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Capital Structure and Political Risk in Asia-Pacific Real Estate Markets

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Abstract

This study investigates the determinants of capital structure decisions by real estate firms, with a specific focus on the impact of political risk on leverage. Using a sample of Asia-Pacific REITs and listed property trusts, we find those firms with properties located in countries characterized by relatively high degrees of political risk, such as political instability, and/or greater uncertainty in the ability to repatriate and monetize profits from international investment activities, employ less debt than their counterparts operating in more politically stable environments. This core finding remains robust to alternative sample selection criteria including the division of the sample into high versus low market-to-book value firms, and also

holds within the subset of organizations that are active in raising additional capital in the secondary markets.

Keywords

Capital structure; Political risk; Asia-Pacific; REITs

Introduction

The past two decades have seen an enormous expansion of international real estate investment opportunities, and unprecedented integration of related capital markets. These emerging trends present both unique opportunities and challenges for real estate firms investing across jurisdictional boundaries, and promise to significantly influence both the strategic positioning and operational characteristics of such firms. While early work along this dimension has focused on the trade-off between the costs and benefits of organizational design characteristics, the current investigation focuses on how political risk exposure influences a real estate firm's ability to raise capital. Specifically, we argue REITs and listed property trusts facing enhanced levels of political risk exposure will face difficulties securing debt financing. As such, we posit these firms will be characterized by lower leverage, *ceteris paribus*. From an operational perspective, these systematic differences in firm leverage ratios are of key import to firm management as they may effectively constrain the investment opportunity set available to international real estate firms.¹

Two unique dimensions of the real estate market add substantively to the complexity of this decision-making process and further motivate the use of this industry as a compelling laboratory for examining political risk. First, despite the robustness of the aforementioned emerging trends, real estate remains both a highly segmented and localized market. For example, excess demand for apartments in China provides little, if any, value relevant information regarding the profitability of the office market in Australia. To date, real estate markets remain characterized by high degrees of both property type and geographic location specificity. Accordingly, political risk engendered by cross-border investing activities is becoming increasingly relevant with respect to investments in relatively illiquid, tangible assets such as commercial real estate properties.

Second, the capital intensive nature of most real estate investment decisions adds an additional layer of complexity to this decision making process. Given the relatively stringent investment and payout regulations governing international REIT and listed property trust markets, as well as barriers to capital flows across national borders, many international real estate firms are effectively capital constrained (in the sense they have a limited ability to fund growth internally through retained profits) and must rely on external financing to undertake additional projects. As such, these firms are forced to borrow funds through either private or public channels, or incur the potentially significant negative signaling consequences associated with issuing equity capital. The purpose of the current investigation is to expand the literature on determinants of firm capital structure, international real estate markets, and the importance of location specific dimensions of portfolio risk on firm contracting decisions by investigating how political risk influences the capital structure of Asia-Pacific REITs and listed

property trusts. Previewing our results, we find those firms with properties located in countries characterized by relatively high degrees of political risk do, in fact, employ less debt than their counterparts operating in more politically stable environments.

The remainder of this paper is organized as follows. [Review of the Literature](#) provides background information on the growth and development of Asia-Pacific real estate markets, while [Determinants of Firm Capital Structure Decisions](#) outlines the previously identified drivers of firm capital structure decisions for both real estate and non-real estate related entities. [Data and Methodology](#) describes the data and methodology used to investigate the relations between political risk and firm debt, while the results of our empirical investigation are provided and discussed in [Analysis](#). Finally, [Summary and Conclusions](#) summarizes our key findings and concludes.

Review of the Literature

Growth in the Asia-Pacific Real Estate Market

The evolution of the REIT industry in developed markets has established a solid framework for the quick adoption and effective deployment of similar investment structures throughout the Asia-Pacific region. However, there is a risk that these modern investment vehicles may outpace the attitudes of prevailing political paradigms in certain developing countries. In particular, the supreme laws that govern property rights in particular countries may lead to an irresolvable conflict between investors and the political authorities. For instance, the Chinese constitution dictates that all land in urban areas is owned by the State and all land in rural areas is owned collectively by the inhabitants of that area unless otherwise specified by law (Lou [2008](#)). Such uncertainty regarding property rights and related concerns regarding the ability of institutions to effectively repatriate and monetize the gains from international real estate investing activities, represents a significant risk for Asia-Pacific real estate firms.

Despite these concerns, REITs and listed property trusts across the Asia-Pacific arena continue to grow. Compared to the United States, where total REIT market capitalization has increased markedly from 10 billion U.S. dollars (USD) in 1990 to over 600 billion USD by 2012, the Asian REIT market has grown at an even higher rate. Specifically, Tan ([2009](#)) and Ernst and Young ([2010](#)) estimate this market has grown from only 2 billion USD in 2001 to approximately 68 billion USD by 2009, or nearly 2 ½ times faster than the U.S. based REIT market.

Evidence suggesting this tremendous growth will continue across Asia-Pacific real estate markets is readily observable from an examination of demographic trends. Conventional wisdom posits that real estate development and population growth are positively correlated. As detailed in Neo ([2005](#)), Asia accounts for approximately half of the world's population. Furthermore, the Asian region currently exhibits an increasing birth rate, while developed nations across the rest of the world generally exhibit flat or declining birth rates. Thus, from a global real estate investment perspective, the Asia-Pacific market seems well placed for continued growth. Interestingly, particularly given these birthrate dynamics, an estimated 50 % of the population in the four wealthiest regions in Asia (South Korea, Taiwan, Singapore, and

Hong Kong) will be over age 40, and hence of prime investment age. Additionally, the annual household savings of this demographic is substantial and estimated to reach approximately 64,000 USD by 2020 (Neo [2005](#)). Taken together, these figures strongly suggest the Asia-Pacific REIT market is well positioned for continued growth for the foreseeable future.

Strategic Responses to Geographic Dimensions of Portfolio/Political Risk

Given both the rapid growth and evolving nature of this relatively young and highly regulated market segment, firms operating within this dynamic marketplace must be proactive and strategically position themselves to be ready and able to optimally capitalize on the opportunities and mitigate the threats presented by this unique operating environment. Along this dimension, a number of existing studies provide evidence that firms operating across international boundaries systematically alter their capital structure in direct response to the unique legal, regulatory, and operational risks engendered via international operations. For example, both Lee and Kwok ([1988](#)) and Fatemi ([1988](#)) find that contrary to conventional wisdom which posits large, internationally diversified corporations should exhibit reduced bankruptcy costs and thus an enhanced debt capacity, multinational companies (MNC) actually exhibit lower debt ratios than their smaller, purely domestic counterparts. Building upon this foundation, Burgman ([1996](#)) concludes political risk, exchange rate risk, and increased agency costs may all limit the debt capacity of multinational firms and help explain the observed relations. Similarly, Doukas and Pantzalis ([2003](#)) conclude multinationals use less debt, and argue this is driven by the increased agency costs associated with actively monitoring a more geographically diversified set of operations. Continuing, Chen et al. ([1997](#)) again document lower ratios for MNCs relative to their domestic counterparts, however, within the subset of multinational firms they find leverage is actually positively related to the degree of internationalization. Finally, and further complicating the discussion of international capital structure issues, Reed et al. ([2001](#)) conclude that despite the above mentioned agency cost and international risk dimensions, MNCs exhibit both higher credit ratings and a lower cost of debt than domestic companies. Taken together, these findings suggest there is broad agreement that international firms face unique complications which systematically influence their capital structure related decision making.

While these findings indicate that simply operating in multiple countries may well impact a firm's capital structure, they ignore important operational differences across countries. This suggests the need for a more detailed analysis of the drivers of the relation.² More specifically, emerging empirical evidence suggests firms within the Asia-Pacific real estate market understand political risk, and alter their organizational structures as a result. For example, Sun ([2010](#)) develops a theoretical model explaining how real estate firms select their investment advisor. While conventional wisdom holds that internally advised investment companies enjoy reduced agency costs, Sun demonstrates that depending upon available contracting options and market conditions, externally advised firms may benefit from 1) reduced agency costs due to reputational capital effects, 2) enhanced monitoring of individual property managers, portfolio advisers, and other related professionals, or 3) efficiency gains. Thus, to the extent political risk influences agency costs, monitoring capabilities, or the ability to realize gains from such activities, political risk could influence the firm's optimal organizational design. Consistent with this notion, Cashman et al. ([2013](#)) also examine the strategic underpinnings of the advisor

choice decision. They conclude that the choice between internal and external advisement for Asia-Pacific REITs and listed property trusts represents a strategic trade-off between the agency costs associated with external advisement and the potential benefits associated with capturing location specific soft information. Furthermore, as the opacity of soft information is likely related to observable dimensions of political risk, the authors conclude the optimal selection of internal versus external advisement, and hence organizational form, is inherently linked to political risk.³ Taken together, the results presented in these papers strongly suggest a firm's choice of organizational form may well represent a value relevant, strategic decision, driven by the business environment the real estate firm confronts.

