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Asymmetric risk perception and firm financing in the institutional envelope

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ABSTRACT

This study investigates how asymmetric risk preferences and national institutions co-determine how firms are financed across countries. We include prospect theory into the discussion of uncertainty avoidance and the institutional envelope in IB, and argue that country-specific bias in the evaluation of downside risks and upside potentials explain variation in how otherwise similar firms raise funds. Exploiting a unique dataset on risk preferences, we show that risk perception in general, and asymmetric risk preferences as predicted by prospect theory in particular, affect corporate capital structure. We also show that the national institutional envelope constrains these effects and discuss implications for international business research beyond capital structure. We test our predictions on a panel of 10,355 firm-year observations.

1. Introduction

How firms are financed is both an important constraint on firms' international strategic options (Kochhar, 1996; Kochhar & Hitt, 1998) and a cognitive anchor for managers who make decisions (Fama and French, 2004; Gallo, 2015; Sharpe, 1964). This is because corporate taxes and bankruptcy costs (Kraus & Litzenberger, 1973), as well as consequences of information asymmetry between managers and investors (Myers, 1984), are partially driven by a firm's debt-equity mix. Consequently, scholars attest to the strategic relevance of capital structure for a firm's competitive international position (Kester & Luehrman, 1992; Peng & Su, 2014), its value and risk profile in terms of failure and acquisition (Porter, 1992; Simerly & Li, 2000), its governance structure and capacity to attract stock investors (Hitt et al., 1991), and, thus, the firm's performance (Gleason et al., 2000; Muradoğlu & Sivaprasad, 2012) and survival (O'Brien et al., 2014; Stiglitz, 1988). Firm financing has also become an important research topic in the context of firm internationalization in capital markets (Puck & Filatotchev, 2020; Mudambi, 1998), venture capital involvement (Martí, Menéndez-Requejo, & Rottke, 2013), and the associated liabilities of foreignness (Bell et al., 2012; Nachum, 2010; Tupper et al., 2018) as well as strategies to overcome those (Li et al., 2016).

Firms are faced with substantial risk in their capital structure decisions, as wrong decisions might imply severe consequences for the firm, such as underinvestment (Myers & Majluf, 1984) or higher cost of capital (Fischer et al., 1989) in the short run, and successful collaboration with joint venture partners (Luo, 1998; Yamin & Golesorkhi, 2010) as well as firm survival in the long run (O'Brien, 2003; Gaur & Lu, 2007; Lindner et al., 2018). The topic has therefore long been central for both finance and international business scholars. For example, Muradoğlu & Sivaprasad (2012) link capital structure to abnormal stock returns in an international context, and Al-Najjar (2013) connects capital structure to the available cash in internationally active firms from emerging markets. In addition, McGuinness (2021) explains how capital structure is driven by stock seasoning in Chinese multinationals, and López-Gracia & Sogorp-Mira (2014) explain how financial constraints related to capital structure drive multinational firms' access to external resources.

Since decisions on firms' capital structure involve substantial risk (Myers & Majluf, 1984), international business research has long argued that different perceptions of risk are relevant for such decisions (e.g., Barton & Gordon, 1987, 1988). Existing research in the overlap of international strategy and finance (e.g., Chui et al., 2002; Gray et al., 2013; Green, 1992; Li et al., 2011; Mihet, 2013) added significantly to our understanding of this relationship and highlighted that risk perceptions vary across countries in consequence of the informal institutional cultural environment, specifically the degree of uncertainty avoidance (Hofstede, 1980, 2001). We build on this theoretical understanding and expand it by integrating the cross-cultural variation of asymmetric risk attitudes in the gains and losses domains (Rieger et al., 2015). Scholars provided strong evidence that individuals' risk perception is asymmetric with regard to the value assigned to the gains

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and losses that strategic choices involve (Tversky & Kahneman, 1974). Rieger et al. (2015) expand this reasoning to the cross-national level. They reason and provide strong empirical evidence that members of different national cultures differ systematically in their risk attitudes in the gains and losses domains. This role of cross-national variation in managements' asymmetric position towards risk for capital structure decisions has neither been integrated into capital structure research theoretically nor empirically. Prospect theory (Tversky & Kahneman, 1974), arguing that risk-taking propensities are not symmetrically distributed over gains and losses, provides a fitting framework to connect the two perspectives.

In this paper, we engage with the research gap in the theoretical understanding of the role of asymmetric risk preferences for capital structure decisions. We use the cross-cultural perspective on risk preferences (e.g., Gaganis et al., 2019; Schwenk, 1984) by theorizing how cross-national variation in risk perception with regards to potential gains versus potential losses influences how multinational firms are financed. Doing so, we extend prospect theory (Tversky & Kahneman, 1974) to the organizational level, and connect it to the (static) trade-off theory of capital structure (Myers, 1984). Associating risk-preferences in the gains domain with potential future tax shields, and associating risk-preferences in the losses domain with the expected cost of financial distress, we tie prospect theory to the central determinants in trade-off theory. Exploiting cross-national variation in risk preferences, we proceed to test whether the hypothesized effects are supported by evidence in a multinational dataset.

Then, in line with the institutional perspective that is increasingly prominent in international business research (e.g., Powell & Rhee, 2016; Filatotchev et al., 2018; Zhu et al., 2019) we further see a need to contextualize theory on how asymmetries in risk perception affect capital structure. We argue that the relevant formal institutional environment, the "institutional envelope" (Ahuja et al., 2018) that constrains firms in their capital structure decisions in a certain country affects the degree to which risk perception affects capital structure. Doing so, we build on and extend literature investigating the informal, cultural institutional determinants of capital structure (e.g., Chui et al. 2002; Sekely & Collins, 1988; Zheng et al., 2012). Specifically, we argue building on with trade-off theory logic (Kraus & Litzenberger, 1973) that risk perceptions associated with losses (financial distress) are associated with other formal institutions than those that influence risk perceptions in the domain of gains (tax shields).

In sum, in this paper we develop and empirically test novel theory on how variation in asymmetric risk-taking across countries influences how firms are financed. We argue that, beyond informal institutional influences (specifically uncertainty avoidance), asymmetric bias against risk taking as well as institutional contingencies affect how firms set capital structure. By doing so we make several contributions to literature. First, we provide a nuanced understanding of risk taking in decisions involving uncertainty across countries in general. Strategic decisions are frequently associated with a high degree of risk. A deeper and more precise understanding of how firms differ in their assessment of risk in the gains and losses domains across countries has the potential to contribute to the theoretical understanding of big questions in international business research, such as corporate governance and investment decisions (Roth & Kostova, 2003). Because of the cross-national setting of this study, it also improves literature's understanding of cross-national differences in firm strategies (Puck & Filatotchev, 2020). Second, we extend existing cross-cultural perspectives to accommodate asymmetric risk preferences as proposed by prospect theory. This contextualizes existing theory by connecting established relationships between firm-level characteristics and capital structure with cross-national variation of a behavioral component. The integration of the finance and cross-national behavioral strategy perspectives, as we hope, provides a clearer picture of capital structure choice, and integrates finance and global strategy literature, as has recently been called for in international (Agmon, 2006; Bowe, Filatotchev & Marshall, 2010; Puck & Filatotchev, 2020), and more general IB literature (Mudambi et al., 2012). Third, we contribute by explaining how the influence of risk taking in capital structure decisions is conditional on the local formal institutional environment. We explain how the differential effects of risk aversion in the gains domain and risk taking in the losses domain independently lead to different choices depending on the formal institutional environment. This expands our understanding of the connections between financing decisions and formal institutional variables and introduces a clear theoretical mechanism. Finally, we make an empirical contribution by analyzing a large panel of international firms in a sample from several countries. This avoids single-country bias and increases the generalizability of our results.

