)					
GLOBE 9 Factor Index	0.4359 (<.0001)	0.6423 (<.0001)	0.6646 (<.0001)	0.9630 (<.0001)				
Disclosure	−0.1046 (<.0001)	−0.0510 (<.0001)	−0.0670 (<.0001)	−0.2825 (<.0001)	−0.2622 (<.0001)			
ORI	-0.0346 (<.0001)	−0.0655 (<.0001)	−0.0804 (<.0001)	−0.3427 (<.0001)	−0.3850 (<.0001)	0.6356 (<.0001)		
R-Factor	−0.3441 (<.0001)	0.0123 (0.1403)	−0.0003 (0.9725)	−0.0423 (<.0001)	−0.0586 (<.0001)	0.1926 (<.0001)	0.2408 (<.0001)	
PRI	0.2260 (<.0001)	0.1267 (<.0001)	0.1101 (<.0001)	−0.0002 (0.9797)	0.0122 (0.1415)	−0.0681 (<.0001)	0.2393 (<.0001)	−0.2051 (<.0001)

This table reports the correlation coefficients associated with our various distance and political risk measures. The Hofstede 4 Factor Index is the property weighted average of cultural distance based on Hofstede's: Power Distance Index, Individualism versus Collectivism, Masculinity versus Femininity, and Uncertainty Avoidance Index. Hofstede 6 Factor Index is the property weighted average of cultural distance based on all six of Hofstede's cultural dimensions. GLOBE 4 Factor Index is the property weighted cultural distance measure based on GLOBE's: Future Orientation, Assertiveness, In-Group Collectivism, and Uncertainty Avoidance metrics. GLOBE 9 Factor Index is the property weighted average of culture distance based on all of GLOBE's cultural dimensions. Physical Distance to Properties is the average geographic distance between a firm's headquarters and its investment properties. Disclosure is the property weighted average of the Business Extent of Disclosure index. ORI is the property weighted average of the operations risk index measure. R-Factor measures the ease with which a firm can repatriate profits out of a given country. PRI is the property weighted average of the Political Risk Index and measures sociopolitical risk. More detailed definitions are provided in the Appendix 3

Examining these exposure metrics more closely reveals interesting patterns in firm investment activity across time. For example, in Fig. 1 we note that during the early years of our analysis

fewer than 35% of sample firms restricted their investment activities to a single country, while by the end of our sample period this number had risen to over 55%. This increased investment focus is further evidenced, in Fig. 2, by a noticeable reduction in the average number of investment property interests held by sample firms. More specifically, during the early years of our sample, firms held an average of over 60 properties in their investment portfolios. Over our sample interval, this number declined by more than 25%, dropping below 45 property holdings per firm by 2013. On the other hand, focusing exclusively on those firms which choose to invest abroad, we find evidence that they are increasing the size of their physical footprint and cultural heterogeneity. For example, in Fig. 3, while the average physical distance between firm headquarters and investment property locations increased modestly during our sample period, the average values for all four cultural distance metrics increased markedly. More specifically, both Hofstede metrics increased more than three-fold, while the average values for our two GLOBE exposure indices increased between 40% and 50%. While a formal analysis of these trends is beyond the scope of the current investigation, they are consistent with the notion that Asia-Pacific real estate markets have witnessed an important evolution in recent years. These changes entail both an increase in the aggregate level of international holdings and, simultaneously, an increasing concentration of those holdings within a smaller subset of firms who may well (or may not) be uniquely positioned to manage this exposure.
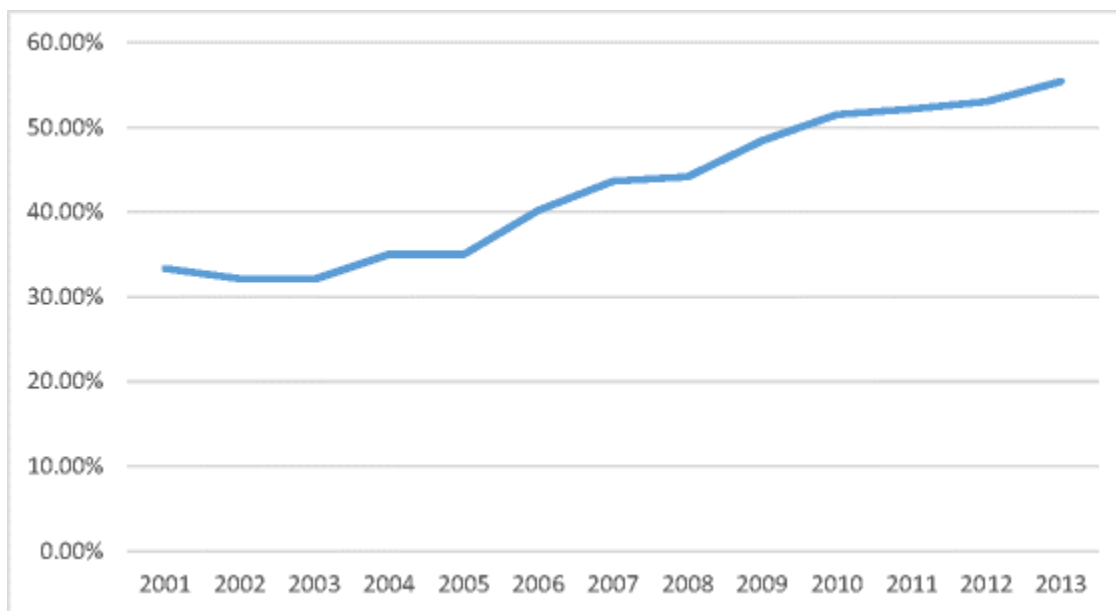

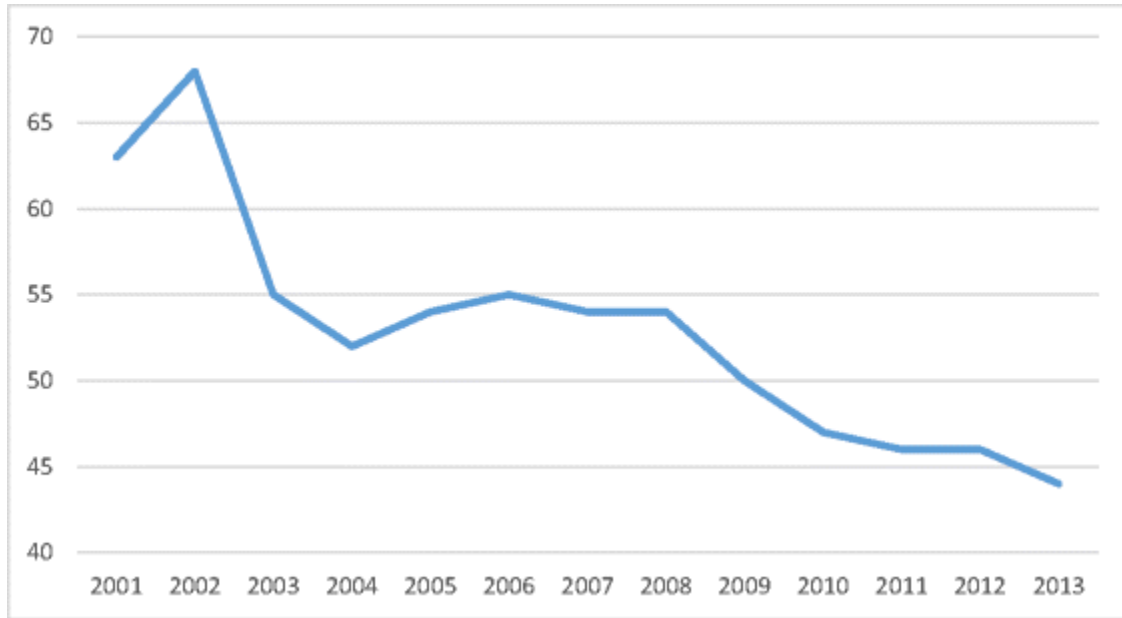Fig. 1 Percentage of firms investing in a single country each year