Extending this paradigm, the current investigation examines an additional, potentially more significant choice for real estate firms—the capital structure decision. Specifically, we posit that political risk exposure resulting from a real estate firm's investments across jurisdictions influences the firm's capital structure decision. Firms must balance the increased costs associated with higher political risk exposure, including the likelihood of not being able to meet their debt obligations and the resistance of lenders to provide additional financing on favorable terms, against the higher returns offered by higher leverage and greater risk exposure. As such, we hypothesize that Asia-Pacific REITs and listed property trusts with investment property holdings concentrated in countries characterized by high levels of political risk will be forced to strategically lower their debt ratios. Once again, such limitations effectively serve as potential constraints upon management's menu of available investment project options.

Determinants of Firm Capital Structure Decisions

Traditional Determinants of Firm Capital Structure

Over the past 50 years, three primary theories governing firm leverage and security issuance decisions have become widely known and embraced throughout the general finance literature. First, trade-off theory posits that a firm's optimal capital structure is found by comparing the tax benefits accruing from the use of debt against the potential increase in deadweight bankruptcy costs associated with such actions.⁴ While widely accepted as a primary driver of capital structure decisions for non-REIT firms, the relatively unique regulatory nature of real estate investment trust markets around the world impose significant barriers to applying trade-off theory to the real estate market. For example, one of the primary benefits of the REIT organizational form is the ability to avoid, or at least reduce, taxes at the corporate/entity level. Across the Asia-Pacific region, virtually every market offers non-trivial tax benefits to REITs in exchange for compliance with regulatory conventions, such as substantial distribution (90 % or more of taxable income) requirements.⁵ Given the ability of these firms to reduce, or avoid entity level taxation, trade-off theory appears to offer little insight into why REITs would choose to employ relatively high levels of debt.⁶

Second, the pecking-order theory articulated by Myers (1984) and Myers and Majluf (1984) posits that capital needy firms attempting to maximize long-run shareholder wealth will prefer to issue equity when it is overvalued, while relying on debt financing when market values of equity do not fully reflect intrinsic values. Sophisticated investors, cognizant of both their information deficit regarding the firm's intrinsic value and the aforementioned incentives for

firms to issue overvalued equity, are likely to discount offering bids for seasoned equity issuances. As a result, firms with robust but informationally opaque operations and profit expectations may strategically choose to avoid the potential negative signaling consequences associated with equity issuance and disproportionately rely on debt financing.

Han (2006) suggests these signaling concerns may be particularly important for REITs, as their assets are uniquely difficult to value. Specifically, given the highly segmented and localized nature of commercial property markets, analysts must not only understand the nature of the cash flows accruing to such investments, but must also be keenly aware of the complications arising from holding illiquid assets subject to complex, opaque contracts and regulations. Consistent with this notion, U.S. REITs have consistently been found to exhibit higher debt ratios than their non-REIT counterparts.⁷

On the other hand, a number of compelling arguments also limit the applicability of pecking-order theory within real estate markets. For example, the aforementioned payout requirements may severely hamper the ability of Asia-Pacific REITs to fund expansion activities via internally generated profits. As a result, these firms may not have the same financing options as their non-REIT counterparts. Empirical evidence supporting this contention is provided by Brown and Riddiough (2003) and Ott et al. (2005) who both conclude REITs finance their long-run development and investment activities by issuing debt and/or equity rather than relying on retained earnings.⁸ Given the implicit capital constraints REITs operate under, they are effectively pushed into the market more frequently than their non-REIT counterparts. As a result, the market may well be more familiar with a typical REIT's operational strategy, thereby mitigating the negative signal generally associated with an equity issuance for a non-REIT firm.

Third, market-timing theory suggests firm security issuance decisions will be made strategically by company insiders in an attempt to maximize value for their existing shareholders. As with the pecking-order theory, security issuers are believed to rely upon debt financing when equity is undervalued in the marketplace, while conversely choosing to disproportionately issue equity when share prices are overvalued. Market-timing advocates believe that for informationally opaque firms, deviations between market prices and intrinsic values are often sufficiently large that informed insiders can effectively expropriate wealth from new investors to existing shareholders.⁹

Within the real estate literature, the market-timing theory of capital structure decisions has been investigated by at least three recent studies. Interestingly, the results of these studies are somewhat difficult to reconcile. First, Feng et al. (2007) document a positive, rather than negative, relation between lagged market-to-book ratios and current firm leverage. This result is clearly at odds with the predictions of market-timing advocates. On the other hand, both Boudry et al. (2010) and Harrison et al. (2011) find strong support for the market-timing theory within their investigations of REIT security issuance decisions and aggregate debt levels, respectively. Thus, we view the relevance of market timing for capital structure decisions within real estate markets as an open empirical question.

Given the theoretical limitations of applying both trade-off theory and pecking-order theory to real estate markets, as well as the mixed results from previous market-timing investigations,

ongoing empirical investigations of real estate company capital structure choices and security issuance decisions are forced to rely upon a variety of firm level operating characteristics as explanatory variables. Based upon the existing literature, four attributes have consistently emerged as robust predictors of firm leverage: 1) asset tangibility, 2) firm size, 3) profitability, and 4) growth options. We next describe the motivation and previous empirical evidence supporting the inclusion of each of these traditional determinants of firm capital structure choices.

Determinants of Firm Level Leverage Decisions

Asset Tangibility

A wealth of both theoretical and empirical investigations of non-REIT firm capital structure decisions document a positive relation between the tangibility of a firm's assets and the organization's debt capacity. Conceptually, real assets are generally viewed as providing more effective collateral. Support for this paradigm can be found in numerous investigations including, but not limited to, Myers ([1977](#), [1984](#)), Williamson ([1988](#)), Titman and Wessels ([1988](#)), Jaffe ([1991](#)), Pulvino ([1998](#)), Shyam-Sunder and Myers ([1999](#)), Baker and Wurgler ([2002](#)), Barclay et al. ([2006](#)), and Brown and Marble ([2009](#)). As such, throughout our empirical analysis we control for the tangible nature of each firm's assets using the ratio of total real estate operations to total assets for each firm. Ex-ante, we expect a positive relation between asset tangibility and firm leverage ratios.

Firm Size

Within the context of trade-off theory, Rajan and Zingales ([1995](#)) proffer that increasing firm size should be associated with enhanced firm stability, thus decreasing bankruptcy costs. This suggests larger firms should have a higher debt capacity. Similarly, Brown and Riddiough ([2003](#)) argue that larger firms' securities are both more stable and more liquid than those offered by smaller firms. These characteristics also suggest a positive relation between firm size and leverage.¹⁰

On the other hand, to the extent larger firms are more informationally transparent, pecking-order theory would suggest the negative signaling consequences of seasoned equity offers would be substantively lower for larger firms. Thus, we might rationally observe a negative relation between firm size and leverage. To capture the effect of firm size on leverage, we include the natural log of each firm's total assets as a control variable across all model specifications.

Profitability

As with firm size, increased firm profitability may influence firm leverage through multiple channels depending upon which capital structure theory dominates. Under trade-off theory, enhanced profitability should reduce the probability of financial distress, lowering expected bankruptcy costs, thus suggesting a higher debt capacity (and level) for more profitable firms. Conversely, Rajan and Zingales ([1995](#)) posit that managers have a self-interested desire to

avoid the disciplining effects of substantive debt service requirements. As increasing profitability should afford managers more flexibility and trust with senior management, more profitable firms may well choose relatively lower debt levels.¹¹

Finally, we also note that Baker and Wurgler (2002) contend the observed relations between firm profitability and leverage are driven, in large part, by retained earnings. Given the limited ability of REITs and listed property trusts to retain large amounts of profits, it is entirely plausible that previously observed empirical relations between firm profitability and leverage amongst non-REIT firms will be very weak, or non-existent, within real estate markets.

Growth Options

A number of empirical investigations also document a consistently negative relation between a firm's growth opportunities and leverage ratios. These studies include Myers (1984), Shyam-Sunder and Myers (1999), Baker and Wurgler (2002), Fama and French (2002), and Barclay et al. (2006). Conceptual justification for such a relation dates to at least Myers (1977) who argues high debt burdens create a potential debt overhang problem for corporate borrowers in which firms rationally forgo positive NPV projects because the gains from undertaking such investments accrue exclusively to debtholders. To avoid such perverse incentives, high-growth firms may proactively scale back their use of financial leverage, thus inducing an observed negative relation between firm leverage and growth opportunities.¹²

Real Estate Industry and REIT Specific Determinants of Firm Debt

While the four previously enumerated attributes have consistently been found to influence non-REIT capital structure decisions, additional determinants of capital structure decisions tend to be industry and/or firm specific. For example, a number of investigations focusing directly on the real estate market suggest a variety of additional attributes that may be significant in explaining leverage decisions within this industry.