2. Theory and hypotheses

We argue that the integration of cross-national (formal and informal) institutional differences in how downside risks and upside potentials are perceived can improve the predictive power of existing theory, and contextualize theory (Beugelsdijk & Mudambi, 2013). Given the high degree of uncertainty associated with decisions on capital structure, the "risk top managers are 'comfortable' with will have a large bearing on the debt position of the firm" (Barton & Gordon, 1977: 71). Managerial decision making under uncertainty has received substantial attention in the literature (e.g., Hodgkinson et al., 1999; Lipshitz & Strauss, 1997; Maitland & Sammartino, 2015). Along these lines, IB research has explored several angles of how uncertainty avoidance serves as a cultural determinant to important firm-level outcomes, including cash holdings (Ramirez & Tadesse, 2009), centralization (Williams & van Triest, 2009), and financial market characteristics (Aggarwal & Goodell, 2010). This research streams build on a deviation from expected utility theory (von Neumann & Morgenstern, 1944), indicating that humans deviate in their decisions from predictions based on neutral trade-offs of expected gains and losses of utility.

One stream of research in business research points strongly to the relevance of cross-cultural variations, specifically cross-national variation in the degree of risk-taking, for the valuation of business operations (e.g., Gaganis et al. 2019). This approach has also already been successfully integrated into existing capital structure literature (Chui et al., 2002; Sekely & Collins, 1988; Zheng et al., 2012). However, existing perspectives do not integrate the cross-cultural variation in risk attidutes in the gains and losses domains. This is surprising as biases against high-uncertainty alternatives (Schwenk, 1984), framing (Kaplan, 2008), and different valuation of uncertainty depending on firms' performance against aspirations (Greve, 2003) have been identified in several research domains. Prospect theory (Tversky & Kahneman, 1974) in particular has been suggested as a useful alternative to expected utility theory because it incorporates several of these findings into a consistent framework. Marshall et al. (2011), for example, use prospect theory to explain switching behaviour. Prospect theory, however, has found very limited application in the study of decisions on firm financials in general and capital structure theory in particular.

We argue that the asymmetric distribution of risk perception in the gains and losses domain as proposed by prospect theory might help to further enhance the explanatory power of existing capital structure theory. That is because it allows us to incorporate biases in corporate decision making. Prospect theory builds upon and expands expected utility theory (Kahneman & Tversky, 1979): On top of a preference for low-uncertainty alternatives, which essentially shifts the relationship between the value of a project and associated uncertainty downwards, prospect theory argues that people scorn losses more than they value equal gains. This leads to an asymmetric value function that is steeper for losses than for gains (see Fig. 1).

Prospect theory, thus, assumes bounded, instead of complete, rationality (March, 1978; Simon, 1979) and accounts for loss aversion. It also accommodates psychological biases under conditions of uncertainty. It "gives weight to cognitive limitations of human decision makers"

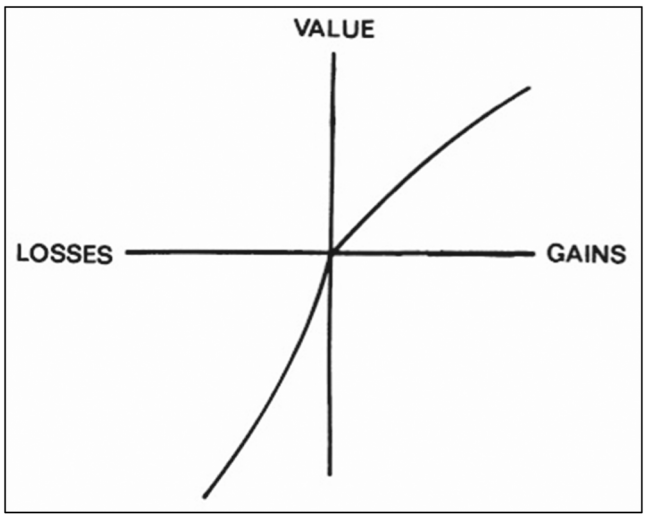

Fig. 1. Prospect Theory Value Function (Kahneman & Tversky, 1979 p. 279).

(Olsen, 1997, p. 63) and proposes a value function that might not reflect a "pure" attitude to money (Kahneman & Tversky, 1979). It is thus argued to offer rich psychological insights which allow "decompos[ing] the underlying of risk taking behavior" (Hens & Wang, 2007, p. 7). Rieger et al. (2015) expand this perspective to the cross-national level. They reason and find that cultures differ structurally in the way they assess the upside and downside of risk.

We use the cross-national variation as well as the decomposition into a value function for uncertain risks and one for uncertain gains to extend the trade-off theory of capital structure (Kraus & Litzenberger, 1973). Following prospect theory, we do not expect firms to optimize leverage ratios as a consequence of a rational decision-making process in the sense of utility theory. Instead, we expect cross-national risk biases to differently influence the perception of the potential upsides and downsides that corporate debt involves. In particular, we argue that prospect theory's domain of potential gains corresponds to the tax benefits of debt, while its domain of potential losses refers to expected costs of financial distress. The latter can be both direct and indirect (Almeida & Philippon, 2007; Elkamhi et al., 2012). Direct costs may include litigation fees or value lost because of time pressure on liquidation of assets, while indirect ones may concern lost market share, inefficient asset sales, and loss in standing compared with competitors (Almeida & Philippon, 2007). Both the expected future value of tax shields and the expected future cost of financial distress are uncertain. Consequently, it matters for their respective valuation what the expectation function that connects risk perception and perceived value looks like. Payne et al., (1984), for example, show that "managers exhibit risk averse behavior for prospects involving only gains and exhibit risk-seeking behavior for prospects involving only losses" (as cited in Edwards, 1996, p. 25). Arkes & Blumer (1985) find that the behavior of managers toward sunk cost can be explained given the functional form of subjective evaluations of values proposed by prospect theory: because of risk-taking behavior in losses, decision makers are prone to keep investing in order to avoid losses altogether.

As these examples show, the "certainty effect" of prospect theory leads people to underweight the chance of experiencing gains that are probable but not certain, leading to risk-averse behaviors in the gains domain (Edwards, 1996). In particular, people with a stronger risk aversion underweight larger but potential gains to a greater extent relative to less risky ones than individuals with weaker risk aversion (Fiegenbaum & Thomas, 1988). Since the size of the tax benefits of debt depends on the firm's future profits, we expect decision makers from cultures with a higher risk aversion to be less confident about potential future earnings and, in consequence of this bias, to perceive such benefits to a smaller extent. As a result, we expect them to be less willing to raise debt (H1a).

Contrary to the gains domain, the "certainty effect" leads people to underweight the chance of incurring losses that are probable but not certain, leading to risk-seeking behaviors in the loss domain according to prospect theory (Edwards, 1996). In particular, people from cultures with a stronger risk-seeking attitude underweight larger but potential losses to a greater extent relative to less risky ones. Similar to the case of sunk cost explained by Arkes & Blumer (1985), risk taking in the losses domain can be associated with underweighting of potential cost of financial distress, both direct and indirect. Since expected costs of financial distress are uncertain for a firm that is not in distress, we expect decision makers from cultures with a larger risk-seeking attitude in the domain of losses to perceive such costs to a smaller extent (H1b).

Hypothesis 1a. (H1a). The stronger the risk aversion in the domain of gains, the lower the debt ratio of a firm.

Hypothesis 1b. (H1b). The stronger the risk seeking in the domain of losses, the higher the debt ratio of a firm.

Note that these predictions derived from an integration of prospect theory and capital structure literature go beyond empirical literature that has connected uncertainty avoidance with capital structure (e.g., Gray et al., 2013; Li et al., 2011; Mihet, 2013). First, the separation of the gains and losses domains allows separation of the effects of expectations about future profits from effects of expectations about potential distress costs, which corresponds to the reasoning underlying prospect theory. This increases the granularity of the expectation, as it provides additional potential falsification (if, e.g., H2b holds but H2a does not). In all cases, prospect theory predicts different functional forms in the relationship between risk and value perception in the respective domains. While uncertain benefits are perceived to be of less value than a certainty equivalent, uncertain losses are perceived to be of more value than a certainty equivalent (Rieger et al., 2015). The kink in the value function shown in Fig. 1 indicates that the effect on perceived value of risk seeking in the loss domain is stronger (the slope is steeper) than that of risk aversion in the gains domain. In the context of capital structure differentials, this means that risk seeking in the loss domain can be expected to have a stronger effect on corporate leverage than risk aversion in the gains domain. H1c predicts that this relationship holds across country contexts.