Fig. 2 Average number of properties owned by a firm each year
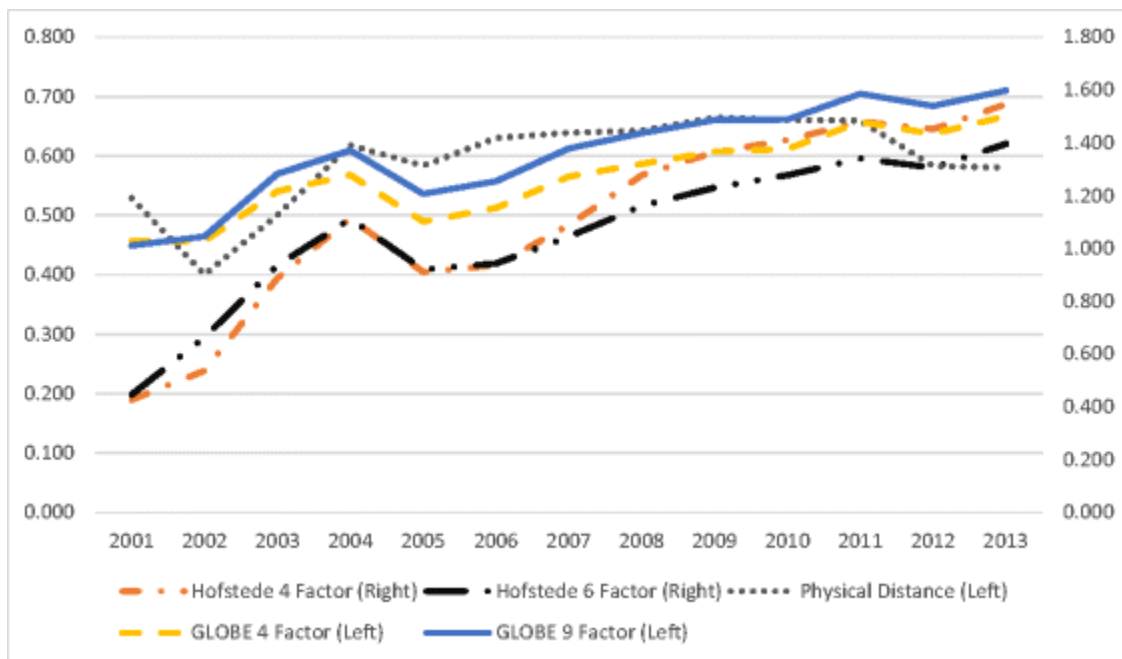
Fig. 3 Firms investing in multiple countries by distance

Continuing, our dataset also includes a number of important control variables designed to ensure the accuracy, consistency, and robustness of our core results. We divide these controls into four groups: 1) Political Risk Metrics, 2) Business Environment Measures, 3) General Firm Characteristics, and 4) Foreign Experience. As with our cultural distance metrics, the actual cardinal values assigned to our Political Risk attributes are of relatively little import. That said, we note that the considerable variation exhibited by each of these metrics should allow us to

more effectively control for the potential influence of these forces, and thereby provide a cleaner and more powerful test.

Similarly, our business environment controls are generally most noteworthy in that they exhibit discernable variation. Highlighting a pair of these variables, we observe 72.7% of firm month observations come from firms headquartered in countries whose legal systems are based upon the foundational tenets of (British) Common Law, while 30.3% of sample observations are associated with accounting disclosures following Generally Accepted Accounting Principles (GAAP) rather than International Financial Reporting Standards (IFRS).[27] As firms are disproportionately more likely to be impacted by the prevailing legal and regulatory accounting environment of the jurisdiction in which they are headquartered, we choose to measure these attributes at the firm (rather than portfolio) level. Once again, these numbers are also consistent with previously reported findings within the literature along these dimensions.

Turning to our firm specific metrics, the average firm in our sample is characterized by a market value of equity of almost US$3.5 billion. This number is slightly larger than that found for U.S. based firms, but is heavily skewed by a handful of very large observations. For example, Sun Hung Kai Properties Limited, a Hong Kong based (diversified) development firm, was valued at over US$52.6 billion in January of 2008. The median value along this dimension of approximately US$1.2 billion is nearly identical to that found in U.S. markets. Similarly, the market-to-book ratio for sample firms averages 1.158, while the average debt ratio is 40.8% (Debt/Equity = 0.689). These numbers are again very much in line with those reported by publicly traded real estate companies within the United States.[28] Interestingly, the sample is relatively evenly split between firms with active development programs (58.4%) and those restricting their activities to the ownership and/or operation of existing structures.

With respect to investment property holdings, the typical firm in our sample holds 50 distinct investment properties, though we once again observe wide variation along this dimension and, as previously mentioned, sample firms appear to be increasing their focus and investing in fewer properties through time. Additionally, we note that while the typical firm holds investment properties in 3 countries, approximately 20% of our sample firm-month observations come from firms holding investment assets across five or more countries, again highlighting the willingness of firms within this region to invest across international boundaries. Conversely, we observe that 45% of our sample observations represent firms limiting their investments to a single country, and 32% of the sample represents firms restricting their investments to their home country. That said, as noted above, these investment holdings appear to exhibit an increasing focus/concentration over time.

Finally, our last set of controls are designed to capture the foreign experience of sample firms with respect to managing and mitigating risk. Along this dimension, we observe that the typical firm in our sample has held international investments for approximately eight years (96 months). Additionally, we find a non-trivial 5.2% of sample observations are from firms headquartered in countries other than where their equity shares are traded. While only 0.1% of sample observations involve firms entering a new market within any given month, this pattern represents 8% of firms in our sample when extended across the entire evaluation period/interval. Moreover, we note the typical firm has approximately 34% of their investment

portfolio holdings in foreign countries, while 37% have accessed foreign markets to raise debt. In general, the values presented in Table 2 are broadly consistent with those reported by Cashman et al. (2016) and other studies of the modern Asia-Pacific real estate marketplace.

Univariate Comparisons

Table 4 presents the results of our univariate analysis. Each month, we split firms into high and low intrafirm distance groups based upon the median intrafirm geographic and cultural distance values. We then compare the mean weighted average cost of capital across these sub-samples. Consistent with expectations, we find the weighted average cost of capital is higher at firms with more culturally divergent portfolios. On the other hand, somewhat surprisingly we also find that firms with investments spread over a larger geographic area exhibit lower weighted average capital costs.[29] While partially consistent with expectations, these univariate comparisons may well mask the true underlying nature of the relation between distance and transparency. In particular, multi-national firms may well be more informationally transparent in spite of, rather than because of, the scope and breadth of their operations. For example, the multinational companies within our sample are significantly larger than those firms constraining their investment holdings to a single country.[30] Failure to control for confounding organizational characteristics, like firm size, may well lead to misleading conclusions. As such, we simply note these findings and proceed to the multivariate portion of our analysis.

Table 4 Univariate comparisons of cost of capital acquisition

| | High distance | | Low distance | | |
Variable	Obs.	Mean	Obs.	Mean	T-test of difference
Geographic distance:					
Physical distance	7288	0.0834	7209	0.0913	−0.0080***
Cultural distance:					
Hofstede 4 Factor index	7292	0.0883	7205	0.0863	0.0020**
Hofstede 6 Factor index	7289	0.0883	7208	0.0864	0.0019**
GLOBE 4 Factor index	7288	0.092	7209	0.0826	0.0094***
GLOBE 9 Factor index	7288	0.0914	7209	0.0832	0.0082***

This table presents univariate tests of differences in means for the Implied Cost of Capital of firms with headquarters locations that are geographically and/or culturally proximate versus distant from their investment property holdings. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively

Multivariate Determinants of Capital Acquisition Costs

Table 5 presents the results of our multivariate analysis into the relation between a firm's intrafirm physical and cultural distance and its weighted average cost of capital. All specifications include the controls previously mentioned, as well as time, property type, firm, and exchange fixed effects.[31] Additionally, each model includes the average (physical) distance between the firm's headquarters and the properties held within its investment portfolio. Columns one through four sequentially iterate through each of our four intrafirm

cultural distance indices: 1) Hofstede Four Factor, 2) Hofstede Six Factor, 3) GLOBE Four Factor, and 4) GLOBE Nine Factor. Positive coefficient estimates on either the physical or cultural distance indices across each of these models would be consistent with intrafirm distance increasing the informational opacity of the firm.