First, as noted by both Brown and Riddiough (2003) and Brown and Marble (2009), the liability structure of a firm's debt may influence their debt capacity. Interestingly, Brown and Riddiough argue an increased level of secured debt within a firm's capital structure is associated with an increased probability of issuing equity, and hence secured debt is inversely related to firm leverage. They further contend this relation is driven by the increased agency costs associated with managing multiple classes of assets. Conversely, Brown and Marble (2009) develop and test a theoretical model of secured debt usage and conclude secured debt increases a firm's debt capacity through its role in mitigating potential asset substitution problems. To the extent collateralized debt deters firms from increasing the variance of their assets in place, risk averse lenders will be more willing to provide additional debt financing.

Second, in a similar vein, Boudry et al. (2010) argue firms with greater access to public debt markets should exhibit an enhanced debt capacity.¹³ Specifically, they argue firms with rated debt already outstanding are likely characterized by relatively transparent assets and/or low transaction costs associated with raising debt. Both alternatives suggest firms with outstanding rated debt should be more readily able to raise additional debt on favorable terms. Third,

continuing along the asset transparency dimension, firms with split bond ratings are likely informationally opaque, while older firms are likely informationally transparent.¹⁴ As such, we expect firms with split bond ratings to be characterized by lower debt ratios, while older firms may well enjoy an enhanced debt capacity.

Fourth, turning to alternative financing mechanisms, Harrison et al. (2011) conclude firms actively repurchasing their own shares on the open market, by construction, will increase their debt ratios. Additionally, such activities, within the context of pecking-order theory, should provide a positive signal to the market about the firm's long-run prospects, thus further enhancing the firm's debt capacity. Similarly, the authors also argue that both operating leverage and the use of long-term capital leases effectively serve as substitute sources of financial leverage. Therefore, firms characterized by high degrees of operating leverage and/or extensive lease obligations should exhibit reduced leverage ratios using traditional accounting based metrics.

Fifth, turning to regulatory and accounting transparency, Hartzell et al. (2008) demonstrate that alternative regulatory considerations across jurisdictions can significantly impact firm level decision making. As such, after controlling for firm size, we expect the enhanced regulatory uncertainty associated with increasing the number of countries in which a firm owns investment properties may impair the firm's ability to attract credit and thus lower debt ratios.

Lastly, real assets associated with development activities may well be more tangible and transparent than the lease contracts associated with managing real properties. As such, we include a zero/one indicator variable identifying those firms actively participating in the development of real property as opposed to generating revenue exclusively from operating and/or managing existing facilities. Ex-ante, we expect real estate development firms to exhibit an enhanced debt capacity.

Political Risk and Firm Leverage

As the central focus of the current investigation, we posit that political risk and uncertainty materially influence firm capital structure decision making for real estate firms within the Asia-Pacific region. This hypothesis is entirely consistent with the aforementioned findings of Fatemi (1988); Lee and Kwok (1988); Burgman (1996); Chen et al. (1997); and Doukas and Pantzalis (2003) on non-real estate firms. Within the context of Asia-Pacific real estate markets, we argue that REITs and listed property trusts holding investment properties located in countries with greater political risk or uncertainty will employ less leverage. Specifically, we contend this observed reduction in firm borrowing will be due (in part) to an increased probability that these firms will be unable to meet their debt service obligations. Furthermore, lenders rationally responding to such increased risk exposure, would thus be expected to ration credit, thereby reducing observable firm debt ratios.¹⁵

Political risk exposure can take a variety of forms, and hence, we include three alternative metrics to assess the importance and robustness of the relation between political risk and firm capital structure. First, enhanced political turmoil in countries associated with inefficient governmental operations and/or poor election processes can increase the uncertainty of the

business and economic environment of a jurisdiction. This will increase the risk of projects within the jurisdiction, and as a result increases the likelihood that the firm will be unable to meet its debt service obligations. Additionally, we expect lenders to be more reluctant to extend credit (on favorable terms) to real estate firms with properties located in countries characterized by greater risk or uncertainty with respect to the efficacy of governmental operations.

Second, separate and distinct from the concept of political efficiency is the concept of political stability. More stable regimes allow for more effective forecasting and strategic planning on the part of organizations. Therefore, in jurisdictions characterized by enhanced political instability, we expect the firm's forecasted cash flows will be less accurate, limiting that firm's willingness and ability to fully commit expected cash flows to service the debt. Similarly, we also expect lenders will be less likely to extend credit on favorable terms when forecasted cash flows are less reliable. As such, increased political instability should be associated with reductions in observable firm debt ratios.

Finally, when making international real estate investments, firms are concerned not only with the potential profitability of the proposed project, but also the ease with which the profits generated by the investment may be repatriated to the firm's home country. Once again, we hypothesize that greater difficulty in extracting cash flows and profits from a given jurisdiction increases the riskiness of the proposed investment project making it more difficult for a firm to service its debt and reducing the willingness of lenders to extend credit. Once again, this presumption leads us to expect political risk will be inversely related to a firm's use of leverage.

Data and Methodology

We begin our empirical analysis by identifying all REITs and listed property trusts tracked by SNL Financial that trade on the Australian Stock Exchange, Bombay Stock Exchange, Hong Kong Stock Exchange, New Zealand Exchange Limited, Singapore Exchange, or Tokyo Stock Exchange over the period 2000 through 2011. Table 1 presents the breakdown of these firms based upon the country in which they are headquartered, and provides similar tabulations based upon the geographic location of the individual properties owned by sample firms. In total, our 187 sample firms hold ownership interests in over 8,000 individual properties. Examining these distributions, we note that while relatively few sample firms are headquartered in China (6 out of 187, or 3.2 %), Asia-Pacific real estate companies own numerous properties (1,295; or 16.1 % of sample holdings) there. Japan is similarly over-represented in terms of the ratio of property holdings to firm headquarter locations (31.1 % vs. 19.3 %), while conversely, Singapore serves as the home base for a disproportionately large (42, or 22.5 %) number of companies given the relatively small number of investment properties (675, or 8.4 %) owned by sample firms which are located there.

Table 1 Firm and property location breakdown

Country	# of R.E. firms	% of total	# of properties	% of total
Australia	28	15.0 %	1,599	19.8 %
China	6	3.2 %	1,295	16.1 %

Country	# of R.E. firms	% of total	# of properties	% of total
Hong Kong	47	25.1 %	977	12.1 %
Japan	36	19.3 %	2,505	31.1 %
Singapore	42	22.5 %	675	8.4 %
Other	28	15.0 %	1,016	12.6 %
Total	187	100.0 %	8,067	100.0 %

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

Political Risk Variables

We next use the geographic location of each individual investment property held by every sample firm to count the number of properties located in each country, and then calculate the percentage of each firm's property holdings located in each country. We then use the resulting weights to calculate each firm's property weighted average Political Rights (Efficiency) Index, Political Change (Stability) Index, and R-Factor (Repatriation Index).¹⁶ These three measures capture various aspects of political risk including: how well the political process functions, how political changes will affect the firm's ability to conduct business, and the firm's ability to transfer profits out of the country.

To further clarify each of these metrics, the Political Rights Index (Political) is provided by Freedom of the World, and is based on surveys regarding: the electoral process, political pluralism, and the functioning of the government. Higher Political scores represent a lower functioning government. As such, we anticipate a negative relation between Political and firm leverage. The Political Change Index and the R-Factor are both provided by Business Risk Service. The Political Change Index (PCI) is a measure of how political changes in the country will affect business operations, and the likelihood of change happening in the next 10 years. Higher PCI scores represent a lower probability of political change and suggest that if political change does occur it is less likely to significantly impact the business environment. As such, we expect a positive relation between PCI and firm leverage. Lastly, the R-Factor, which stands for remittances and repatriation of capital factor, is a measure of each country's ability and willingness to allow private foreign companies to repatriate their profits. Higher R-Factor values imply it is easier to repatriate profits back to the home country of the REIT or listed property trust. Again, given our hypothesis, we expect a positive relation between R-Factor and firm leverage.

Business & Social Similarity Measures

While our primary focus is on the political risk associated with investing across international borders, we recognize the need to control for the similarity between the social and economic operating environments of each firm's home country (headquarters) location and those associated with the geographic location of their individual asset (property) holdings. Toward that end, we include six additional control metrics. Our first three metrics, the minimum time (in days) required to complete an export transaction, the minimum number of procedures required to register a property, and the ratio of the domestic equity market capitalization to GDP are all

designed to capture the level of financial market development and business friendliness of the regulatory environment. Our last three metrics, the number of broadband subscribers (per 100 people), the percentage of GDP which is spent on primary school education, and the female participation rate in the labor force are all designed to capture alternative dimensions of the social and cultural landscape faced by sample firms.

In operationalizing these metrics, we take the absolute value of the difference between the headquarters country value and the property country value, respectively. We then weight the difference by the number of properties located in each country to form a measure of similarity between the countries in which the firm invests and the country in which it is headquartered. All else equal, we expect differences across countries in these similarity metrics to manifest themselves in the form of increased risk and uncertainty with respect to optimal operating practices and customs, and thus be associated with a reduced debt capacity.