Hypothesis 1c. (H1c). Risk seeking in the losses domain has a stronger influence on debt ratios than risk aversion in the gains domain.

We suggest that uncertain expected benefits and uncertain expected costs have differently strong effects on capital structure. However, literature suggests that the perception of those benefits and costs, as well as the benefits and costs themselves, differ also across formal institutional environments. That's why we also include formal institutional variation in our model. There is substantial variation in tax rates (Haufler & Wooton, 1999) and in the regulations concerning corporate restructuring of firms in financial distress (Djankov et al., 2008; Favara et al., 2017) within, and particularly across countries. We follow research on affect and risk preferences (Isen & Geva, 1987; Treffers et al., 2016) in suggesting that the formal institutional environment influences the effect of risk preferences on debt ratios. In other words, the relevant institutional environment within which a decision is made can be expected to be an important contingency for the effect of asymmetric risk preferences.

First, we consider that the expected future benefit of tax shields is, among other things, a function of the corporate tax rate (Arena & Roper, 2010; Overesch & Wamser, 2014). This expected future benefit of tax shields influences debt ratios. As tax rates increase, tax shields from debt will increase as well, all else being equal. This in turn suggests that the expected benefit of higher debt ratios is greater if tax rates are higher. With higher uncertain future benefits, risk avoidance in the gains

domain is expected to be more relevant. As the amount of money to be gained from uncertain future outcomes increases, the propensity to underweight such potential outcomes against a certainty equivalent also increases. This is because the value function in the gains domain is decreasing in slope with increasing potential gain. If risk preferences affect debt ratios as we suggest above in H1a, we expect H2a to hold.

Hypothesis 2a. (H2a): The negative effect of risk aversion in the gains domain on corporate debt ratios is reinforced (i.e., negatively moderated) by the national corporate tax rate.

Second, we consider that the expected cost of financial distress is, among other things, a function of the bankruptcy regulations a firm is subject to (Stulz, 1990). If clear and easily navigable regulations concerning firm restructuring and re-capitalization are present, the process of renegotiating in financial distress is easier and the probability of firms avoiding bankruptcy, despite being in financial distress, is higher. Consequently, the expected cost of financial distress is lower for firms in such countries, all else being equal. Breuer et al. (2019) take a similar perspective in their study of firm financing, and argue that a higher risk of a firm going bankrupt reduces how much risk-conscious decision-makers are willing to take on debt capital. With lower uncertain future costs, risk taking in the loss domain is expected to be less relevant in countries with good protection against bankruptcy. If risk preferences affect debt ratios in the way we suggest in H1b, we expect H2b to hold.

Hypothesis 2b. (H2b): The positive effect of risk-taking in the losses domain on corporate debt ratios is weaker (i.e., negatively moderated) in countries where the strength of the insolvency framework is stronger.

3. Data and sample

To test our model we analyze a multi-country, multi-industry sample of firms from 32 countries from different geographic areas. We choose a multinational setting because it provides substantial variation on the formal institutional environments (tax rates and insolvency regulation) as well as risk perception. A multi-country setting also provides clear boundaries to institutional environments, i.e. national borders, and results in higher generalizability of results over single-country studies (Roth & Kostova, 2003). Countries are selected based on the availability of the Rieger et al. (2015) data on risk preferences.[1] Within these countries, we use all listed firms for which Orbis provides information on all variables that our literature review revealed to be relevant for capital structure choice and the strategic complements discussed above. We define firms' home country on the basis of headquarters location. We exclude financial and insurance firms based on 4-digit NACE codes. The analyzed period is 2007–2011, and data are in USD. The time period chosen is a consequence of several favorable circumstances. First it is the time period when the data for risk perception was collected in the Rieger et al. (2015) study. Second, the period around the financial crisis was a time when, contrary to most other periods, corporate default was a plausible scenario for large corporations following the collapse or bailout of several large listed firms. Third, it was also a period where substantial variation in how firms were financed could be observed, which is useful for this analysis that considers both cross-sectional and longitudinal variation. The final sample includes listed companies only. On average, there are 2071 firms in the sample per year, and the observation period is five years. This results in 10,355 firm-year observations overall. The difference in the number of observations per year is not substantial. By country, the largest contributor is Japan (16.45% of all observations for the whole period), followed by France (10.79%). No other country exceeds 10% of observations. Emerging countries in the data (China, Colombia, India, Mexico, Malaysia, Nigeria, Russia, and Thailand) jointly contribute 2111 observations (20.39%). The "manufacture of electronic components" sub-industry—with NACE code 2611—is the largest sub-industry (347 firm-year observations).

[1] We use the Rieger et al. (2015) data on asymmetric risk preferences because it is (to our knowledge) the only source of information on risk preferences that distinguishes risk taking in losses and risk aversion in gains as proposed by prospect theory (Tversky & Kahneman, 1974) for different countries.

4. Measures

We base the variables in our model on previous research in international capital structure, particularly Fama & French (2002) and Reeb et al. (2001). We add national institutional variables and risk perception to the models employed in those studies. For the analysis of risk perception across different cultures, we have to resolve a mismatch between the data available and our level of analysis.

4.1. Dependent variable

The dependent variable is corporate leverage, which we define as the ratio of the book value of long-term debt to total assets. We are aware that there exist other ratios for measuring leverage, such as total debt to total assets (Rajan & Zingales, 1995) or long-term debt divided by long-term debt plus firm equity market value (Kayo & Kimura, 2011). However, as Rajan & Zingales (1995) point out, the purpose of the research influences the chosen measure. Since we attempt to analyze the influence of risk perception on the evaluation of the firm business and financial risk and, thus, its effect on corporate leverage, we believe that analyzing how firm assets are financed suits the scope our study. As a result, we relate outstanding long-term debt to the book value of firm assets. There is a longstanding academic discussion of how to measure corporate leverage, pointing towards market-based measures (e.g., Bowman, 1986), flow-measures focusing on newly issued and repaid debt (e.g., Fama & French, 2002; Ghandhi, 1966), and short-term debt (e.g., Custódio et al., 2013). For our study, we believe it is more relevant to focus on long-term debt—debt outstanding for more than one year, though, because we want to observe the equilibrium-effects predicted by static trade-off theory. In addition, the sample suits this measure well, as it consists of "very large" and "large" companies, which are better able to raise long-term debt than smaller companies.

4.2. Risk perception

We employ the "Median Relative Risk Premium" (RRP) score developed by Rieger et al. (2015) to capture risk perception in the gains and losses domains across countries. In their paper, Rieger et al. (2015) operationalize risk perception through a survey where participants are asked to state their willingness to pay for hypothetical lotteries, which are either solely about gains or solely about losses (please see Table 1 for detailed RRP computations).

Only national averages are available for risk perception in Rieger et al. (2015). The empirical analysis at hand would ideally use risk perception scores for the group of managers that take capital structure decisions. Following previous literature that uses national culture to understand firm behavior at the interface of IB and finance (e.g., Chui et al., 2002; Li et al., 2011; Gray et al., 2013; Antonczyk & Salzmann, 2014) or accounting (e.g., Kanagaretnam et al., 2014; Kitching et al., 2016; Li et al. 2011), we argue that managers embedded in a certain country's culture will behave in accordance with that culture. This behavior may be driven by learned behavior (Hofstede, 2001), or by pressure from investors who also tend to come from the geographic vicinity of a firm's headquarters (Coval & Moskowitz, 1999). Nevertheless, we make an adjustment to the Rieger et al. (2015) data to accommodate the fact that managers may be quite diverse with regards to their behavior when confronted when uncertain future gains and losses. We use the standard deviations provided by Rieger et al. (2015) to compute the distribution of risk perception in the gains and losses domains for every country in the sample used in this paper. We then take

Table 1
Generating Risk Premiums (adapter from Rieger et al., 2015).