Table 5 The effects of distance on the cost of capital acquisition

Variables	(I)	(II)	(III)	(IV)
Geographic distance				
Physical distance	0.007***	0.006**	0.005*	0.010***
	(2.90)	(2.46)	(1.95)	(4.14)
Cultural distance indices				
Hofstede 4 Factor index	0.019***			
	(4.53)			
Hofstede 6 Factor index		0.028***		
		(4.62)		
GLOBE 4 Factor index			0.036***	
			(9.12)	
GLOBE 9 Factor index				0.030***
				(5.89)
Political risk metrics				
Disclosure	−0.074	−0.033	0.163**	0.066
	(−1.09)	(−0.47)	(2.09)	(0.82)
ORI	-0.118***	−0.112***	−0.113***	−0.095**
	(−3.08)	(−2.91)	(−2.95)	(−2.47)
R-Factor	0.148***	0.145***	0.149***	0.128***
	(3.95)	(3.89)	(4.00)	(3.40)
PRI	0.268***	0.256***	0.284***	0.308***
	(7.64)	(7.22)	(8.28)	(9.06)
Business environment measures				
UK Law	0.236***	0.216***	0.212***	0.202***
	(7.51)	(6.74)	(6.56)	(6.17)
Bank dominated	−0.226***	−0.228***	0.060***	−0.350***
	(−11.27)	(−11.33)	(3.53)	(−15.06)
GAAP	-0.003**	−0.003*	−0.003*	−0.003*
	(−1.97)	(−1.94)	(−1.86)	(−1.84)
Time to export	0.004***	0.004***	0.004***	0.004***
	(10.28)	(10.28)	(10.37)	(9.82)
Property acquisition complexity	−0.000***	−0.000***	−0.000***	−0.000***

Variables	(I)	(II)	(III)	(IV)
	(−6.86)	(−6.82)	(−5.77)	(−6.39)
Market cap/GDP	0.000***	0.000***	0.000***	0.000***
	(10.33)	(10.42)	(10.49)	(10.70)
Broadband per 100	−0.002***	−0.002***	−0.002***	−0.002***
	(−8.84)	(−8.88)	(−9.74)	(−8.88)
Education spending	−0.004***	−0.004***	−0.004***	−0.004***
	(−10.12)	(−10.18)	(−9.90)	(−9.29)
Female labor force participation	−0.002***	−0.002***	−0.002***	−0.002***
	(−5.63)	(−5.71)	(−5.83)	(−5.32)
General firm characteristics				
Ln(Mkt Cap)	0.007***	0.007***	0.006***	0.006***
	(4.65)	(4.67)	(4.39)	(4.44)
MtoB	−0.006***	−0.006***	−0.006***	−0.005***
	(−7.40)	(−7.43)	(−7.85)	(−7.46)
Lagged leverage	0.019***	0.019***	0.018***	0.019***
	(4.54)	(4.55)	(4.35)	(4.57)
Asset tangibility	−0.039***	−0.039***	−0.040***	−0.040***
	(−4.85)	(−4.90)	(−5.04)	(−4.94)
Log(Total assets)	−0.048***	−0.048***	−0.048***	−0.048***
	(−21.11)	(−21.02)	(−21.48)	(−21.14)
Profitability	0.066***	0.066***	0.068***	0.068***
	(7.02)	(6.99)	(7.21)	(7.19)
Secured debt	−0.000**	−0.000**	−0.000**	−0.000**
	(−2.16)	(−2.10)	(−2.37)	(−2.21)
Rated debt	−0.177***	−0.174***	0.149***	−0.150***
	(−9.63)	(−9.88)	(14.98)	(−6.63)
Split rating	0.375***	0.374***	−0.059***	0.085***
	(13.55)	(13.73)	(−5.07)	(8.51)
Asset age	0.008***	0.008***	0.011***	0.019***
	(5.18)	(5.04)	(9.91)	(10.33)
Repurchases	0.001	0.001	0.001	0.001
	(0.43)	(0.45)	(0.40)	(0.46)
Operating leverage	0.000	0.000	0.000	0.000
	(0.66)	(0.67)	(0.68)	(0.66)
Lease payments	0.743**	0.750**	0.746**	0.733**
	(2.32)	(2.35)	(2.37)	(2.29)
# of Countries	−0.006***	−0.006***	−0.005***	−0.006***

Variables	(I)	(II)	(III)	(IV)
	(−10.57)	(−10.62)	(−9.50)	(−10.04)
Development	0.002	0.002	0.003**	0.002
	(1.59)	(1.59)	(1.98)	(1.60)
REIT Status	0.004	0.002	0.081***	0.057***
	(0.54)	(0.30)	(8.50)	(5.69)
# of Properties	0.000***	0.000***	0.000**	0.000***
	(3.04)	(3.33)	(2.49)	(2.86)
Single country	0.006	0.007	0.010	0.009
	(0.60)	(0.71)	(1.03)	(0.96)
Home indicator	−0.018*	−0.019*	−0.023**	−0.023**
	(−1.78)	(−1.91)	(−2.34)	(−2.26)
Foreign experience				
Entrance	0.022**	0.022**	0.020**	0.021**
	(2.17)	(2.15)	(2.02)	(2.04)
Foreign tenure	−0.000***	−0.000***	−0.000***	−0.000***
	(−3.24)	(−3.22)	(−3.32)	(−3.48)
Headquarter ≠ Exchange	0.524***	0.522***	0.050***	0.448***
	(17.18)	(17.37)	(3.05)	(15.82)
Foreign properties/Total properties	0.029*	0.025	−0.011	−0.035*
	(1.86)	(1.56)	(−0.73)	(−1.82)
Foreign debt indicator	−0.015***	−0.015***	−0.015***	−0.015***
	(−4.43)	(−4.40)	(−4.43)	(−4.39)
Constant	0.773***	0.766***	0.297***	0.638***
	(11.81)	(11.65)	(4.61)	(8.12)
Year & month fixed effects	Yes	Yes	Yes	Yes
Property type fixed effects	Yes	Yes	Yes	Yes
Firm fixed effects	Yes	Yes	Yes	Yes
Exchange fixed effects	Yes	Yes	Yes	Yes
Observations	14,497	14,497	14,497	14,497
Adjusted R-squared	0.560	0.560	0.561	0.560

This table examines the effects of distance on an Asia-Pacific real estate firm's cost of capital. The dependent variable is the implied weighted average cost of capital acquisition. All standard errors are robust to heteroskedasticity, and clustered by firm and year-month. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively

Examining these results, we find strong evidence suggesting that as intrafirm physical and cultural distance increases, firms become more informationally opaque. Specifically, the average geographic distance between a firm's headquarters and its investment properties is positive and significant related to a firm's WACC across all four model specifications,

suggesting firms which are more geographically disperse are characterized by reduced financial market transparency and a higher cost of capital. In terms of economic magnitude, a one standard deviation increase in the cross sectional average physical distance between a firm's headquarters and its investment property locations is associated with, on average, a 13 basis point (b.p.) increase in the firm's weighted average cost of capital. Similarly, we find consistent evidence that greater intrafirm cultural distances, regardless of which of our four alternative indices are employed, are also associated with increased capital costs for sample firms. In terms of economic significance, a one standard deviation cross sectional increase in the relative cultural distance between a firm's headquarters nation and its investment property locations is associated with, on average, a 67 b.p. increase in the firm's weighted average cost of capital.[32]