Financial/Regulatory Environment

To help ensure our model is truly capturing political risk and not simply identifying spurious relations driven by the unique financial and/or regulatory environment faced by each firm, a number of additional controls are also included throughout our model specifications. First, following La Porta et al. (2004) we include a variable identifying the fraction of each firm's investment portfolio located in countries whose legal systems are based upon the foundational tenets of (French and Roman) Civil Law as opposed to (British) Common Law. While La Porta et al. (2004) conclude common law is generally more efficient in securing and enforcing property rights, real estate companies investing across multiple international jurisdictions may well prefer the enhanced certainty associated with Civil Law based systems, which tend to rely more explicitly on the written text of the rules, laws, and regulations as opposed to location specific customs which may well enhance property rights but be relatively opaque and difficult for outside (i.e., non-local) investors to fully comprehend. As such, we leave the expected sign of our legal foundations metric as an open empirical question.

Second, to account for potential variation across jurisdictions in the flexibility and openness of each firm's operating environment, we employ the Heritage Foundation's Business Freedom Index (BFI). Once again, for firms holding investment assets exclusively within a single country, the BFI exclusively represents the index value for that country. For firms investing across multiple jurisdictions, we weight each country value by the fraction of the firm's investment properties located in that country to derive the property weighted average BFI for each firm. All else equal, we expect firms operating in less economically restrictive environments to enjoy enhanced economic opportunities, and thus exhibit an increased debt capacity.¹⁷

Third, in many nations across the globe, the local economic system is dominated by the banking industry. Without broadly accessible, well-functioning equity markets, firms in such countries may be forced to disproportionately rely on debt financing as the primary source of new capital infusions into the firm.¹⁸ As such, we create a binary, indicator variable identifying whether the country in which each firm is headquartered has an economic system which is

bank dominated or market dominated.¹⁹ Ex-ante, we expect firms with property holdings concentrated in bank dominated countries to be characterized by higher leverage ratios.

Fourth, as borrowing may become relatively more attractive as interest rates decline, we include the 10-year, constant maturity U.S. Treasury rate as a proxy for world-wide interest rates. Fifth, as interest expenses on debt are generally deductible for federal income tax purposes, while dividend payments to shareholders are not, we also include the corporate tax rate corresponding to the country of incorporation for each firm.²⁰ While in most industries higher marginal tax rates would portend higher debt levels, given the tax advantaged nature of most firms within our sample, we do not anticipate strong results along this dimension.

Sixth and finally, given the international context of the current investigation, we recognize that firms reporting their financial statements following generally accepted accounting principles (GAAP) may well be differentially difficult to value relative to their counterparts in the market choosing to report their financial statements following the principle based international financial reporting standards (IFRS). As such, we explicitly control for firm's choice of primary accounting convention throughout our empirical specifications.

REIT Specific Attributes

We also construct various controls which have been shown to be correlated with real estate firm capital structure decisions. These variables were conceptually motivated above, and the accounting/financial data used to construct each of these metrics was obtained directly from SNL Financial. A detailed description of each variable's construction is provided in the [Appendix](#).

Analysis

Descriptive Statistics

Table [2](#) presents descriptive statistics regarding each of the variables employed throughout our empirical analysis. Examining the results in Table [2](#), we find the typical REIT within our sample finances approximately 30 % (book value) to 40 % (market value) of its assets in place using borrowed money. These leverage figures, while substantive, are approximately 10 percentage points lower than those found for U.S. based real estate investment trusts. Relative to American firms, Asia-Pacific REITs also appear to be substantively larger, with Total Assets averaging over \$3.7 billion for sample firms. This figure, which is roughly twice the size we would expect from a sample of U.S. based REITs, exhibits considerable variation around this mean value, and is driven upward by a handful of very large Hong Kong based REITs, including Sun Hung Kai Properties Limited. Median values along this dimension, while unreported, are much more in line with U.S. based firms at approximately \$700 million. Further examination of the data in Table [2](#) reveals the typical firm recognizes a return on assets of approximately 4.6 % annually. Roughly half of all outstanding Asia-Pacific REIT debt is secured, while approximately 30 % of sample firms have rated debt outstanding. Finally, from a regulatory and financial reporting risk perspective, the average real estate firm in our sample owns investment properties in slightly more than two countries, with sample firms exhibiting a

small proclivity toward following IFRS (61.1 %) as opposed to GAAP (38.9 %) accounting conventions.

Table 2 Descriptive statistics

Variable	Obs.	Mean	Std. dev.	Minimum	Maximum
Dependent variable					
Market leverage	1,066	0.393	0.201	0	0.990
Book leverage	1,066	0.315	0.142	0	0.796
Political risk variables					
Political rights index	1,066	0.032	0.022	0	0.070
Political change index	1,066	0.556	0.117	0.228	0.760
R-Factor	1,066	0.693	0.197	0.323	0.970
Business similarity measures					
Time to export	1,066	9.275	4.516	5	23.333
Procedures required to register property	1,066	5.155	0.635	2	6
Market cap / GDP	1,066	199.160	142.614	11.968	415.897
Social/cultural similarity measures					
Broadband per 100	1,066	14.701	6.194	0.237	21.657
% of GDP spent on primary education	1,066	15.370	4.008	11.141	22.082
Female participation in labor force	1,066	59.850	8.707	35.664	78.782
Financial/regulatory characteristics					
Legal origin	1,066	0.028	0.015	0	0.060
Business freedom	1,066	0.784	0.169	0.363	1
Bank dominated	1,066	0.337	0.473	0	1
US 10-year rate	1,066	0.038	0.007	0.028	0.050
Tax rate	1,066	0.135	0.133	0	0.407
GAAP	1,066	0.389	0.488	0	1
General firm characteristics					
Asset tangibility	1,066	0.149	0.165	0.001	1.760
Total assets	1,066	3,728,981	6,545,665	458	53,082,180
Profitability	1,066	0.046	0.075	-0.917	0.486
Growth options	1,066	0.836	0.579	0.027	5.575
Lagged leverage	1,066	0.385	0.205	0	0.985
REIT specific attributes					
Secured debt	1,066	48.402	42.016	0	100
Rated debt	1,066	0.311	0.463	0	1
Split bond ratings	1,066	0.058	0.234	0	1
Asset age	1,066	4.243	2.437	1	10
Repurchases	1,066	0.012	0.110	0	1
Operating leverage	1,066	1.482	2.804	-4	8
Lease payments	1,066	0.0004	0.002	0	0.028
Total countries	1,066	2.158	2.199	1	13
Development	1,066	0.580	0.494	0	1

This table provides basic descriptive statistics (sample size, mean, standard deviation, minimum, and maximum) for the variables considered in the analysis. *Political Rights Index* is based on surveys regarding the electoral

process, political pluralism, and the functioning of the government. *Political Change Index* is a measure of how political changes in the country will affect business, and the likelihood of change happening in the next 10 years. The *R-Factor*, which stands for remittances and repatriation of capital factor, is a measure of a country's ability and willingness to allow private foreign companies to repatriate their profits. The remaining variables are defined in the [appendix](#). We note that the reported similarity measures are based on raw numbers, and are not differenced as in our multivariate analysis

Continuing, Table 3 presents the correlation coefficients between each pair of our political risk measures. Not surprisingly, we find that political rights, political change, and R-Factor are all significantly correlated. The negative correlation between political change and political rights is a result of how the indices are constructed. A country with low political risk will have a high political change score while a country with a better functioning political system will have a lower political rights score. This difference in ordering is responsible for the negative correlations. The R-Factor is only significantly correlated with political rights, and contrary to the other indices suggests it is more difficult to repatriate profits from countries with well-functioning political systems. While we find statistically significant relations between our political risk proxies, the magnitude of these relations is relatively low. This is not entirely unexpected, as we view each proxy as capturing a different dimension of political risk.

Table 3 Political risk correlation matrix

	Political rights	Political risk	R-Factor
Political rights	1		
	—		
Political change	-0.2605 ^a	1	
	(0.00)	—	
R-Factor	0.2088 ^a	-0.0288	1
	(0.00)	(0.35)	—

This table reports the Pearson correlation coefficients associated with the three measures of political risk employed throughout this investigation. *Political Rights Index* is based on surveys regarding the electoral process, political pluralism, and the functioning of the government. *Political Change Index* is a measure of how political changes in the country will affect business, and the likelihood of change happening in the next 10 years. The *R-Factor*, which stands for remittances and repatriation of capital factor, is a measure of a country's ability and willingness to allow private foreign companies to repatriate their profits

^aIndicates statistical significance at 1 % level

Univariate Analysis

We next continue our analysis by comparing the amount of leverage used by firms with relatively high versus low political risk exposure. Each year we rank firms into terciles based upon their relative political risk exposure. More specifically, tercile rankings are constructed for each of our three political risk measures. We then compare the mean leverage levels between the firms in the low political risk tercile to those in the high political risk tercile. The results of this analysis are presented in Table 4. As expected, regardless of how political risk is measured, firms with more exposure to political risk utilize less leverage.