RRP				
	Losses		Gains	
Data source	6912 university students of economics, finance, or business administration at more than 60 universities in 53 countries (53% male)			
Examples of hypothetical lotteries	Imagine you have to play these lotteries, unless you pay a certain amount of money beforehand. What is the maximum amount you would be willing to pay to avoid playing the lottery? This corresponds to buying insurance that saves you from suffering potential losses.		Imagine you are offered the lotteries below. Please indicate the maximum amount you are willing to pay for the lottery:	
	40% chance	Loss of $80	40% chance	Win $0
	60% chance	No loss, no win	60% chance	Win $100
Formula	$RRP = \frac{EV - CE}{\lvert EV \rvert}$			

random draws from these distributions to approximate the risk perception in the respective groups of managers that make capital structure decisions. We believe that, because financial management is often centralized in headquarters (Bodnar et al., 1998), such an approach based on the headquarters' location is a reasonable proxy to managerial risk taking. This allows us to bring in within-country heterogeneity into our analysis. In addition, this approach allows distributions of risk perceptions of groups from different countries to overlap. Consequently, there is a chance that risk perception in for example gains of a group of managers based in country A is more geared towards risk aversion than for a group in country B, even though the national average in country A is lower than in country B (see Fig. 2 for an example).

To interpret our empirical results more intuitively, note that we take the absolute value of the original RRP scores (see Table 2 for the national scores). In turn, this means that a larger RRP in losses represents more risk seeking—or less risk aversion—and that a larger RRP in gains means more risk aversion—or less risk seeking).

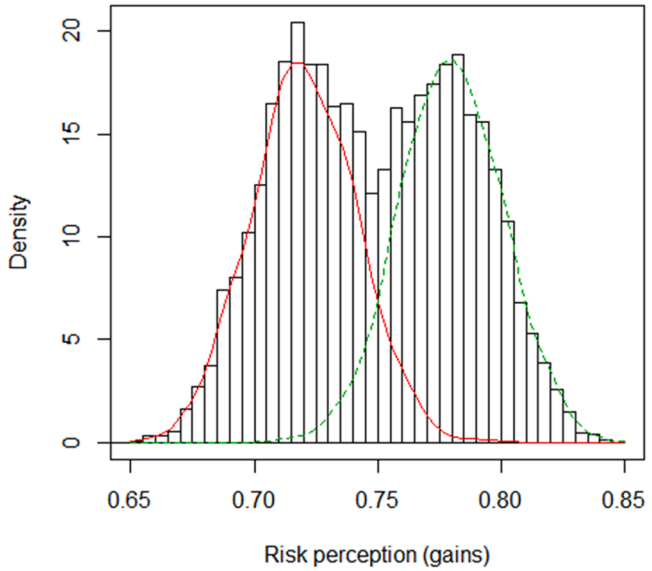

Fig. 2. Risk Perception in Gains for the USA and the UK.

Table 2
Relative Risk Premiums (adapted from Rieger et al., 2015).

	RRP	
Country	Losses	Gains
Australia	0.44	0.65
Austria	0.63	0.65
Canada	0.33	0.77
China	0.35	0.56
Colombia	0.67	0.87
Denmark	0.17	0.64
Finland	0.32	0.73
France	0.43	0.54
Germany	0.54	0.80
Greece	0.77	0.66
Hong Kong	0.72	0.93
Hungary	0.54	0.83
India	0.54	0.68
Ireland	0.53	0.86
Israel	0.63	0.83
Italy	0.35	0.80
Japan	0.54	0.76
Malaysia	0.81	0.64
Mexico	0.72	0.93
Netherlands	0.17	0.44
New Zealand	0.64	0.67
Nigeria	0.60	0.69
Poland	0.35	0.78
Portugal	0.29	0.61
Russia	0.73	0.88
Slovenia	0.53	0.83
Spain	0.23	0.72
Sweden	0.21	0.65
Switzerland	0.45	0.78
Thailand	0.52	0.60
Turkey	0.18	0.63
United States	0.43	0.78
Mean	0.48	0.72
Standard Deviation	0.19	0.12

4.3. *Institutional variables*

To measure the *corporate tax rate,* we use the country "Total Tax Rate"—percentage of commercial profits—provided by the World Bank national accounts. To account for the institutional component of the expected cost of financial distress, we use the "Strength of Insolvency Framework Index," which includes the "Commencement of Proceedings," "Management of Debtors' Assets," "Reorganization Proceedings," and "Creditor Participation" indices. This framework is provided by the World Bank Group database.

4.4. *Control variables*

On the firm-level, we include growth opportunities, profitability, size, asset tangibility, dividend payout, non-debt tax shields, and R&D expenses. The data to measure such variables are obtained from the Orbis (Bureau Van Dijk) database. Since growing firms might incur higher losses from financial distress, we expect a negative relationship between growth opportunities and financial leverage—as Antonczyk & Salzmann (2014) point out. Moreover, profitable companies should have higher leverage because corporate-debt tax-shields benefits are larger (Antonczyk & Salzmann, 2014; Frank & Goyal, 2003; Wu & Yue, 2009) and the likelihood of bankruptcy is smaller (Antonczyk & Salzmann, 2014). Larger firm size involves more diversification, reduced likelihood of financial distress, and therefore increased issuance of debt options (Antonczyk & Salzmann, 2014; Titman & Wessels, 1988). Moreover, larger firms tend to raise more debt than small ones because of their greater diversification (Byoun, 2008). Non-debt tax shields, like depreciations, result in lower debt levels (De Angelo & Masulis, 1980). Greater R&D activities are negatively associated with leverage (Fama & French, 2002; Ghosh, 2012) because companies with high R&D activity

face more volatile returns on projects and, as a consequence, might suffer from rigid financial obligation schemes (Ghosh, 2012).

We measure *growth opportunities* as the ratio of market capitalization to shareholder funds (Adam & Goyal, 2008; Antonczyk & Salzmann, 2014) and *profitability* as the ratio of EBIT to total assets (Antonczyk & Salzmann, 2014; Kayo & Kimura, 2011). Again following previous studies, we measure *size* as the natural logarithm of total assets (Antonczyk & Salzmann, 2014) and assets *tangibility* as fixed assets divided by total assets (Kayo & Kimura, 2011). To control for *dividends*, we include the dividend payout (Fama & French, 2002). To account for *non-debt tax shields*, we use the ratio of depreciation to total assets (Antonczyk & Salzmann, 2014). In line with Fama and French (2002), we include *R&D expenses* as a dummy variable. In our investigation, R&D takes the value 1 if R&D expenses are reported and different from zero, and the value 0 if R&D expenses are not reported or are equal to zero.

To account for differences between industries, we use fixed *industry* effects. We include dummies for companies' industry based on their 4-digit NACE codes. Concerning country-level variables, we account for legal, macroeconomic, financial, and institutional determinants that have a significant corporate effect. Specifically, we control for the *legal system*, which we include as a dummy variable that takes the value 1 if the country is characterized by civil law, and 0 if the country's legal origin is common law (La Porta et al., 2008). Data are obtained from the Central Intelligence Agency online portal. We control for *accounting standards* through the "Strength of Auditing and Reporting Standards" global competitiveness ranking provided by the World Economic Forum. We include *control for corruption* estimates as a measure of governance mechanisms that hamper corruption (Kaufmann et al., 2010). To control for *investors protection*, we use the "Strength of Investor Protection Index, " which accounts for the "Extent of Disclosure," "Extent of Director Liability," and "Ease of Shareholders Suit" indices. Again, this index is obtained from the Doing Business, World Bank Group database. We include countries' *inflation* level—consumer prices, annual percentage—data from the International Monetary Fund. The percentage of *bank deposits* to GDP is obtained from the International Financial Statistic databank. Following Kayo & Kimura (2011), we further include countries' *GDP annual growth* and *stock market capitalization.* Data are obtained from the World Bank database. To control for national culture effect on corporate financial leverage, we use GLOBE's "practices" and "values" scores on the cultural dimensions *institutional collectivism, in-group collectivism, uncertainty avoidance* and *power distance.* Our final control variable, *ambiguity,* is the ratio of participants in the Rieger et al. (2015) study who choose an unambiguous payoff.