Turning to our control variables, a number of these attributes exhibit strong relations which are generally in line with ex-ante expectations and/or previous findings in the empirical literature. Highlighting a few of the more noteworthy results, consistent with emerging evidence offered by Cashman et al. (2016), political risk appears to play an important role within Asia-Pacific property markets, with three of our four risk proxies exhibiting high levels of statistical significance across all model specifications in Table 5.[33] Similarly, consistent with previous real estate findings, but somewhat at odds with the broader finance literature, capital costs across this region appear to benefit from the reduced uncertainty associated with legal systems grounded on the foundational tenets of rules based civil law as opposed to UK based common law. As argued by Cashman et al. (2015), the contractual surety offered by civil law based legal systems may reduce the risk and uncertainty associated with exposure to unfamiliar (and unwritten) customs, practices, and precedents which govern common law. Continuing, we also find firms with more assets, and those with more tangible assets, exhibit lower costs of capital, as do firms with more secured debt and/or rated debt outstanding. Consistent with increased complexity leading to increased opacity, we also observe that firms entering new countries, and those whose shares are traded on an exchange in a country other than where they are headquartered, are both characterized by higher weighted average costs of capital. Moreover, we observe that firms with investment property holdings focused exclusively within their home country enjoy lower capital costs, while capital costs are directly related to the number of countries in which a firm holds investment property interests. Finally, we note that firms with more foreign investment experience have lower costs of capital. These latter results are again consistent with the notion that increasing cultural diversity increases information opacity, thereby raising a firm's cost of capital acquisition. However, we also note that firms with foreign denominated debt outstanding evidence a lower cost of capital. While this appears somewhat in contrast to our core opacity results, it is potentially explained by: 1) firms raising debt internationally when it offers an opportunity to lower their cost of capital, and/or 2) firms matching the location and/or currency of their capital raising activities with that of their investing and revenue/income generation.

Potentially, intrafirm physical distance will have a larger impact when the firm's headquarters and properties are located in different countries than when they are located in the same country. For example, the physical distance between a firm headquartered in Singapore with investment properties in Malaysia may have a stronger impact on its cost of capital than the physical distance between a firm headquartered in Melbourne with properties in Perth, despite

the latter having a larger intrafirm physical distance. In untabulated analyses we explore this possibility by interacting our home country indicator variable with intrafirm physical distance. In doing so, we find that intrafirm physical distance matters regardless of whether the firm invests in multiple countries or limits itself to a single country. More specifically, the larger the intrafirm physical distance, the higher the firm's WACC. Moreover, this relation is actually magnified among firms investing only in their home country, potentially suggesting that while the costs and difficulties of managing disperse operations are still borne by the firm, far flung domestic operations do not engender the same level of geographic, interjurisdictional, or regulatory diversification benefits as cross-border investing.

While WACC represents a firm's overall financing costs, the interactions between the various intrafirm physical and cultural distance metrics and the costs of their individual financing components may also be informative. We explore these relations in Table 6. Consistent with our previously reported findings, the results presented in Panel A of Table 6 indicate that a firm's cost of equity financing is directly related to cultural distance across all model specifications. In terms of economic magnitude, a one standard deviation increase in a firm's average cultural distance between its headquarters and investment property locations is associated with, on average, a 122 b.p. increase in equity capital costs. Interestingly, however, we observe that intrafirm physical distance is only significantly related to a firm's cost of equity in one of the four model specifications examined. These results potentially suggest cultural distance may have a more direct impact on a firm's cost of equity than intrafirm physical distance. Additionally, we note that risk premiums associated with the various stock exchange trading venues across the countries in which sample firm investment properties are located may influence a firm's cost of capital. In untabulated analysis, we explore this possibility by replacing each firm's political risk exposure proxies with a weighted average of the stock market risk premiums to which they are exposed.[34] Comfortingly, we observe qualitatively similar results to those previously reported when we use these weighted average stock market risk premiums. Namely, both physical and cultural distance are significantly related to a firm's cost of equity and WACC.

Table 6 The effects of distance on the component costs of capital acquisition

Panel A: Determinants of a-p real estate firm's cost of equity (r_e)

Variables	(I)	(II)	(III)	(IV)
Geographic distance				
Physical distance	0.001	−0.001	−0.002	0.007*
	(0.32)	(−0.16)	(−0.61)	(1.70)
Cultural distance indices				
Hofstede 4 Factor index	0.038***			
	(5.79)			
Hofstede 6 Factor index		0.056***		
		(6.09)		
GLOBE 4 Factor index			0.058***	

	(I)	(II)	(III)	(IV)
				(9.27)
GLOBE 9 Factor index				0.058***
				(6.87)
Controls	Yes	Yes	Yes	Yes
Observations	14,497	14,497	14,497	14,497
Adjusted R-squared	0.604	0.604	0.605	0.604

Panel B: Determinants of a-p real estate firm's cost of debt (r_d)

Variables	(I)	(II)	(III)	(IV)
Geographic distance				
Physical distance	0.001	0.001*	0.001	0.001
	(1.22)	(1.80)	(1.30)	(1.26)
Cultural distance indices				
Hofstede 4 Factor index	−0.007***			
	(−4.61)			
Hofstede 6 Factor index		−0.014***		
		(−6.56)		
GLOBE 4 Factor index			0.002	
			(1.21)	
GLOBE 9 Factor index				−0.000
				(−0.04)
Year & month fixed effects	Yes	Yes	Yes	Yes
Observations	14,497	14,497	14,497	14,497
Adjusted R-squared	0.606	0.607	0.606	0.605

This table examines the effects of distance on a firm's component costs of capital. Panel A reports the results regarding the firm's cost of equity (r_e), while Panel B reports the results related to the firm's cost of debt (r_d). All standard errors are robust to heteroskedasticity, and are clustered by firm and year-month. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively

In Panel B, we examine a firm's cost of debt financing. Exploring these results, we find little support for the notion that increasing intrafirm physical or cultural distance increases a firm's cost of debt. While interesting, these results are not entirely unexpected. More specifically, both Cashman et al. (2015, 2016) report real estate firms investing internationally generally exhibit lower leverage.[35] Their findings suggest that instead of raising the price of borrowing, lenders may ration the amount of capital extended to these firms. Consistent with the notion of potential capital rationing, in untabulated results we find that more geographically and/or culturally disperse firms do indeed exhibit lower leverage ratios.[36]

We next ensure the robustness of our findings by splitting the sample between firms with active property development programs and/or pipelines versus firms focusing exclusively on the operation and/or management of existing facilities.[37] We then examine whether the observed relation between a firm's weighted average cost of capital and its intrafirm physical

and cultural distance measures hold in these more focused sub-samples. Splitting the sample along this dimension is motivated by two key factors. First, the requisite skills necessary to understand the risk exposure and management capabilities of a firm may vary markedly with the nature of their holdings. To the extent assets in place, versus those under (various stages of) development, are more informationally transparent, both capital costs and the importance of intrafirm distance could vary meaningfully along this dimension. Second, we are unable to fully identify the scope, importance, and location of all currently on-going development projects undertaken by property developers. For example, many announced projects in the early planning stages will never actually be constructed, or may be sold to other organizations before completion. Similarly the geographic exposure of active property developers is likely more fluid and dynamic than that faced by owner-operators, as emerging market opportunities may lead these firms to quickly enter new markets (or leave existing ones) seeking to capitalize on previously unforeseen opportunities. These factors would serve to induce noise into our measure of intrafirm distance and geopolitical risk exposure, thereby making it harder for us to detect a significant relation. This bias should be most pronounced among firms with active development programs. The results of this robustness analysis are presented in Table 7, and are once again broadly consistent with our previous empirical findings. Namely, intrafirm physical and cultural distance are positively related to a firm's weighted average cost of capital. More specifically, the results presented in Panel A of Table 7 (development firm sub-sample) are consistent with on-going development properties mitigating our ability to detect precise relations. We find no evidence of a relation between a firm's physical footprint and its WACC, though intrafirm cultural distance remains significantly positively related to WACC. In Panel B, the non-development sub-sample, we again find strong evidence supporting our hypothesized focal relation, as a firm's weighted average cost of capital is once again significantly related to both its intrafirm physical and cultural distance. Taken together, these results suggest that the relation between cultural distance and a firm's weighted average cost of capital is prevalent across both firm types, while physical distance is related to WACC for non-development firms.