Table 4 Univariate analysis

Variable	Low risk exposure		High risk exposure		Satterthwaite
	Obs.	Mean	Obs.	Mean	T-test of differences
Political rights					
Market lev	392	0.451	364	0.347	7.20 ^a
Book lev	392	0.380	364	0.246	14.56 ^a
Political change					
Market lev	344	0.365	352	0.336	2.00 ^b
Book lev	344	0.303	352	0.248	5.46 ^a
R-Factor					
Market lev	364	0.444	365	0.363	5.51 ^a
Book lev	364	0.369	365	0.303	6.13 ^a

This table provides mean values and univariate tests of differences in means for our leverage measures disaggregated by the firm's relative political risk exposure. High Risk Exposure firms are those in the upper tercile of Political Rights Index values, and the lowest tercile of both Political Change and R-Factor Indices, respectively

^aIndicates statistical significance at 1 % level

^bIndicates statistical significance at 5 % level

Multivariate Analysis

Next, we continue on to our multivariate examination of how political risk exposure influences the capital structure of Asia-Pacific REITs and listed property trusts. Specifically, we examine a firm's use of leverage with the following general form regression:

$Leverage = f(\text{PoliticalRisk}, \text{Business\&CulturalSimilarity}, \text{Financial/RegulatoryCharacteristics}, \text{GeneralFirmCharacteristics}, \text{REITSpecificAttributes}, \epsilon)$.

The results from these base case regressions are presented in Table 5. More explicitly, the regressions are designed to examine our hypothesis that political risk exposure is inversely related to leverage, as 1) the uncertainty associated with higher levels of political risk increases the bankruptcy costs associated with debt, and 2) the increased uncertainty makes debt financing more difficult, or expensive, to obtain. The results presented in Table 5 are entirely consistent with our expectations, as market leverage tends to increase as political risk decreases.²¹ In Model 1, we observe that when REITs invest in countries with better functioning political systems, leverage increases. Continuing, Model 2 presents evidence that as the perceived likelihood and potential impact of political change decreases, REITs take on more leverage. Similarly, Model 3 demonstrates that as profits are more easily repatriated back to the home country of the REIT, allowing them to more easily repay their domestic lenders, the more leverage the REIT is able to carry. Lastly, consistent with Models 1 and 3, our fully specified Model 4 results suggest that REITs employ more leverage when they invest in countries with better functioning political systems and when they can more easily repatriate profits.

Table 5 Determinants of market leverage for Asia-Pacific real estate companies

Variables	(I)	(II)	(III)	(IV)
Intercept	0.290 ^a (4.50)	0.261 ^a (4.00)	0.341 ^a (5.26)	0.362 ^a (5.87)

Variables	(I)	(II)	(III)	(IV)
Political risk variables				
Political rights index	-2.409 ^a (-3.13)			-3.864 ^a (-3.83)
Political change index		0.165 ^a (2.78)		-0.056 (-0.70)
R-Factor			0.116 ^a (2.89)	0.180 ^a (4.68)
Business similarity measures				
Time to export	-0.028 ^a (-4.36)	-0.028 ^a (-4.33)	-0.024 ^a (-3.70)	-0.027 ^a (-4.28)
Procedures required to register property	0.064 (1.07)	0.073 (1.32)	0.094 (1.42)	0.042 (0.64)
Market cap / GDP	0.000 (1.44)	0.000 (0.57)	0.000 (0.76)	0.001 ^b (1.72)
Social/cultural similarity measures				
Broadband per 100 people	0.003 (0.20)	0.010 (0.79)	0.002 (-0.18)	-0.002 (-0.15)
% of GDP spent on primary education	-0.001 (-0.11)	0.005 (0.64)	-0.003 (-0.36)	-0.010 (-1.18)
Female participation in labor force	0.012 ^b (1.84)	0.010 ^b (1.74)	0.013 ^c (2.01)	0.011 (1.56)
Financial/regulatory characteristics				
Legal origin	2.692 ^a (2.62)	-0.411 (-0.75)	-1.068 (-1.60)	3.089 ^c (2.42)
Business freedom	0.071 (1.31)	-0.003 (-0.05)	-0.057 (-0.96)	-0.034 (-0.56)
Bank dominated	0.038 (1.38)	0.080 ^a (3.19)	0.073 ^a (2.99)	-0.006 (-0.26)
US 10-year rate	-1.257 (-1.29)	-1.749 ^b (-1.78)	-1.531 (-1.61)	-1.615 ^b (-1.67)
Tax rate	-0.012 (-0.20)	-0.013 (-0.23)	-0.062 (-1.12)	-0.031 (-0.57)
GAAP	0.007 (0.33)	0.011 (0.50)	-0.026 (-1.13)	-0.027 (-1.24)
General firm characteristics				
Asset tangibility	-0.049 (-1.16)	-0.039 (-0.89)	0.006 (0.15)	-0.030 (-0.73)
Total assets	-0.000 (-0.73)	-0.000 (-0.88)	-0.000 (-1.11)	-0.000 (-0.19)
Profitability	-0.259 ^a (-4.81)	-0.263 ^a (-5.04)	-0.304 ^a (-5.78)	-0.260 ^a (-4.98)
Growth options	-0.117 ^a (-5.65)	-0.114 ^a (-5.49)	-0.114 ^a (-6.08)	-0.118 ^a (-5.87)
Lagged leverage	0.499 ^a (14.37)	0.503 ^a (14.35)	0.504 ^a (15.10)	0.479 ^a (13.71)
REIT specific attributes				
Secured debt	0.000 (1.53)	0.000 (1.49)	0.000 (1.50)	0.000 ^c (2.38)
Rated debt	-0.015 (-1.31)	-0.015 (-1.32)	-0.016 (-1.33)	-0.022 ^b (-1.93)
Split bond ratings	-0.004 (-0.21)	-0.001 (-0.07)	-0.019 (-0.93)	-0.009 (-0.49)
Asset age	-0.004 ^b (-1.70)	-0.005 ^c (-2.03)	-0.004 ^b (-1.83)	-0.004 ^b (-1.95)
Repurchases	-0.015 (-0.48)	-0.024 (-0.80)	-0.029 (-0.83)	-0.021 (-0.63)
Operating leverage	0.001 (1.07)	0.002 (1.22)	0.001 (0.86)	0.002 (1.25)
Lease payments	-1.723 (-0.94)	-1.800 (-0.97)	-2.237 (-1.16)	-1.681 (-0.90)
Total countries	0.005 ^b (1.88)	0.006 ^c (2.26)	0.005 ^c (2.04)	0.003 (1.17)
Development	0.010 (1.02)	0.010 (0.99)	0.020 ^b (1.90)	0.021 ^b (1.94)
Observations	1,066	1,066	1,066	1,066
R-squared	0.699	0.697	0.697	0.707

Variables	(I)	(II)	(III)	(IV)
Property type fixed effects	Yes	Yes	Yes	Yes

This table presents the results of four regressions investigating the determinants of Asia-Pacific real estate firms' use of leverage. The first three models regresses the firm's Market Leverage against our three measures of political risk separately, while controlling for the financial and regulatory standards, as well as firm and industry level variables. In Model (1), the Political Rights Index is used. In Model (2) the Political Change Index is utilized, while Model (3) employs the R-Factor. Model (4) includes all three of our political risk measures. The t-tests reported in parenthesis are all based on standard errors clustered by firm

^aIndicates statistical significance at 1 % level
^bIndicates statistical significance at 10 % level
^cIndicates statistical significance at 5 % level

In sum, the findings of Table 5 clearly suggest that REITs and listed property companies take on more leverage when their investment properties are located in countries characterized by less political risk and uncertainty. Thus, political risk appears to be an important dimension of capital structure decision making for real estate firms within this region as firms strategically respond to the increased bankruptcy costs associated with enhanced political risk exposure by assuming less leverage.

While Table 5 examines the impact of political risk on market leverage, Table 6 replicates the analysis examining book leverage. As in Table 5, we again find that political risk is significantly related to firm capital structure.²² Consistent with expectations, Asian-Pacific real estate firms facing more political risk exposure use less leverage. Specifically, we find that as the functionality of the political system increases, as disruptive political changes become less likely, and as profits are easier to repatriate, real estate firms take on more leverage. In sum, the relation between political risk and firm leverage appears to be robust to the selection of book versus market leverage metrics.