5. Methodology

We run analyses for the years 2007 through 2011; hence we include years before the financial crisis, throughout it, and into early recovery in 2011. We run fixed-effects panel models with different lag structures, models with time and industry fixed effects, as well as a pooled model as a robustness check. In line with Antonczyk & Salzmann (2014), we run the regression with lagged firm-level variables to avoid capital structure endogeneity. We compute variance inflation factors (Fox & Weisberg, 2011) to check for multicollinearity, which does not show a significant impact. These different estimation methods, different lags in the dependent variable, and specification changes do not significantly alter the results we obtain. We standardize the independent variables and moderators to facilitate the interpretation of interaction effects.

Since individual risk preferences are influenced by the "past and present context of experience" (Kahneman & Tversky, 1979), we acknowledge that the individual's risk attitudes toward the same prospect might have not been the same over time. However, we do not analyze the development of the risk perception index for a specific country. Indeed, we are interested not in absolute values but rather in the comparison between different nations, and, thus, we only have to assume that the differences between countries do not change significantly over the observation period. Given that cultural traits have been found to be quite sticky (Majumdar, 2000), we believe this assumption to be reasonable. In the same vein, we assume each country's cultural scores to be constant. Where possible, we let control variables change over the observation period.

6. Results

Table 3 shows descriptive statistics for our sample. Leverage based on long-term debt over assets (our dependent variable) is on average 12.3% in our sample. Average risk aversion in the gains domain according to Rieger et al. (2015) is 0.671. This is very close to the average value for New Zealand (0.670). Average risk aversion in the losses domain is 0.459 (in absolute terms). The closest country average to this value is that of Switzerland (0.45). The average total tax rates that firms are subject to is 50.35% in our sample. The average score for bankruptcy protection is 11.934, which corresponds approximately to the score for Australia (12). Growth opportunities average at 2.218. Tangible assets account for approximately 50% of assets in our sample. Dividend payouts are on average 90.26 million USD. Firm profitability on average is 1.469%. The average firm has assets of approximately 442 million USD (logged assets consequently are 13.538). The average R&D ratio of firms in our sample is 3.5%. Only about one third of firms in the sample report nonzero R&D expenses. We include a dummy indicating this as a robustness check in our empirical model. The results are robust to this dummy. Non-debt tax shields are around 7% (of assets) in the sample. Table 3 shows descriptive statistics of firm-level and additional country-level control variables. Table 4 shows partial correlations. We follow guidance by Lindner et al. (2020) and include control variables when we trade-off higher pairwise correlations against lower model completeness.

In Table 5, we stepwise add control variables to our model. Then, we proceed to test our hypotheses. Generally, coefficient estimates are stable over different specifications. For our control variables (model 1), we consistently find that firms with more tangible assets have more debt and that larger firms carry more debt relative to their size. This is in line

Table 3
Descriptive Statistics.

Variable	Mean	St. Dev.	Min	Max
Leverage	12.31	13.80	0.00	231.72
RRP gains domain	0.67	0.11	0.44	0.93
RRP losses domain	0.46	0.15	0.17	0.81
Tax rate	50.35	12.75	23.00	67.70
Insolvency index	11.93	2.05	6.00	15.00
Growth opportunities	2.23	4.12	-92.93	105.48
Tangibility	0.50	0.22	0.00	1.00
Dividends	90.26	837.36	0.32	40,451.71
Profitability	1.47	69.52	-0.66	3492.25
Firm size	13.54	1.90	0.12	19.59
R&D ratio	0.04	0.69	-0.03	93.09
Tax shield	-0.07	2.14	-107.50	0.03
GDP growth	3.94	3.75	-8.86	9.49
Legal system	0.39	0.49	0	1
Investor protection	6.01	1.42	3.00	9.00
Inflation	3.22	2.03	-0.28	10.84
Corruption avoidance	0.87	1.09	-1.12	2.45
Accounting standards	5.29	0.67	4.10	6.40
Bank deposits	106.95	65.59	25.20	301.61
Ambiguity	0.59	0.09	0.39	0.82
Market capitalization	84.67	66.97	16.36	396.88
In-group collectivism (practices)	4.95	0.75	3.46	5.86
In-group collectivism (values)	5.51	0.32	5.11	6.25
Institutional collectivism (practices)	4.50	0.44	3.41	5.26
Institutional collectivism (values)	4.59	0.41	3.91	5.41
Power distance (practices)	5.14	0.30	4.14	5.68
Power distance (values)	2.80	0.19	2.23	3.19
Uncertainty avoidance (practices)	4.59	0.49	3.09	5.42
Uncertainty avoidance (values)	4.53	0.79	3.20	5.71

Table 4
Pairwise Correlations.

	V1	V2	V3	V4	V5	V6	V7	V8	V9	V10	V11	V12	V13	V14
Leverage (V1)	1	-0.01	-0.16	0.04	0.04	-0.01	0.46	0.02	-0.01	0.35	-0.12	0.01	-0.06	-0.11
RRP gains domain (V2)	-0.01	1	0.33	-0.43	0.31	-0.01	0.02	0.01	0.01	0.11	0.09	-0.01	-0.15	0.24
RRP losses domain (V3)	-0.16	0.33	1	-0.38	-0.37	-0.02	-0.05	-0.01	0.01	-0.18	-0.11	-0.01	0.06	0.46
Tax rate (V4)	0.04	-0.43	-0.38	1	0.11	0.00	-0.04	0.00	-0.01	0.09	-0.02	0.01	0.11	-0.39
Insolvency index (V5)	0.04	0.31	-0.37	0.11	1	-0.00	-0.05	0.02	0.01	0.07	0.21	-0.01	-0.33	-0.13
Growth opportunities (V6)	-0.01	-0.01	-0.02	0.00	-0.01	1	-0.01	-0.00	-0.00	0.00	0.01	0.00	0.02	-0.02
Tangibility (V7)	0.46	0.02	-0.05	-0.04	-0.05	-0.01	1	0.01	-0.02	0.36	-0.18	0.02	0.02	-0.01
Dividends (V8)	0.02	0.01	-0.01	0.00	0.02	-0.00	0.01	1	0.00	-0.01	-0.00	-0.00	-0.01	0.01
Profitability (V9)	-0.01	0.01	0.01	-0.01	0.01	-0.00	-0.02	0.00	1	-0.01	-0.00	-0.90	0.01	0.00
Firm size (V10)	0.35	0.11	-0.18	0.09	0.07	0.00	0.36	-0.01	-0.06	1	0.04	0.05	-0.03	-0.25
R&D ratio (V11)	-0.12	0.09	-0.11	-0.02	0.21	0.01	-0.18	-0.00	-0.00	0.04	1	0.00	-0.09	-0.07
Tax shield (V12)	0.01	-0.01	-0.01	0.01	-0.01	0.00	0.02	-0.00	-0.90	0.05	0.00	1	-0.01	-0.01
GDP growth (V13)	-0.06	-0.15	0.06	0.11	-0.33	0.02	0.02	-0.01	0.01	-0.03	-0.09	-0.01	1	0.01
Legal system (V14)	-0.11	0.24	0.50	-0.39	-0.13	-0.02	-0.00	0.01	0.01	-0.25	-0.07	-0.01	0.01	1
Investor protection (V15)	-0.05	0.30	0.40	-0.41	-0.22	-0.03	0.04	0.01	0.01	-0.12	-0.07	-0.01	-0.01	0.75
Inflation (V16)	0.06	-0.11	0.09	-0.01	-0.44	0.02	0.08	-0.00	0.00	0.00	-0.09	-0.00	0.41	0.02
Corruption avoidance (V17)	0.11	0.24	-0.35	-0.22	0.40	0.02	0.05	0.01	-0.01	0.13	0.17	0.01	-0.36	-0.13
Accounting standards (V18)	-0.03	0.26	0.06	-0.43	0.23	-0.00	0.01	0.01	-0.00	-0.08	0.09	0.00	-0.28	0.32
Bank deposits (V19)	-0.13	0.54	0.40	-0.40	0.12	-0.01	-0.05	0.00	-0.00	-0.03	-0.01	0.00	-0.22	0.53
Ambiguity (V20)	-0.13	-0.12	0.19	-0.08	-0.33	-0.00	-0.05	-0.01	0.00	-0.18	-0.19	-0.00	0.24	0.37
Market capitalization (V21)	-0.04	0.39	0.26	-0.50	-0.33	0.00	0.07	-0.01	-0.00	0.08	-0.04	0.00	0.15	0.27
In-group collectivism (practices) (V22)	-0.12	-0.11	0.47	0.10	-0.48	-0.01	-0.02	-0.02	-0.00	-0.08	-0.22	0.00	0.36	0.22
In-group collectivism (values) (V23)	0.18	-0.34	-0.29	0.08	-0.07	0.01	0.10	0.01	0.00	-0.03	-0.03	-0.00	-0.25	-0.03
Institutional collectivism (practices) (V24)	-0.11	0.03	-0.20	0.12	0.23	-0.01	-0.12	0.01	-0.00	-0.11	0.07	0.00	-0.06	0.23
Institutional collectivism (values) (V25)	0.07	-0.38	0.09	0.13	-0.25	0.01	0.03	-0.01	-0.01	0.07	-0.08	0.01	-0.00	-0.48
Power distance (practices) (V26)	-0.04	-0.17	0.19	0.35	0.03	-0.00	-0.08	-0.01	-0.01	-0.03	-0.06	0.01	-0.15	-0.20
Power distance (values) (V27)	-0.09	-0.22	0.18	0.13	-0.22	-0.03	-0.00	-0.01	-0.00	-0.04	-0.05	0.00	0.21	0.19
Uncertainty avoidance (practices) (V28)	0.03	-0.11	-0.35	0.01	0.11	0.01	0.01	0.00	-0.01	0.01	0.14	0.01	0.07	-0.60
Uncertainty avoidance (values) (V29)	-0.11	-0.35	0.29	0.18	-0.40	-0.02	-0.03	-0.01	-0.00	-0.14	-0.22	-0.00	0.25	0.23