Table 7 Development versus non-development activities

Panel A:

Variables	(I)	(II)	(III)	(IV)
Geographic distance				
Physical distance	0.001	−0.000	−0.001	0.002
	(0.21)	(−0.04)	(−0.42)	(0.64)
Cultural distance indices				
Hofstede 4 Factor index	0.012***			
	(2.72)			
Hofstede 6 Factor index		0.024***		
		(3.33)		
GLOBE 4 Factor index			0.019***	
			(3.88)	

Variables	(I)	(II)	(III)	(IV)
GLOBE 9 Factor index				0.047***
				(7.25)
Controls	Yes	Yes	Yes	Yes
Observations	8465	8465	8465	8465
Adjusted R-squared	0.648	0.648	0.648	0.649
Panel B:				
Variables	(I)	(II)	(III)	(IV)
Geographic distance				
Physical distance	0.012***	0.011**	0.006	0.020***
	(2.65)	(2.37)	(1.36)	(4.30)
Cultural distance indices				
Hofstede 4 Factor index	0.032***			
	(4.39)			
Hofstede 6 Factor index		0.044***		
		(4.56)		
GLOBE 4 Factor index			0.067***	
			(8.32)	
GLOBE 9 Factor index				0.057***
				(5.37)
Year & month fixed effects	Yes	Yes	Yes	Yes
Observations	6032	6032	6032	6032
Adjusted R-squared	0.578	0.578	0.582	0.579

This table examines the robustness of our focal relations by split the sample. Panel A reports the results regarding firm's with an active development program, while Panel B reports the results for non-development firms. All standard errors are robust to heteroskedasticity, and are clustered by firm and year-month. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively

In addition to ensuring our results hold across firm development activities, we also examine how the relation between a firm's cost of capital and its intrafirm physical and cultural distance changes through time. As mentioned above, Adams et al. (2015) find risk spillovers across geographically proximate real estate firms are most pronounced during periods of economic stress and uncertainty. Consistent with this framework, both Kim (2009); Newell and Peng (2009) suggest the global financial crisis may well have materially influenced the performance, operations, and structural linkages of Asia-Pacific real estate markets both with, and in comparison to, their global counterparts. As such, we view year-end 2007 as representing a potentially important structural break point within our analysis. Ex-ante, we anticipate that both during, and immediately following this crisis period, market participants may well have become increasingly risk-averse and more wary of taking on informationally opaque risk exposures. To explore this possibility, we create a post financial crisis indicator variable, which we then interact with both our physical and cultural distance measures. Positive coefficient estimates

on our interaction terms would be consistent with increased levels of risk aversion in the post-crisis period.

The results of this robustness analysis are presented in Table 8. Examining the results, we again find a firm's weighted average cost of capital is related to both its intrafirm physical and cultural distance, and furthermore, the increase in a firm's weighted average cost of capital associated with increased physical and/or cultural distance is more pronounced following the global financial crisis. Specifically, we find that the interaction terms between physical distance and our financial crisis indicator variable are significantly positive in two of our four model specifications. The average magnitude of these coefficients on the interaction terms corresponds to a 17.5% increase in risk sensitivity during the post-crisis period. Additionally, the interactions between our cultural distance measures and the financial crisis indicator are positive and significant across all four model specifications. These interaction term coefficients represent, on average, a 26% increase in risk sensitivity during the post-crisis era. Taken together, these findings suggest that physical and cultural distance may well play an increasingly important role in determining a firm's cost of capital following the global financial crisis.[38]

Table 8 Effects of the financial crisis

Variables	(I)	(II)	(III)	(IV)
Geographic distance				
Physical distance	0.005**	0.005**	0.004	0.010***
	(2.08)	(1.97)	(1.64)	(3.94)
Physical distance * Post financial crisis	0.002***	0.001*	0.000	0.001
	(3.02)	(1.75)	(0.76)	(0.90)
Cultural distance indices				
Hofstede 4 Factor index	0.016***			
	(3.44)			
Hofstede 4 Factor index * Post financial crisis	0.004**			
	(2.34)			
Hofstede 6 Factor index		0.021***		
		(3.29)		
Hofstede 6 Factor index * Post financial crisis		0.007***		
		(3.82)		
GLOBE 4 Factor index			0.034***	
			(8.76)	
GLOBE 4 Factor index * Post financial crisis			0.007***	
			(10.01)	
GLOBE 9 Factor index				0.030***

Variables	(I)	(II)	(III)	(IV)
				(5.94)
GLOBE 9 Factor index * Post financial crisis				0.007***
				(10.17)
Post financial crisis	0.028*	0.029*	0.006	−0.053***
	(1.75)	(1.81)	(0.45)	(−3.00)
Controls	Yes	Yes	Yes	Yes
Observations	14,497	14,497	14,497	14,497
Adjusted R-squared	0.561	0.561	0.566	0.564

This table examines the effects of distance on an Asia-Pacific real estate firm's cost of capital both before and after the global financial crisis of 2007. The dependent variable is the implied weighted average cost of capital acquisition. Post Financial Crisis is an indicator variable which assumes the value of one for all firm-month observations after 2007, and zero otherwise. While we again include all control variables previously employed in Table 5, for brevity their coefficient estimates are not reported. Appendix 3 provides a detailed description of each variable examined. All standard errors are robust to heteroskedasticity, and are clustered by both firm and year-month. ***, **, and * indicates statistical significance at the 1%, 5%, and 10% levels respectively

Summary and Conclusions

Throughout this paper, we examine the impact of intrafirm physical and cultural distance on the informational transparency of publicly traded firms. Specifically, using a sample of Asia-Pacific real estate companies, we explore how a firm's decision to invest in geographically and culturally distant assets influences its implied cost of capital. Focusing our sample in this way offers several important advantages. Notably, given the tangible nature of the revenue generating assets held by real estate firms, as well as the scale and irreversible nature of many commercial real estate projects, the selection of this industry allows us to readily and accurately identify the geographic footprint of each sample firm. This identification is strengthened by the highly localized nature of commercial real estate space markets, which in turn is driven by the property type and location specificity (i.e., immovable nature) of the underlying assets. Furthermore, firms within this industry are typically characterized by relatively little investment in research and development activities, intellectual property rights, or other intangible assets, once again allowing for a relatively clean assessment of the firm's underlying asset base. Potentially more important from a managerial perspective, firms across this industry also tend to exhibit high, often regulatory mandated, payout ratios. As a result, these firms face limitations on their ability to internally finance growth and expansion activities, thereby making them both frequent issuers in the capital markets and uniquely concerned with the potential impact of informational opacity on capital acquisition costs. Finally, from an estimation perspective, the selection of the Asia-Pacific region as the geographic setting for our analysis allows us to capture significant variation in our key focal parameters, as publicly traded real estate firms across this region evidence a unique proclivity toward cross-border investment activities. Taken together, these attributes allow us to more effectively isolate and measure the impacts of intrafirm geographic and cultural distance on firm transparency within

this market sector. While we limit our analysis/sample to this single industry, we see no reason the relations observed here would not be generalizable to a broader cross-section of firms.

Reviewing our focal results, we find strong evidence that Asia-Pacific real estate firms which invest in assets that are more distant, either geographically or culturally, are perceived as more informationally opaque by the marketplace. Specifically, these firms are characterized by significantly higher implied costs of capital. These results suggest that increasing the distance between a firm's headquarters location and the revenue generating assets they own and/or operate effectively serves to create non-trivial information barriers which make the firm harder to value. Our geographic distance results are consistent with and extend the existing literature which documents "locals" possess an informational advantage compared to more distant investors, while our cultural distance results are also generally consistent with the growing literature documenting the importance of culture to the marketplace and the difficulties that arise when firms attempt to span multiple cultures. More specifically, using four alternative proxies for a firm's intrafirm cultural distance, we find cross-border investment activities are easier to value when the investment property is located in a nation whose cultural underpinnings are similar to those of the nation in which the firm is headquartered. Robustness tests reveal these relations hold for subsamples of both development and non-development oriented firms, while additionally suggesting our findings are more pronounced during the post global financial crisis era. Together, these findings strongly suggest both intrafirm geographic and cultural distance represent value relevant components of a firm's information environment, and as such, should be strategically managed to enhance shareholder utility.