Table 6 Determinants of book leverage for Asia-Pacific real estate companies

Variables	(I)	(II)	(III)	(IV)
Intercept	0.005 (0.07)	-0.045 (-0.71)	0.039 (0.60)	0.026 (0.44)
Political risk variables				
Political rights index	-3.475 ^a (-5.13)			-3.085 ^a (-3.53)
Political change index		0.274 ^a (4.60)		0.096 (1.15)
R-Factor			0.059 (1.49)	0.117 ^a (3.39)
Similarity measures				
Time to export	-0.022 ^b (-2.54)	-0.023 ^a (-2.65)	-0.017 ^c (-1.92)	-0.023 ^b (-2.59)
Procedures required to register property	-0.001 (-0.01)	0.008 (0.12)	0.048 (0.67)	-0.016 (-0.24)
Market cap / GDP	-0.000 (-0.05)	-0.000 (-1.28)	-0.000 (-0.69)	-0.000 (-0.20)
Broadband per 100	0.010 (0.72)	0.023 ^c (1.70)	0.004 (0.29)	0.014 (0.94)
% of GDP spent on primary education	0.002 (0.20)	0.011 (1.38)	0.002 (0.24)	-0.000 (-0.05)
Female participation in labor force	0.009 (1.43)	0.006 (1.09)	0.011 ^c (1.79)	0.007 (1.07)
Financial/regulatory characteristics				
Legal origin	3.908 ^a (3.89)	-0.624 (-1.18)	-0.662 (-1.00)	2.384 ^c (1.93)

Variables	(I)	(II)	(III)	(IV)
Business freedom	0.097 ^c (1.77)	-0.017 (-0.31)	-0.003 (-0.05)	-0.021 (-0.37)
Bank dominated	0.041 ^c (1.93)	0.099 ^a (5.27)	0.102 ^a (4.38)	0.033 ^c (1.67)
US 10-yr rate	1.064 (1.15)	0.231 (0.26)	0.976 (0.94)	0.422 (0.46)
Tax rate	-0.076 (-1.25)	-0.071 (-1.24)	-0.131 ^b (-2.18)	-0.082 (-1.46)
GAAP	0.005 (0.36)	0.014 (0.84)	-0.021 (-1.18)	-0.011 (-0.68)
General firm characteristics				
Asset tangibility	-0.036 (-1.02)	-0.027 (-0.73)	0.024 (0.65)	-0.024 (-0.68)
Total assets	0.000 (0.39)	0.000 (0.29)	-0.000 (-0.57)	0.000 (0.76)
Profitability	-0.143 ^a (-4.14)	-0.142 ^a (-3.98)	-0.201 ^a (-5.57)	-0.139 ^a (-3.90)
Growth options	0.031 ^c (1.84)	0.036 ^b (2.24)	0.036 ^c (1.91)	0.032 ^b (1.98)
Lagged leverage	0.403 ^a (12.10)	0.407 ^a (12.21)	0.420 ^a (13.21)	0.390 ^a (11.74)
REIT specific attributes				
Secured debt	-0.000 (-0.02)	-0.000 (-0.04)	-0.000 (-0.40)	0.000 (0.70)
Rated debt	-0.006 (-0.58)	-0.008 (-0.72)	-0.004 (-0.31)	-0.012 (-1.14)
Split bond ratings	0.008 (0.47)	0.015 (0.86)	-0.009 (-0.45)	0.009 (0.48)
Asset age	0.001 (0.24)	-0.001 (-0.35)	0.000 (0.20)	-0.000 (-0.15)
Repurchases	-0.008 (-0.23)	-0.022 (-0.65)	-0.022 (-0.64)	-0.018 (-0.50)
Operating leverage	-0.001 (-0.45)	-0.000 (-0.10)	-0.001 (-0.78)	-0.000 (-0.12)
Lease payments	-0.586 (-0.32)	-0.615 (-0.32)	-1.265 (-0.64)	-0.510 (-0.26)
Total countries	0.006 ^b (2.36)	0.008 ^a (2.96)	0.007 ^a (2.72)	0.006 ^b (2.12)
Development	0.007 (0.75)	0.006 (0.61)	0.014 (1.38)	0.013 (1.30)
Observations	1,066	1,066	1,066	1,066
R-Squared	0.602	0.603	0.579	0.612
Property type fixed effects	Yes	Yes	Yes	Yes

This table presents the results of four regressions investigating the determinants of Asia-Pacific real estate firms' use of leverage. The first three models regresses the firm's Book Leverage against our three measures of political risk separately, while controlling for the financial and regulatory standards, as well as firm and industry level variables. In Model (1), the Political Rights Index is used. In Model (2) the Political Change Index is utilized, while Model (3) employs the R-Factor. Model (4) includes all three of our political risk measures. The t-tests reported in parenthesis are all based on standard errors clustered by firm

^aIndicates statistical significance at 1 % level

^bIndicates statistical significance at 5 % level

^cIndicates statistical significance at 10 % level

Robustness

High Versus Low Market-to-Book REITs

Billet et al. (2007) find evidence that leverage relations differ systematically between high and low market-to-book value firms. Therefore, we next split our sample between high and low market-to-book Asia-Pacific real estate firms, re-estimate our base model specifications on these subsamples, and report the results in Table 7. Panel A presents the results of our analysis examining the low market-to-book tercile. The results remain consistent with our full sample findings. Specifically, as the functionality of the political process in the countries where the REIT or listed property trust holds investment properties are located increases, and as

organizational cash flows become easier to repatriate back to the home country, firms employ more leverage.

Table 7 Determinants of leverage by high versus low market-to-book value ratios for Asia-Pacific real estate companies

Variables	(I)	(II)	(III)	(IV)
Panel A: market leverage, lowest MTB tercile				
Intercept	0.370 ^a (2.47)	0.299 ^a (2.06)	0.310 ^a (2.07)	0.387 ^b (2.67)
Political rights index	-4.739 ^b (-3.32)			-4.807 ^a (-2.44)
Political change index		0.384 ^b (3.83)		0.095 (0.59)
R-Factor			0.152 ^c (1.66)	0.243 ^b (3.10)
Observations	345	345	345	345
R-Squared	0.747	0.746	0.730	0.760
Property type fixed effects	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes
Panel B: market leverage, highest MTB tercile				
Intercept	0.226 ^b (3.19)	0.216 ^b (2.95)	0.287 ^b (3.73)	0.322 ^b (4.39)
Political rights index	-2.252 ^c (-1.98)			-4.919 ^b (-2.93)
Political change index		0.102 (1.12)		-0.132 (-1.01)
R-Factor			0.075 (1.41)	0.159 ^b (3.03)
Observations	345	345	345	345
R-Squared	0.642	0.638	0.639	0.653
Property Type Fixed Effects	Yes	Yes	Yes	Yes
Control Variables	Yes	Yes	Yes	Yes

This table presents the results of four regressions investigating the determinants of Asia-Pacific real estate firms' use of leverage. Each model regresses the firm's Leverage ratio against the three measures of political risk separately, while controlling for the financial and regulatory standards, as well as firm and industry level variables. In Model (1), the Political Rights Index is used. In Model (2) the Political Change Index is utilized, while Model (3) employs the R-Factor. Model (4) includes all three of our political risk measures. Panel A reflects an analysis of the lowest tercile of MTB firms, while Panel B reports results for the highest tercile. The t-tests reported in parenthesis are all based on standard errors clustered by firm

^aIndicates statistical significance at 5 % level

^bIndicates statistical significance at 1 % level

^cIndicates statistical significance at 10 % level

Similarly, Panel B presents the results of our analysis for the high market-to-book tercile. Once again, we find results that are qualitatively consistent with our a priori expectations. While not as statistically robust, Political Rights and R-Factor both remain consistent with our full sample findings, and again suggest that as a real estate firm's political risk exposure increases the company employs less leverage.

Security Issuance Decisions

Finally, we also examine the sub-sample of firms that issue securities, as these firms are actively accessing the capital market and thereby consciously making a capital structure decision. Table 8 presents the results of this analysis. Once again, within this more restrictive and conceptually relevant subsample, we generally find that as political risk exposure

increases Asia-Pacific real estate firms employ less leverage. Political Rights, Political Change, and R-Factor all tend to be both directionally and statistically consistent with our full sample findings, again implying that as political risk exposure increases, REITs and listed property trusts take on less leverage.²³ Taken together, the results presented in Tables 7 and 8 suggest our results are robust to different sub-sample analyses, and are not an artificial construct based upon the idiosyncrasies of a particular sampling methodology.

Table 8 Determinants of leverage for security issuing Asia-Pacific real estate companies

Variables	(I)	(II)	(III)	(IV)
Intercept	0.374 ^a (4.11)	0.351 ^a (3.93)	0.457 ^a (4.41)	0.441 ^a (4.67)
Political rights index	-2.360 ^b (-2.14)			-3.112 ^b (-2.09)
Political change index		0.174 ^c (1.81)		-0.025 (-0.18)
R-Factor			0.106 (1.65)	0.142 ^b (2.14)
Observations	460	460	460	460
R-Squared	0.689	0.689	0.687	0.694
Property type fixed effects	Yes	Yes	Yes	Yes
Control variables	Yes	Yes	Yes	Yes

This table presents the results of four regressions investigating the determinants of Asia-Pacific real estate firms' use of leverage. Each model regresses the firm's Leverage ratio against the three measures of political risk separately, while controlling for the financial and regulatory standards, as well as firm and industry level variables. In Model (1), the Political Rights Index is used. In Model (2) the Political Change Index is utilized, while Model (3) employs the R-Factor. Model (4) includes all three of our political risk measures. The sample is restricted to only firms that raised capital in the secondary market during a given year. The t-tests reported in parenthesis are all based on standard errors clustered by firm

^aIndicates statistical significance at 1 % level

^bIndicates statistical significance at 5 % level

^cIndicates statistical significance at 10 % level

Summary and Conclusions

As financial markets become increasingly integrated, researchers must investigate and understand how cross-border considerations influence firm decision making. Along this line of inquiry, we examine how jurisdictional differences in the countries that Asia-Pacific REITs hold investment properties in impact the firm's debt capacity. In general, we find that for real estate firms holding real estate investments across international boundaries, leverage is not just a function of financial risk, but also the political risk associated with the properties in which the firm invests. More specifically, after controlling for both traditional and REIT specific determinants of firm leverage, we find that as 1) the efficiency of government functioning increases, 2) the probability or expected financial impact of political turmoil decreases, and 3) the ability to repatriate cash flows back to the home country of the firm increases, real estate firms employ more debt. These results hold regardless of whether debt is measured in terms of either book or market leverage, and are robust to alternative estimation subsamples including market-to-book value terciles and subsamples of only capital raising firms. Taken together, these results provide strong evidence that political risk exerts significance influence over the capital structure decisions of Asia-Pacific REITs and listed property trusts.