	V15	V16	V17	V18	V19	V20	V21	V22	V23	V24	V25	V26	V27	V28	V29
Leverage (V1)	-0.05	0.06	0.11	-0.03	-0.13	-0.13	-0.04	-0.12	0.18	-0.11	0.07	-0.04	-0.09	0.03	-0.11
RRP gains domain (V2)	0.30	-0.11	0.24	0.26	0.54	-0.12	0.39	-0.11	-0.34	0.03	-0.38	-0.17	-0.22	-0.11	-0.35
RRP losses domain (V3)	0.34	0.09	-0.35	0.06	0.40	0.19	0.26	0.47	-0.29	-0.20	0.09	0.19	0.18	-0.35	0.29
Tax rate (V4)	-0.41	-0.01	-0.22	-0.43	-0.40	-0.08	-0.45	0.10	0.08	0.12	0.13	0.35	0.134	0.01	0.18
Insolvency index (V5)	-0.23	-0.44	0.40	0.23	0.12	-0.33	-0.33	-0.48	-0.07	0.23	-0.25	0.03	-0.22	0.11	-0.40
Growth opportunities (V6)	-0.03	0.02	0.02	-0.00	-0.01	-0.00	0.00	-0.01	0.01	-0.01	0.01	-0.00	-0.03	0.01	-0.02
Tangibility (V7)	0.04	0.08	0.05	0.01	-0.05	-0.05	0.07	-0.02	0.10	-0.12	0.03	-0.08	-0.0	0.01	-0.03
Dividends (V8)	0.01	-0.00	0.01	0.01	0.00	-0.01	-0.01	-0.02	0.01	0.01	-0.01	-0.01	-0.01	0.00	-0.01
Profitability (V9)	0.01	0.00	-0.01	-0.00	-0.00	0.00	-0.00	-0.00	0.00	-0.00	-0.01	-0.01	-0.00	-0.01	-0.00
Firm size (V10)	-0.12	0.00	0.13	-0.08	-0.03	-0.18	0.08	-0.08	-0.03	-0.11	0.07	-0.03	-0.04	0.10	-0.14
R&D ratio (V11)	-0.07	-0.09	0.17	0.09	-0.01	-0.19	-0.04	-0.22	-0.03	0.07	-0.08	-0.06	-0.05	0.14	-0.22
Tax shield (V12)	-0.01	-0.00	0.01	0.00	0.00	-0.00	0.00	0.00	-0.00	0.00	0.01	0.01	0.00	0.01	-0.00
GDP growth (V13)	-0.01	0.41	-0.36	-0.28	-0.22	0.24	0.15	0.36	-0.25	-0.06	-0.00	-0.15	0.21	0.07	0.25
Legal system (V14)	0.75	0.02	-0.13	0.32	0.53	0.38	0.27	0.22	-0.03	0.23	-0.48	-0.20	0.19	-0.60	0.23
Investor protection (V15)	1	0.01	-0.09	0.36	0.43	0.24	0.33	0.21	0.16	0.21	-0.42	-0.19	0.27	-0.40	0.21
Inflation (V16)	0.01	1	-0.34	-0.37	-0.39	0.18	0.04	0.29	0.08	-0.41	0.23	-0.05	-0.02	-0.12	0.23
Corruption avoidance (V17)	-0.09	-0.34	1	0.75	0.22	-0.67	0.26	-0.87	0.17	0.26	-0.29	-0.34	-0.14	0.50	-0.82
Accounting standards (V18)	0.36	-0.37	0.75	1	0.45	-0.37	0.38	-0.60	0.14	0.43	-0.49	-0.32	0.05	0.30	-0.53
Bank deposits (V19)	0.43	-0.39	0.22	0.45	1	0.22	0.54	0.07	-0.45	0.29	-0.39	-0.03	0.09	-0.32	-0.07
Ambiguity (V20)	0.24	0.18	-0.67	-0.37	0.22	1	0.07	0.70	-0.27	-0.02	0.01	0.20	0.17	-0.54	0.71
Market capitalization (V21)	0.33	0.04	0.26	0.38	0.54	0.07	1	0.02	-0.29	-0.08	-0.20	-0.29	0.19	-0.01	-0.10
In-group collectivism (practices) (V22)	0.21	0.29	-0.87	-0.60	0.07	0.70	0.02	1	-0.34	-0.29	0.28	0.37	0.19	-0.52	0.87
In-group collectivism (values) (V23)	0.16	0.08	0.17	0.14	-0.45	-0.27	-0.29	-0.34	1	-0.02	0.09	0.08	-0.10	0.02	-0.05
Institutional collectivism (practices) (V24)	0.21	-0.41	0.26	0.43	0.28	-0.02	-0.08	-0.29	-0.02	1	-0.82	-0.35	0.05	0.10	-0.19
Institutional collectivism (values) (V25)	-0.42	0.23	-0.29	-0.49	-0.39	0.01	-0.20	0.28	0.09	-0.82	1	0.59	-0.02	0.08	0.25
Power distance (practices) (V26)	-0.19	-0.05	-0.34	-0.32	-0.03	0.20	-0.29	0.37	0.08	-0.35	0.59	1	-0.01	-0.20	0.38
Power distance (values) (V27)	0.27	-0.02	-0.14	0.05	0.09	0.17	0.19	0.19	-0.10	0.05	-0.02	-0.01	1	-0.10	0.35
Uncertainty avoidance (practices) (V28)	-0.40	-0.12	0.50	0.30	-0.32	-0.54	-0.01	-0.59	0.02	0.10	0.08	-0.20	-0.10	1	-0.66
Uncertainty avoidance (values) (V29)	0.21	0.23	-0.82	-0.53	-0.07	0.71	-0.10	0.87	-0.05	-0.19	0.25	0.38	0.35	-0.66	1

with prior findings about capital structure (Kayo & Kimura, 2011; Titman & Wessels, 1988). On the country level (model 2), we find that better accounting standards tend to be related to increased equity issuance (Antonczyk & Salzmann, 2014). Bank deposits on the national level are negatively related to debt ratios. With regard to cultural determinants of corporate capital structure (model 3), and similar to the existing literature, higher power distance generally leads to lower leverage (Frijns et al., 2013; Gray et al. 2013; Li et al., 2011; Mihet, 2013). Institutional and in-group collectivism tend to have a positive effect on corporate debt ratios (Hsee & Weber, 1999). Uncertainty avoidance tends to have a negative effect on debt ratios, as one would expect from expected utility theory Chui et al. (2002). These results are independent of whether we use the "Values" or the "Practices" scores. In general, the country-level results are consistent with earlier literature (e.g., Antonczyk & Salzmann, 2014; Giannetti, 2003).