Footnotes

1. For example, Jiang et al. (2014) find that firms with better corporate governance are viewed as being less ambiguous and exhibit lower bid-ask spreads.
2. These influences include, but are not limited to, factors such as language, religion, gender roles, and a variety of additional customs and ideologies specific to a group of people.
3. Examples include, but are not limited to: Beugelsdijk and Frijns (2010); Anderson et al. (2011); Aggarwal et al. (2012); Baltzer et al. (2013); Beracha et al. (2014); Nahata et al. (2014).
4. Noteworthy studies of these issues include, but are not limited to, Grubel (1968); Levy and Sarnat (1970); Stulz (1981a, b); Grauer and Hakansson (1987); French and Poterba (1991); Eichholtz (1996).
5. Similarly, Ivkovic and Weisbenner (2005) find: 1) retail investors exhibit a proclivity toward overinvesting in local firms, and 2) retail investors earn superior returns on their investments in such local firms.
6. Additional evidence on the information advantage of local investors within the commercial and investment banking arenas may be found in Degryse and Ongena (2005); Butler (2008); Agarwal and Hauswald (2010), while market microstructure based evidence on the informational advantage of local traders is offered by Hau (2001); Schultz (2003); Kedia and Zhou (2011) among others.

7. An alternative explanation, suggested by Gaspar and Massa (2007), is that local investors are better positioned to monitor firms. Diamond (1984), among others, provides insight into agency issues associated with monitoring firm performance.
8. North (1990) argues such social customs and conventions may well have a larger impact on daily interactions than more traditionally recognized measures of political risk such as a country's foundational legal system. Similarly, Williamson (2000) demonstrates how cultural forces provide the underpinnings of the formal rules of economic activity.
9. For examples see: Beugelsdijk and Frijns (2010); Anderson et al. (2011).
10. We note that an alternative means to examine these relations would be to examine the impact of distance on bid-ask spreads, analyst forecast dispersion/errors, the probability of split bond ratings, or various other proxies for increased informational opacity regarding the firm. We have explored the relations between bid-ask spreads and our distance measures, and once again find qualitatively similar results to those reported in the current paper. In sum, both increased physical and cultural distance are associated with wider (percentage) bid-ask spreads. Due to space constraints, as well as previous reviewer/discussant feedback suggesting the conceptual link between our focal distance relations is likely more important to company operations and insiders than market-wide investors, within the context of the current investigation we choose to focus our analysis exclusively on our cost of capital based results.
11. While conventional wisdom posits that REITs and listed property trusts hold relatively recognizable and easy to value assets, we note this may not always be the case for individual firms. In particular, while the physical structures held by an organization are generally a matter of public record, individual tenant lease terms are generally not publicly disclosed. To the extent an individual property's value is derived from property specific lease terms, we may well be understating the valuation complexities inherent within this industry.
12. As a point of comparison, consider car manufacturer Toyota. While the bulk of Toyota's Japanese operations are located in and around Toyota City, the profitability of the company is not critically dependent upon the economic vitality of the local economy, but rather upon the broader economic conditions over the (national, regional, or even international) range of markets where their products are ultimately distributed and sold. Commercial real estate markets, on the other hand, remain highly localized. As buildings are typically designed with a specific purpose in mind, and in addition are difficult if not impossible to move, both type and location specificity issues lead commercial real estate rents to be highly localized. As such, cash flows accruing to individual real estate investment properties are driven primarily by local economic conditions.
13. While this coverage includes only a slight majority (127 / 211 = 60.2%) of the publicly traded REITs across the region as identified by European Public Real Estate Association (EPRA) (2013), these firms account for over 90% of the sector's total market capitalization. Additionally, we note the sample includes (at a minimum) the five largest REITs headquartered in Australia, Hong Kong, Japan, and Singapore. Precise property company and developer coverage rates are much harder to assess, but given the resulting size and characteristics of our sample firms, they again appear non-trivial. That said, our cost of capital estimates require multiple years of data to impute, thereby

leading to the selection of a sample which is likely to be disproportionately weighted toward older, more established firms. To the extent these firms are more likely to evaluate the costs and opportunities associated with international investments, we view our results as a conservative estimate of the impact of intrafirm distance, and urge caution in generalizing these results to both newer and smaller firms.

14. We determine a firm's total debt by averaging the firm's fiscal year-end total debt numbers across the current and immediately preceding years.

15. For a detailed discussion of the development of the residual income valuation model, see Feltham and Ohlson (1995); Lee et al. (1999); Gebhardt et al. (2001). For examples of this model being applied to real estate markets, see Danielsen et al. (2014); Cashman et al. (2015).

16. Ideally, a firm's average geographic distance exposure would be weighted to reflect the relative values of each investment property holding. Unfortunately, our data do not include detailed, reliable, and timely information on individual property values, and thus, do not allow for this level of refinement. As such, our geographic distance metrics, as well as our cultural distance metrics outlined below, weight each investment property holding equally, regardless of their size, property type, or perceived value.

17. Hofstede index values are unavailable for 10 countries in which sample firms hold a total of 46 investment property interests. Thus, index values are imputed for 0.47% of our sample properties. Excluding these properties from the analysis has no material effect on our conclusions.

18. GLOBE dimension scores are unavailable for 15 countries in which sample firms hold a total of 72 investment property interests. Thus, dimension scores are imputed for 0.73% of our sample properties. Excluding these properties from the analysis has no material effect on our conclusions.

19. As previously mentioned with respect to geographic distances, while we would like to calculate country weights based on market values, we are not able to obtain estimates of the market value of each firm's investments in separate countries. Therefore, we are once again forced to calculate weights based upon the number of properties in each firm's investment portfolio.

20. For example, following Cashman et al. (2015) we control for the percentage of a firm's investment properties that are located in countries with legal systems based on British Common Law. Additionally, to minimize the effect of outliers on our dataset, both the market-to-book and leverage ratios for sample firms are winsorized at the 1% and 99% levels. Finally, a number of the firm characteristics reported by SNL are only provided annually or quarterly. Operationally, these variables are matched to the months covered by the report. We note that temporal aggregation does not appear to be driving our findings, as we observe qualitatively similar results if we perform our analyses annually (to match the most course data in our sample) rather than monthly.

21. We readily cede the point that a plethora of alternative political risk proxies are potentially viable. As such, the selection of any specific risk metric is inherently somewhat arbitrary. The four measures we have selected have each been used in recent, peer-reviewed publications, and more importantly were selected as they exhibit relatively little correlation with one another. More specifically, the average Pearson correlation coefficient across these four alternative risk metrics averages less than 0.20 in absolute value, with only the pairwise correlation between our Disclosure and

Operations Risk Indices exhibiting a correlation coefficient greater than 0.22 in absolute value.

22. It is also quite possible that firms headquartered and listed in separate countries have strategically done so to enhance their access to affordable capital sources within the marketplace. Thus, in the absence of appropriate additional controls, the observed relation could easily be reversed. Given our use of both country fixed effects and additional capital market controls, ex-ante we expected the increased complexity effects to dominate within the context of our empirical results.

23. We have included 37 control variables that are categorized into four groups: political risk measures, business environment measures, firm characteristic measures, and foreign experience measures. A list, and detailed definitions, of these variables are provided in Appendix 3.

24. We note that we receive qualitatively similar results when we winsorize the sample at 1%–99%, or 5%–95%.

25. Note, in recent years the firm has dramatically reduced the scope of its geographic exposure, currently holding assets exclusively in Australia and New Zealand.

26. Additionally, we note that while a firm's intrafirm physical and cultural distance measures are statistically significantly related to its political risk exposure, the correlations are relatively low.

27. As Cashman et al. (2015) find evidence that firms located in nations with legal systems based on Common Law traditions have higher capital acquisition costs, we include an indicator variable identifying those firms subject to legal systems based upon the tenets of British (UK) common law. Similarly, to accounting for potential variation in the transparency of a firm's financial disclosures, we control for the accounting convention (GAAP vs. IFRS) employed by sample firms.