Footnotes

- 1 While one could easily foresee such constraints manifesting themselves in the form of performance differentials across firms, that does not have to be the case. More specifically, limited access to capital may also serve to mitigate potential diseconomies of scale and/or agency problems related to managerial empire building.
- 2 Burgman ([1996](#)) measures political risk as the ratio of the Euromoney 20 safest countries invested in to total countries invested in.
- 3 Similarly, Deng et al. ([2013](#)) argue organizational form and operational transparency are inextricably related. To the extent political risk influences a firm's optimal organizational structure, it could easily result in observable differences in firm transparency and/or performance.
- 4 The theoretical foundations of trade-off theory date back to the seminal work of Modigliani and Miller ([1958](#), [1963](#)). For a broad overview of alternative capital structure theories, see Harris and Raviv ([1991](#)). They not only discuss trade-off theory, but also leverage models based upon agency costs, corporate control considerations, and product/input market interactions.
- 5 Specifically, Lou ([2008](#)) and Tan ([2009](#)) report Australian and Singapore REITs are generally exempt from REIT level taxation, while Japanese REITs are subject to tax, but their distributions are often deductible. In South Korea, general REITs are subject to regular income tax provisions, however corporate restructuring REITs (CR-REITs) are exempt provided the minimum 90 % distribution requirements are met. Hong Kong REITs also enjoy tax advantages as they do not face withholding taxes, capital gains taxes, or income taxes on earnings generated from overseas operations.
- 6 For further discussion and insight into the limitations of applying trade-off theory to REIT markets, see Howe and Shilling ([1988](#)).
- 7 See, for example, Feng et al. ([2007](#)), Boudry et al. ([2010](#)), and Harrison et al. ([2011](#)).
- 8 Interestingly, while conventional wisdom amongst both academics and real estate industry practitioners holds that REITs are effectively capital constrained in the sense they cannot retain large shares of annual operating profits, Wang et al. ([1993](#)) and Bradley et al. ([1998](#)) both report average REIT dividend payout ratios well in excess of 100 % of taxable income. Given the large depreciation and amortization allowances real property investments often provide, cash flow (and funds from operations) frequently exceeds reported taxable income by vast amounts. To the extent this phenomenon holds within the Asia-Pacific market, concerns over the applicability of pecking-order theory may be overblown.
- 9 Empirical and anecdotal support for the market timing hypothesis within non-REIT firms may be found in Graham and Harvey ([2001](#)) and Baker and Wurgler ([2002](#)).
- 10 Additional studies suggesting a positive relation between firm size and leverage ratios include Maris and Elayan ([1990](#)), Jaffe ([1991](#)), Fama and French ([2002](#)), Baker and Wurgler ([2002](#)), and Barclay et al. ([2006](#)).
- 11 Consistent with this reasoning, Titman and Wessels ([1988](#)), Fama and French ([2002](#)), and Barclay et al. ([2006](#)), among others, all document a negative relation between firm profitability and leverage.
- 12 While the preponderance of the evidence seems to suggest a negative relation between growth options and firm leverage, the findings are not unanimous in this conclusion. For example, Titman and Wessels ([1988](#)) fail to find statistically significant evidence, either positive or negative, of a relation between growth options and leverage. Similarly, Feng et al. ([2007](#)) present evidence suggesting these relations within their REIT market sample appear to be context specific with some model specifications resulting in positive observed relations between growth options and leverage, while other specifications come to exactly the opposite conclusion.
- 13 Faulkender and Petersen ([2006](#)) arrive at similar conclusions for non-REIT firms.
- 14 See, for example, Livingston et al. ([2007](#)) and Helwege and Liang ([1996](#)).

- 15 Credit rationing, in this context, can take the form of either volume or price restrictions. Volume restrictions, by definition, will reduce observed debt ratios. Similarly, price adjustments will drive borrowing costs up, leaving fewer firms ready, willing, and able to profitably deploy the borrowed funds. Thus, regardless of the nature of the credit rationing, lower debt ratios are expected to prevail.
- 16 Note, of the 187 sample firms, 119 hold investment properties located exclusively within a single country and hence have index values which correspond directly to that country's Political Rights Index, Political Change Index, and R-Factor. For the remaining 68 firms holding assets across multiple jurisdictions, we weight location specific index values for our Political Rights Index, Political Change Index, and R-Factor metrics by the fraction of each firm's investment portfolio located within each specific country. These property weighted averages are each designed to capture alternative dimensions of political risk, and taken together should provide unique insight into the influence of political risk on firm capital structure decisions.
- 17 We readily acknowledge that to the extent restrictive economic environments erect artificial barriers to entry for new firms, existing firms may be insulated from competitive market pressures, enjoy monopolistic or oligopolistic market power, and thus exhibit an enhanced debt capacity.
- 18 A broad literature exists addressing the dynamics and differences between bank dominated and market dominated economic systems. For further details, discussion, and analysis of these issues, see Allen and Gale ([2001](#)), Levine ([2002](#)), Demircuc-Kunt and Levine ([1999](#), [2004](#)), and Chakraborty and Ray ([2006](#)).
- 19 For the purposes of the current investigation, in the spirit of Demircuc-Kunt and Levine ([1999](#), [2004](#)), we define an economic system as being bank dominated if the ratio of domestic assets of deposit money banks to market capitalization is less than 1.10. Alternative proxies using differential cut-off values, or employing classifications provided by Demircuc-Kunt and Levine ([1999](#), [2004](#)), produce virtually identical results.
- 20 See, for example, Senbet ([1979](#)) for further discussion of the role of international tax differentials on the optimal capital structure of the firm.
- 21 All significance tests presented in the multivariate analysis are based on standard errors clustered at the firm level. Additionally, we note that we do not include year and country fixed effects, as these are perfectly correlated with several of our control variables. However, in unreported tests where we remove these controls and include fixed effects we find qualitatively similar results. See Petersen ([2009](#)) for further discussion of these issues.
- 22 Additionally, we note that in unreported tests splitting the sample between firms that invest in a single country and those that invest across multiple countries we find qualitatively similar results for our Political Risk metrics.
- 23 We observe similar, but somewhat less statistically significant results when we split the sample between debt and equity issuers.

Notes

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Appendix

Political Rights Index	This is the property weighted average of the Freedom of the World Political Rights Index. Higher values indicate a government that is less functional.
Political Change Index	This is the property weighted average of the Business Risk Service Political Risk Index. Higher values indicate that political change which will materially affect business is less likely.
R-Factor	This is the property weighted average of the Business Risk Service remittances and repatriation of capital factor. Higher values indicate that it is relatively easy to repatriate profits.
Time to Export	This is the property weighted average of the minimum time it takes (in days) to export products from a country, as reported by the World Bank.
Procedures required to register property	This is 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	This is 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	This is the property weighted average of the number of broadband subscribes per 100 people, as reported by the World Bank.
% of GDP spent on primary education	This is the property weighted average of the percent of GDP spent per student on primary school education, as reported by the World Bank.
Female participation in labor force	This is the property weighted average of the proportion of females who actively participate in the work force, as reported by the World Bank.
Legal Origin	This is the percent of the real estate company's properties that are located in countries where the legal system is based on Civil Law foundations.
Business Freedom	This is the property weighted average of the Heritage Foundation's Business Freedom Index.
Bank Dominated	This is 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.
US 10-year Rate	This is the interest rate on the 10-year U.S. constant maturity Treasury note.
Tax Rate	This is the highest corporate tax rate applicable in the country where the real estate company is headquartered. The Tax Rate is set to 0 for all REITs.
GAAP	This is an indicator variable set to 1 if the firm uses GAAP financial reporting standards; 0 if the firm employs IFRS.
Asset Tangibility	Total Real Estate Operations / Total Assets.
Total Assets	Total Assets reported in US dollars.
Profitability	FFO / Total Assets.
Growth Options	Market Capitalization / (Total Assets - Total Debt).
Lagged Leverage	Lagged value of leverage.
Secured Debt	Secured Debt / Total Debt.
Rated Debt	This is an indicator variable set to 1 if the firm has rated debt outstanding; 0 otherwise.
Split Bond Ratings	An indicator variable set to 1 if two or more rating agencies have different notch level long-term issuer credit ratings for the firm; 0 otherwise.