In model 4 we test H1a through H1c. We find support for a negative effect ($p = 0.001$) of risk aversion in gains on debt ratios (H1a). An increase in risk aversion in the gains domain by one standard deviation is associated with a reduction in debt ratios by approximately 90 basis points. We also find support for a positive effect ($p < 0.001$) of risk

Table 5
Regression Results with Standard Errors in Parentheses.

	1	2	3	4	5	6
Intercept	-31.26 (2.44)	-8.90 (4.19)	-56.80 (14.55)	-48.87 (15.46)	-33.51 (15.76)	-26.49 (16.10)
	p = 0.000	p = 0.04	p = 0.000	p = 0.002	p = 0.04	p = 0.10
Growth opportunities	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
	p = 0.26	p = 0.37	p = 0.28	p = 0.26	p = 0.25	p = 0.26
Tangibility	21.95 (0.59)	20.76 (0.72)	20.28 (0.72)	20.28 (0.72)	20.29 (0.72)	20.30 (0.72)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000
Dividends	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	p = 0.01	p = 0.09	p = 0.12	p = 0.12	p = 0.14	p = 0.14
Profitability	0.19 (0.13)	0.25 (0.16)	0.22 (0.16)	0.21 (0.16)	0.21 (0.16)	0.21 (0.16)
	p = 0.15	p = 0.13	p = 0.16	p = 0.19	p = 0.19	p = 0.19
Firm size	1.91 (0.06)	1.67 (0.08)	1.62 (0.08)	1.66 (0.08)	1.64 (0.08)	1.64 (0.08)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000
R&D ratio	-14.89 (4.27)	-20.38 (5.59)	-18.99 (5.55)	-18.04 (5.54)	-17.66 (5.54)	-17.89 (5.54)
	p = 0.001	p = 0.000	p = 0.001	p = 0.002	p = 0.002	p = 0.002
Tax shield	5.81 (4.18)	7.85 (5.17)	7.12 (5.15)	6.71 (5.14)	6.66 (5.14)	6.62 (5.14)
	p = 0.17	p = 0.13	p = 0.17	p = 0.20	p = 0.20	p = 0.20
GDP growth		-0.17 (0.06)	0.11 (0.07)	0.09 (0.07)	0.03 (0.07)	0.04 (0.07)
		p = 0.002	p = 0.12	p = 0.19	p = 0.63	p = 0.61
Legal system (1 =common law)		0.43 (0.45)	-2.15 (0.65)	-3.00 (0.70)	-2.39 (0.71)	-2.17 (0.71)
		p = 0.35	p = 0.001	p = 0.000	p = 0.001	p = 0.003
Inflation		0.09 (0.10)	-0.09 (0.11)	-0.11 (0.11)	-0.10 (0.11)	-0.13 (0.11)
		p = 0.37	p = 0.45	p = 0.34	p = 0.37	p = 0.28
Accounting standards		-3.87 (0.48)	0.23 (0.60)	-1.60 (0.69)	-0.74 (0.72)	-1.22 (0.75)
		p = 0.000	p = 0.71	p = 0.03	p = 0.30	p = 0.11
Bank deposits		-0.03 (0.00)	-0.06 (0.01)	-0.07 (0.01)	-0.06 (0.01)	-0.06 (0.01)
		p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000
Ambiguity		-0.84 (2.02)	10.22 (2.44)	18.79 (3.14)	17.48 (3.14)	21.03 (3.56)
		p = 0.68	p = 0.000	p = 0.000	p = 0.000	p = 0.000
Stock market capitalization		-0.01 (0.00)	0.003 (0.004)	0.01 (0.00)	-0.00 (0.01)	-0.00 (0.01)
		p = 0.001	p = 0.37	p = 0.03	p = 0.69	p = 0.39
Corruption avoidance		2.92 (0.32)	1.98 (0.47)	3.69 (0.58)	2.27 (0.65)	2.53 (0.66)
		p = 0.000	p = 0.000	p = 0.000	p = 0.001	p = 0.000
Investor protection		0.89 (0.14)	1.54 (0.19)	1.89 (0.21)	1.80 (0.21)	1.68 (0.22)
		p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000
Tax rate		-0.11 (0.21)	0.97 (0.28)	1.35 (0.32)	1.53 (0.32)	1.75 (0.34)
		p = 0.61	p = 0.001	p = 0.000	p = 0.000	p = 0.000
Insolvency index		0.63 (0.15)	1.05 (0.24)	1.79 (0.28)	1.58 (0.28)	1.94 (0.33)
		p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000
In-group collectivism (practices)			0.59 (0.89)	1.19 (0.90)	-0.01 (0.93)	-0.68 (0.98)
			p = 0.51	p = 0.19	p = 0.99	p = 0.49
In-group collectivism (values)			-0.27 (1.12)	0.47 (1.16)	0.75 (1.16)	0.48 (1.16)
			p = 0.81	p = 0.69	p = 0.52	p = 0.69
Institutional collectivism (practices)			2.81 (1.02)	2.47 (1.12)	2.19 (1.12)	1.90 (1.13)
			p = 0.01	p = 0.03	p = 0.06	p = 0.10
Institutional collectivism (values)			6.99 (1.17)	5.82 (1.38)	6.29 (1.38)	6.12 (1.39)
			p = 0.000	p = 0.000	p = 0.000	p = 0.000
Power distance (practices)			-2.78 (0.74)	-3.28 (0.83)	-4.55 (0.87)	-4.53 (0.87)
			p = 0.000	p = 0.000	p = 0.000	p = 0.000
Power distance (values)			-5.09 (1.07)	-6.75 (1.12)	-9.29 (1.23)	-9.13 (1.23)
			p = 0.000	p = 0.000	p = 0.000	p = 0.000
Uncertainty avoidance (practices)			-3.29 (0.38)	-3.22 (0.38)	-3.14 (0.38)	-3.27 (0.38)
			p = 0.000	p = 0.000	p = 0.000	p = 0.000
Uncertainty avoidance (values)			-3.18 (0.55)	-3.54 (0.57)	-3.28 (0.57)	-3.20 (0.57)
			p = 0.000	p = 0.000	p = 0.000	p = 0.000
Risk aversion in gains (H1a: -)				**-0.93 (0.27)**	**-0.86 (0.27)**	**-0.87 (0.27)**
				p = 0.001	**p = 0.002**	**p = 0.002**
Risk taking in losses (H1b: +)				**1.40 (0.28)**	**1.09 (0.29)**	**1.07 (0.29)**
				p = 0.000	**p = 0.000**	**p = 0.000**
Tax rate * Risk aversion in gains (H2a: -)					**-1.24 (0.25)**	**-1.46 (0.27)**
					p = 0.000	**p = 0.000**
Insolvency index * Risk taking in losses (H2b: -)						**-0.43 (0.20)**
						p = 0.04
Adj. R^2	0.38	0.40	0.41	0.41	0.42	0.42
Num. obs.	14,572	10,355	10,355	10,355	10,355	10,355

taking in the losses domain on debt ratios (H1b). An increase in risk taking in the losses domain by one standard deviation is associated with an increase in debt ratios by 140 basis points. We observe these effects on top of the effects of firm-level controls, industry clusters, national institutions, and national culture on capital structure. H1c predicts that the economic effect of risk taking in the losses domain on debt ratios is stronger than that of risk avoidance in the gains domain. We find tentative support for such a difference between coefficients, but the standard errors (0.27 and 0.28) of the absolute terms of the coefficients (0.93 and 1.40) overlap. A t-test of difference between the effects reveals a p-value of 0.051, which we take as tentative evidence for H1c to hold. Fig. 3.