28. High regulatory mandated payout requirements for real estate firms electing REIT status serve to effectively drive MTB ratios toward 1.0 for firms within this industry. Examples of studies finding real estate company debt ratios in the 40–50% range include Feng et al. (2007); Boudry et al. (2010); Harrison et al. (2011); Cashman et al. (2016).

29. In untabulated results we also explore the univariate relations for both the cost of equity and cost of debt separately. We find that our results are stronger when we examine the cost of equity, however our results with respect to the cost of debt are not consistent with our hypothesized relation. One potential explanation for these somewhat conflicting results is offered by Cashman et al. (2015) who suggest real estate lenders may account for prospective borrower risk through either the pricing mechanism or credit rationing. Alternatively stated, rather than charging a higher interest rate, lenders may simply reduce their willingness to lend.

30. On average, multinational firms within our sample exhibit an average market capitalization of $4.6 million, while their single country counterparts exhibit an average market capitalization of only $2 million.

31. Qualitatively similar results are obtained if we replace the exchange fixed effects with country fixed effects.

32. Marginal effects based upon changes in Hofstede index values average 36 b.p., while marginal effects based upon GLOBE index values are substantively larger at an average of 98 b.p. Untabulated tests examining our intrafirm physical and cultural distance metrics in isolation provides qualitatively similar results. This suggests the

unexpected Table 4 univariate results with respect to physical distance are likely the by-product of complex relations with omitted firm characteristics, rather than a high degree of correlation between our physical and cultural distance metrics.

33. Interestingly, however, we note our observed relation between a firm's Operations Risk Index (ORI) and their implied cost of capital is negative, a result in direct contrast with ex-ante expectations.

34. Stock market risk premiums are calculated in the same manner as our political risk metrics. Specifically, we calculate each firm's property weighted average stock market risk premium. Similarly, consistent with Armstrong et al. (2011), in untabulated results sorting upon various dimensions of market competitiveness levels, we consistently find evidence that both intrafirm physical and cultural distance materially influence a firm's capital acquisition costs.

35. In untabulated analysis, we observe a similar pattern in our sample.

36. An alternative explanation for the insignificant cost of debt distance relations is that firms may have greater access to foreign debt markets in which their investment properties are located. Distance may be irrelevant for firms borrowing money abroad, as the investment properties (and cash flows) securing these loans may well be 'local' from the perspective of these foreign lenders. In untabulated tests, we explore this possibility by limiting the sample exclusively to firms with foreign denominated debt outstanding. We observe qualitatively similar results within this more restrictive sub-sample.

37. In untabulated tests we also bi-furcate the sample between high and low growth option (MtoB) firms, and also across REIT versus non-REIT organizations. Given the prevailing regulatory environments across the Asia-Pacific real estate landscape, the development versus non-development sample split is very similar to the REIT versus non-REIT bifurcation. In these additional tests, we continue to find support for our focal hypothesis that a firm's weighted average cost of capital is related to both its intrafirm physical and cultural distance.

38. In untabulated results, where we exclude observations occurring in both 2007 and 2008 from the sample due to the large fluctuations associated with the global financial crisis, we find qualitatively similar results.

Acknowledgements

Appendix 1

Table 9 Geographic location of properties held by sample firms

Property country	# of Properties	% of Total properties
Australia	1941	19.65%
Belgium[a]	5	0.05%

Property country	# of Properties	% of Total properties
Brazil	1	0.01%
Burma[b]	4	0.04%
Cambodia[b]	2	0.02%
Canada	11	0.11%
China	1503	15.22%
Czech Republic[a]	3	0.03%
Fiji[b]	5	0.05%
France	55	0.56%
Germany	45	0.46%
Hong Kong	1161	11.76%
Hungary	1	0.01%
India	162	1.64%
Indonesia	62	0.63%
Ireland	1	0.01%
Italy	1	0.01%
Japan	2573	26.05%
Macau[b]	9	0.09%
Malaysia	126	1.28%
Maldives[b]	14	0.14%
Mexico	2	0.02%
Mongolia[b]	1	0.01%
Morocco	1	0.01%
Netherlands	4	0.04%
New Zealand	82	0.83%
Philippines	23	0.23%
Poland	7	0.07%
Russia	1	0.01%
Seychelles[b]	3	0.03%
Singapore	799	8.09%
Slovakia[a]	1	0.01%
South Africa	1	0.01%
South Korea	11	0.11%
Spain	3	0.03%
Sri Lanka[b]	3	0.03%
Sweden	1	0.01%
Switzerland	1	0.01%
Taiwan	5	0.05%

Property country	# of Properties	% of Total properties
Tanzania[a]	1	0.01%
Thailand	46	0.47%
Turkey	1	0.01%
USA	922	9.34%
United Arab Emirates[b]	4	0.04%
United Kingdom	231	2.34%
Vanuatu[b]	1	0.01%
Vietnam[a]	36	0.36%
Total:	9876	100%

[a]Indicates countries with missing Globe Scores. For countries with missing scores, we replace them with the cross sectional average of the corresponding index for the given month
[b]Indicates countries with missing Hofstede and Globe Scores. For countries with missing scores, we replace them with the cross sectional average of the corresponding index for the given month

Appendix 2
Table 10 Sample firms by headquarters country

Australia (23)
  Abacus Property Group
  Arena REIT
  Aspen Group
  Astro Japan Property Trust
  Aveo Group Limited
  BWP Trust
  Carindale Property Trust
  CFS Retail Property Trust
  Charter Hall Group
  Charter Hall Retail Real Estate Investment Trust
  Cromwell Property Group
  DEXUS Property Group
  Federation Centres
  Goodman Group
  GPT Group
  Growthpoint Properties Australia
  Ingenia Communities Group
  Investa Office Fund

Lend Lease Corporation Limited
Mirvac Group
Peet Limited
Stockland
Sunland Group Limited

China (7)
Agile Property Holdings Limited
Evergrande Real Estate Group Limited
Guangzhou R&F Properties Company Limited
KWG Property Holding Limited
Modern Land (China) Co., Limited
Shui On Land Limited
SOHO China Limited

Hong Kong (48)
Asia Standard International Group Limited
Century City International Holdings Limited
Champion Real Estate Investment Trust
Cheung Kong Holdings Limited
China Overseas Land & Investment Limited
China Resources Land Limited
Chinese Estates Holdings Limited
COFCO Land Holdings Limited
Country Garden Holdings Company Limited
Far East Consortium International Limited
Glorious Property Holdings Limited
Great Eagle Holdings Limited
Hang Lung Group Limited
Hang Lung Properties Limited
Harbour Centre Development Limited
Henderson Land Development Company Limited
HKR International Limited
Hon Kwok Land Investment Company, Limited
Hongkong and Shanghai Hotels, Limited
Hongkong Land Holdings Limited
Hopewell Holdings Limited
Hopson Development Holdings Limited
Hui Xian Real Estate Investment Trust
Hysan Development Company Limited

Kerry Properties Limited

Kowloon Development Company Limited

Lifestyle Properties Development Limited

Link Real Estate Investment Trust

Mandarin Oriental International Limited

MTR Corporation Limited

New World China Land Limited

New World Development Company Limited

Pacific Century Premium Developments Limited

Paliburg Holdings Limited

Prosperity Real Estate Investment Trust

Regal Hotels International Holdings Limited

Regal Real Estate Investment Trust

Shangri-La Asia Limited

Shenzhen Investment Limited

Shimao Property Holdings Limited

Sino Land Company Limited

SRE Group Limited

Sun Hung Kai Properties Limited

Sunlight Real Estate Investment Trust

Swire Pacific Limited

Swire Properties Limited

Wharf (Holdings) Limited

Yuexiu Real Estate Investment Trust

India (8)

Asian Hotels (North) Limited

DB Realty Limited

Lancor Holdings Limited

Mahindra Lifespace Developers Limited

Oriental Hotels Limited

Parsvnath Developers Limited

Peninsula Land Limited

Royal Orchid Hotels Limited

Japan (27)

Advance Residence Investment Corporation

AEON Mall Co., Ltd.