Asset Age	Time since SNL first recorded the firm's total assets.
Repurchases	An indicator variable set to 1 if the firm's shares outstanding declines by more than 2 % over a given year; 0 otherwise.
Operating Leverage	The change in FFO / change in revenue: Windsorized.
Lease Payments	The firm's total committed capital lease obligations / Total Assets.
Total Countries	The number of different countries in which the firm owns investment properties.
Development	An indicator variable set to 1 if the firm engages in investment property development, construction programs, or has an active property development pipeline; 0 otherwise.

References

- 1 Allen, F., & Gale, D. (2001). *Comparing financial systems*. Cambridge: MIT Press.
- 2 Baker, M., & Wurgler, J. (2002). Market timing and capital structure. *Journal of Finance*, 57(1), 1–32.
- 3 Barclay, M., Smith, C., Jr., & Morellec, E. (2006). On the debt capacity of growth options. *Journal of Business*, 79(1), 37–59.
- 4 Billet, M., King, T., & Mauer, D. (2007). Growth opportunities and the choice of leverage, debt maturity, and covenants. *Journal of Finance*, 62(2), 697–730.
- 5 Boudry, W., Kallberg, J., & Liu, C. (2010). An analysis of REIT security issuance decisions. *Real Estate Economics*, 38(1), 91–120.
- 6 Bradley, M., Capozza, D., & Seguin, P. (1998). Dividend policy and cash-flow uncertainty. *Real Estate Economics*, 26(4), 555–580.
- 7 Brown, D., & Marble III, H. (2009). *Secured debt financing and leverage: Theory and evidence*. Working paper, University of Florida.
- 8 Brown, D., & Riddiough, T. (2003). Financing choice and liability structure of real estate investment trusts. *Real Estate Economics*, 31(3), 313–346.
- 9 Burgman, T. (1996). An empirical examination of multinational corporate capital structure. *Journal of International Business Studies*, 27(3), 553–570.
- 10 Cashman, G., Harrison, D., & Seiler, M. (2013). Advisor choice in Asia-Pacific property markets. *Journal of Real Estate Finance and Economics*, forthcoming.
- 11 Chakraborty, S., & Ray, T. (2006). Bank-based versus market-based financial systems: a growth-theoretic analysis. *Journal of Monetary Economics*, 53(2), 329–350.
- 12 Chen, C., Cheng, C., He, J., & Kim, J. (1997). An investigation of the relationship between international activities and capital structure. *Journal of International Business Studies*, 28(3), 563–577.
- 13 Demirguc-Kunt, A., & Levine, R. (1999). *Bank-based and market-based financial systems: Cross-country comparisons*. World Bank Policy Working Paper No. 2143.
- 14 Demirguc-Kunt, A., & Levine, R. (2004). *Financial structure and economic growth: A cross-country comparison of banks, markets, and development*. Cambridge: MIT Press.
- 15 Deng, Y., Hu, M., & Srinivasan, A. (2013). *Information asymmetry and organizational structure*. Working paper. National University of Singapore.
- 16 Doukas, J., & Pantzalis, C. (2003). Geographic diversification and agency costs of debt of multinational firms. *Journal of Corporate Finance*, 9(1), 59–92.

- 17 Ernst, & Young. (2010). The top 10 risks for business. Accessed on March 9, 1012.
[http://www.ey.com/Publication/vwLUAssets/Business_risk_report_2010/\\$FILE/EY_Business_risk_report_2010.pdf](http://www.ey.com/Publication/vwLUAssets/Business_risk_report_2010/$FILE/EY_Business_risk_report_2010.pdf).
- 18 Fama, E., & French, K. (2002). Testing trade-off and pecking order predictions about dividends and debt. *Review of Financial Studies*, 15(1), 1–33.
- 19 Fatemi, A. (1988). The effect of international diversification on corporate financing policy. *Journal of Business Research*, 16(1), 17–30.
- 20 Faulkender, M., & Petersen, M. (2006). Does the source of capital affect capital structure? *Review of Financial Studies*, 19(1), 45–79.
- 21 Feng, Z., Ghosh, C., & Sirmans, C. (2007). On the capital structure of real estate investment trusts (REITs). *Journal of Real Estate Finance and Economics*, 34(1), 81–105.
- 22 Graham, J., & Harvey, C. (2001). The theory and practice of corporate finance: evidence from the field. *Journal of Financial Economics*, 60(2–3), 187–243.
- 23 Han, B. (2006). Insider ownership and firm value: evidence from real estate investment trusts. *Journal of Real Estate Finance and Economics*, 32(4), 471–493.
- 24 Harris, M., & Raviv, A. (1991). The theory of capital structure. *Journal of Finance*, 46(1), 297–355.
- 25 Harrison, D., Panasian, C., & Seiler, M. (2011). Further evidence on the capital structure of REITs. *Real Estate Economics*, 39(1), 133–166.
- 26 Hartzell, J., Kallberg, J., & Liu, C. (2008). The role of corporate governance in initial public offerings: evidence from real estate investment trusts. *Journal of Law and Economics*, 51(3), 539–562.
- 27 Helwege, J., & Liang, N. (1996). Is there a pecking order? Evidence from a panel of IPO firms. *Journal of Financial Economics*, 40(3), 429–458.
- 28 Howe, J., & Shilling, J. (1988). Capital structure theory and REIT security offerings. *Journal of Finance*, 43(4), 983–993.
- 29 Jaffe, J. (1991). Taxes and the capital structure of partnerships, REITs, and related entities. *Journal of Finance*, 46(1), 401–407.
- 30 La Porta, R., Lopez-de-Silanes, F., Pop-Eleches, C., & Shleifer, A. (2004). Judicial checks and balances. *Journal of Political Economy*, 112(2), 445–470.
- 31 Lee, K., & Kwok, C. (1988). Multinational corporations vs. domestic corporations: international environmental factors and determinants of capital structure. *Journal of International Business Studies*, 19(2), 195–217.
- 32 Levine, R. (2002). Bank-based or market-based financial systems: Which is better? NBER Working Paper 9138.
- 33 Livingston, M., Naranjo, A., & Zhou, L. (2007). Asset opaqueness and split bond ratings. *Financial Management*, 36(3), 49–62.
- 34 Lou, T. (2008). *Is China ready for REITs? An examination of challenges and opportunities*. Working paper, Florida State University.
- 35 Maris, B., & Elayan, F. (1990). Capital structure and the cost of capital for untaxed firms: the case of REITs. *Real Estate Economics*, 18(1), 22–39.
- 36 Modigliani, F., & Miller, M. (1958). The cost of capital, corporation finance, and the theory of investment. *American Economic Review*, 48(3), 261–297.
- 37 Modigliani, F., & Miller, M. (1963). Corporate income taxes and the cost of capital: a correction. *American Economic Review*, 53(3), 433–443.

- 38 Myers, S. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2), 147–175.
- 39 Myers, S. (1984). The capital structure puzzle. *Journal of Finance*, 39(3), 575–592.
- 40 Myers, S., & Majluf, N. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2), 187–221.
- 41 Neo, C. (2005). Can Asian REITs recycle capital for half the world's population? UBS Investment Research.
- 42 Ott, S., Riddiough, T., & Yi, H. (2005). Finance, investment and investment performance: evidence from the REIT sector. *Real Estate Economics*, 33(1), 203–235.
- 43 Petersen, M. (2009). Estimating standard errors in finance panel data sets: comparing approaches. *Review of Financial Studies*, 22(1), 435–480.
- 44 Pulvino, T. (1998). Do asset fire sales exist? An empirical investigation of commercial aircraft transactions. *Journal of Finance*, 53(3), 939–978.
- 45 Rajan, R., & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *Journal of Finance*, 50(5), 1421–1460.
- 46 Reed, D., Mansi, S., & Allee, J. (2001). Firm internationalization and the cost of debt financing: evidence from non-provisional publicly traded debt. *The Journal of Financial and Quantitative Analysis*, 36(3), 395–414.
- 47 Senbet, L. (1979). International capital market equilibrium and the multinational firm financing and investment policies. *Journal of Financial and Quantitative Analysis*, 14(3), 455–480.
- 48 Shyam-Sunder, L., & Myers, S. (1999). Testing static tradeoff against pecking order models of capital structure. *Journal of Financial Economics*, 51(2), 219–244.
- 49 Sun, H. (2010). A theory on REIT's advisor choice and the optimal compensation mechanism. *Journal of Real Estate Finance and Economics*, 40(4), 387–411.
- 50 Tan, D. (2009). *Corporate governance: The case for Asian REITs*. Working paper, University of California at Berkeley.
- 51 Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *Journal of Finance*, 43(1), 1–19.
- 52 Wang, K., Erickson, J., & Gau, G. (1993). Dividend policies and dividend announcement effects for real estate investment trusts. *Real Estate Economics*, 21(2), 185–201.
- 53 Williamson, O. (1988). Corporate finance and corporate governance. *Journal of Finance*, 43(3), 567–591.