Daibiru Corporation

Fukuoka REIT Corporation

GLP J-REIT

Heiwa Real Estate Co., Ltd.

Heiwa Real Estate REIT, Inc.

Hulic Co., Ltd

Ichigo Real Estate Investment Corporation

Invincible Investment Corporation

Japan Excellent, Inc.

Japan Hotel REIT Investment Corporation

Japan Logistics Fund, Inc.

Japan Prime Realty Investment Corporation

Japan Rental Housing Investments Inc.

Japan Retail Fund Investment Corporation

Kenedix Residential Investment Corporation

MID REIT, Inc.

Mitsubishi Estate Co., Ltd.

Mitsui Fudosan Company Limited

Mori Hills REIT Investment Corporation

NTT Urban Development Corporation

ORIX JREIT Inc.

Premier Investment Corporation

Sumitomo Realty & Development Co., Ltd.

Tokyu REIT, Inc.

United Urban Investment Corporation

Singapore (47)

AIMS AMP Capital Industrial REIT

Amara Holdings Limited

Ascendas Hospitality Trust

Ascendas India Trust

Ascendas Real Estate Investment Trust

Ascott Residence Trust

Banyan Tree Holdings Limited

Cache Logistics Trust

Cambridge Industrial Trust

CapitaCommercial Trust

CapitaLand Limited

CapitaMall Trust

CapitaRetail China Trust

CDL Hospitality Trusts

City Developments Limited

Far East Hospitality Trust

First Real Estate Investment Trust

Forterra Trust

Fortune REIT

Frasers Centrepoint Trust

Frasers Commercial Trust

Global Logistic Properties Limited

GuocoLand Limited

GuocoLeisure Limited

Ho Bee Land Limited

Hotel Properties Limited

Keppel Land Limited

Keppel REIT

Lippo Malls Indonesia Retail Trust

Mapletree Commercial Trust

Mapletree Industrial Trust

Mapletree Logistics Trust

OUE Hospitality Trust

OUE Limited

Parkway Life REIT

Religare Health Trust

Sabana Shari'ah Compliant Industrial REIT

Saizen Real Estate Investment Trust

Soilbuild Business Space REIT

Stamford Land Corporation Limited

Starhill Global Real Estate Investment Trust

Suntec Real Estate Investment Trust

United Industrial Corporation Limited

UOL Group Limited

Wheelock Properties (Singapore) Limited

Wing Tai Holdings Limited

Yanlord Land Group Limited

Appendix 3
Table 11 Variable definitions

Cost of Capital Metrics

Weighted average Cost of capital	The firm's weighted average cost of capital, where debt and equity weights are based upon each firm's market leverage ratio.
Cost of debt	The firm's cost of debt, estimated as total interest expense divided by average total debt.
Cost of equity	The firm's cost of equity capital, estimated using the residual income model of valuation.

Geographic and Cultural Distance Metrics

Physical distance	The average geographic distance between each firm's headquarters and its investment property locations, measured in thousands of miles.
Hofstede 4 Factor index	The property weighted average of the firm's cultural distance using four of Hofstede's culture dimensions: Power Distance, Individualism versus Collectivism, Masculinity versus Femininity, and Uncertainty Avoidance.
Hofstede 6 Factor index	The property weighted average of the firm's cultural distance using all of Hofstede's six culture dimensions.
GLOBE 4 Factor index	The property weighted average of the firm's cultural distance using four of Globe's culture dimensions: Future Orientation, Assertiveness, In-Group Collectivism, and Uncertainty Avoidance.
GLOBE 9 Factor index	The property weighted average of the firm's cultural distance using all nine of Globe's culture dimensions.

Political Risk Metrics

Disclosure	The property weighted average of the Business Extent of Disclosure index, as reported by the World Bank. Higher values indicate investors are less protected, as firms are required to disclose less financial and ownership information.
ORI	The property weighted average of the operations risk index, as reported by Business Risk Services. Higher values indicate more operational risk.
R-Factor	The property weighted average of the Business Risk Service remittances and repatriation of capital factor. Higher values indicate it is relatively harder to repatriate profits.
PRI	The property weighted average of the Political Risk Index, as reported by Business Risk Service. It is an assessment of a panel of 102 experts who pinpoint areas of pivotal political change, and provides ratings on sociopolitical conditions. Higher values indicate more sociopolitical risk.

Business Environment Measures

UK Law	The property weighted average of the percentage of a real estate company's properties located in countries with a (United Kingdom) Common Law based legal system.

Bank dominated	An indicator variable taking the value of one if the ratio of domestic assets of deposit money banks to total equity market capitalization is less than 1.10, zero otherwise.
GAAP	An indicator variable which equals one if the firm uses GAAP accounting principles for its corporate financial disclosures, and zero otherwise.
Time to export	The property weighted average of the minimum time it takes (in days) to export products from a country, as reported by the World Bank.
Property acquisition complexity	The property weighted average of the minimum number of procedures required for a business to secure rights to a property, as reported by the World Bank.
Market cap / GDP	The property weighted average of the ratio of the equity market capitalization of domestic firms to a country's GDP, as reported by the World Bank.
Broadband per 100	The property weighted average of the number of broadband subscribers per 100 people, as reported by the World Bank.
Education spending	The property weighted average of the percentage of GDP spent per student on primary school education, as reported by the World Bank.
Female labor Force Participation	The property weighted average of the proportion of females who actively participate in the work force, as reported by the World Bank.

General Firm Characteristics

Ln(Mkt Cap)	Equals the log transformation of the firm's total equity market capitalization (in millions of dollars) as reported by Bloomberg.
MtoB	The market value to book value of equity ratio, as reported by Bloomberg.
Leverage	The ratio of a firm's total debt (short-term plus long-term debt) divided by its total common equity, as reported by Bloomberg.
Asset tangibility	Total Real Estate Operations / Total Assets.
Total assets (in $1000s)	The firm's total assets measured in US dollars.
Profitability	Funds from Operations (FFO) divided by Total Assets.
Secured debt	Secured Debt divided by Total Debt.
Rated debt	An indicator variable set equal to one if the firm has rated debt outstanding, and zero otherwise.
Split rating	An indicator variable set equal to one if two or more rating agencies have different notch level long-term issuer credit ratings for the firm, and zero otherwise.
Asset age	Lengh of time (in years) since the first record of the firm's total assets in SNL.
Repurchases	An indicator variable set equal to one if the firm's total shares outstanding declines by more than 2% over a given year, and zero otherwise.

Operating leverage	The change in a firm's funds from operations (ΔFFO) divided by its change in total revenue (ΔRevenue). To reduce the effect of extreme value observations along this dimension, sample observations are winsorized at the 1% and 99% levels.
Lease payments	The firm's total committed capital lease obligations divided by its Total Assets.
# of Countries	The total number of different countries in which the firm owns investment properties during a given month.
Development	An indicator variable set equal to one if the firm engages in investment property development, construction programs, or has an active property development pipeline; zero otherwise
REIT status	An indicator variable for whether a company has elected to be taxed as a real estate investment trust (REIT) for corporate income tax purposes. It equals one if the company has elected REIT status, and zero otherwise.
# of properties	The total number of investment properties owned by a firm.
Single country	An indicator variable set equal to one if the firm is invested in only one country, and zero otherwise.
Home indicator	An indicator variable set equal to one if a firm owns no foreign properties, and zero otherwise.
Foreign Experience	
Entrance	An indicator variable for whether a firm buys a property in a given country for the first time. If the property acquisition date is missing, we replace it with the date for the first observation of that firm. It equals one if it is the first time to buy a property in a given country, and zero otherwise.
Foreign tenure	The property weighted, average number of months for holding properties. If the property acquisition date is missing, we replace it with the date for the first observation of that firm.
Headquarter ≠Exchange	An indicator variable set equal to one if a firm's exchange trading venue is located in a different nation than where its headquarters is located.
Foreign properties/Total properties	The ratio of a firm's number of foreign properties owned to its total number of properties.
Foreign debt indicator	An indicator variable set equal to one if a firm has outstanding debt denominated in the currency of a foreign country, and zero otherwise.

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