In models 5 and 6 we add interactions between risk aversion in gains and risk taking in losses, on one hand, and tax rates and protection against bankruptcy, on the other hand. We find that the effect of risk aversion in the gains domain is strengthened in environments with high

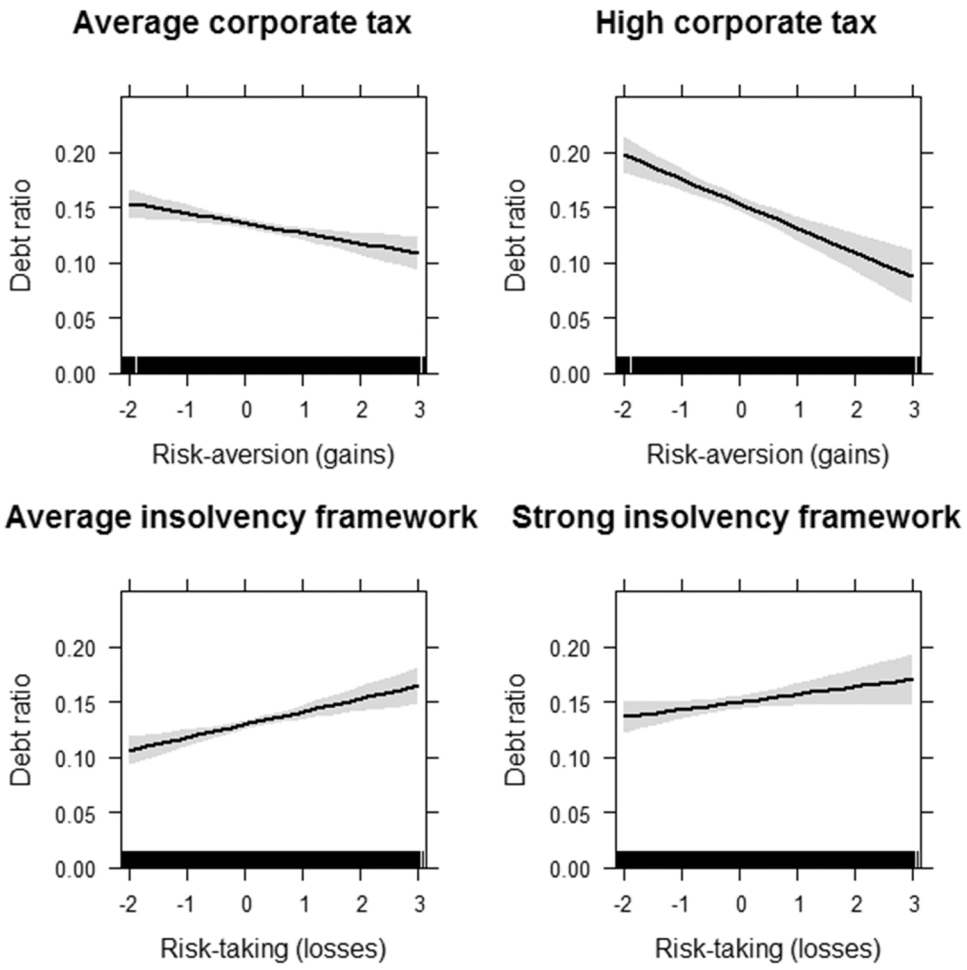

Fig. 3. Marginal Effects Plots.

corporate tax rates ($p < 0.001$). The partial effect of risk aversion in the gains domain is substantially stronger in high-tax environments than in low-tax environments, as predicted in H2a. The top left panel in Fig. 3 (the dependent variable is expressed as shares of 1) shows the effect of risk aversion in the gains domain for environments with average tax rates. The plot in the top right panel in Fig. 3 shows the partial effect of risk aversion in the gains domain for firms in countries with tax rates that are one standard deviation above the sample mean. In H2b we predict that the effect of risk taking in the losses domain is weaker in environments where corporate restructuring is easier and the expected cost of financial distress consequently lower. The bottom panels in Fig. 3 show the corresponding partial effects. We find tentative support ($p = 0.04$) for H2b, albeit it is statistically weaker than for H2a. **Table 6**
.

The variation in debt ratios that is associated with the independent variables we investigate is substantial. In a model where we control for firm-level effects, country-level effects (including two variables that capture risk aversion on the country level), and fixed effects, we see that the variation in risk aversion in gains explains a difference in capital structure of almost ten percentage points. This is highly significant economically, as is illustrated by a firm with 14 billion USD in assets (approximately the mean in our sample), where a spectrum of ten per cent in long term debt over assets makes a difference in the amount of 1.4 billion USD in long term debt. While we report standard measures of explained variance, it is important to note that differences across models in, for example, adjusted R^2 should not be over-interpreted as the large control model including fixed effects of course captures a lot of variance.

We run a number of robustness checks to further substantiate our results. Model 1 in Table 6 is the full model from Table 5. Models 2 and 3 in Table 6 are equivalent to model 1 in sample and methodology, but the lag between explanatory variables and leverage is increased to two (model 2) and three (model 3) years. As expected, the relationship between the explanatory variables and long-term leverage weakens when we introduce a longer lag. Many of the results on controls and variables of interest remain, but standard errors increase, which leads to a reduction in statistical significance. In models 4 and 5 we split the sample between firms with leverage above (model 4) and below the mean (model 5). As expected, statistical significance again decreases because of the decrease in sample size. We can also observe, however, that our results tend to be stronger in the high-leverage subsample (adjusted R^2 is 36% vs. 24% in the low-leverage subsample). This seems reasonable because at high leverage, risk perception, in both the gains and the losses domains, matters more. In model 6, we exclude China, which in some studies gives structurally different results from other countries from the analysis. In model 7, we exclude the largest industry (manufacture of electronic components, NACE code 2611) from analysis. The results remain essentially equivalent to model 1, while statistical significance again decreases somewhat. Finally, in model 8, we run our analysis with the raw risk-perception variables. In this model, we use country means, not sampled values for every firm, to capture risk perception in gains and losses. The results remain very similar but statistical significance increases. This is expected, because the sampling approach we took introduces additional unsystematic variation into the data. We also split the data into observations before and after 2009 (not tabulated). We find that the effects hypothesized are substantially stronger in the earlier sample than in the later one. We believe this is the

Table 6
Robustness Checks with Standard Errors in Parentheses.

	1	2	3	4	5	6	7	8
Intercept	-26.49 (16.10)	-0.27 (0.16)	-0.39 (0.16)	5.42 (17.70)	-0.07 (0.13)	-22.12 (17.17)	-22.81 (16.22)	-16.63 (17.17)
	p = 0.10	p = 0.09	p = 0.02	p = 0.76	p = 0.59	p = 0.20	p = 0.16	p = 0.34
Growth opportunities	-0.01 (0.01)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.01)	-0.00 (0.00)	-0.01 (0.01)	-0.01 (0.01)	-0.01 (0.01)
	p = 0.26	p = 0.33	p = 0.41	p = 0.78	p = 0.09	p = 0.25	p = 0.27	p = 0.26
Tangibility	20.30 (0.72)	0.19 (0.01)	0.18 (0.01)	20.94 (0.84)	-0.01 (0.00)	20.27 (0.74)	20.35 (0.72)	20.29 (0.72)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.04	p = 0.000	p = 0.000	p = 0.000
Dividends	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	-0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)
	p = 0.14	p = 0.22	p = 0.11	p = 0.38	p = 0.99	p = 0.15	p = 0.14	p = 0.13
Profitability	0.21 (0.16)	0.00 (0.00)	0.00 (0.00)	3.05 (1.98)	-0.00 (0.00)	0.17 (0.16)	0.12 (0.16)	0.20 (0.16)
	p = 0.19	p = 0.10	p = 0.03	p = 0.13	p = 0.13	p = 0.31	p = 0.46	p = 0.21
Firm size	1.64 (0.08)	0.02 (0.00)	0.02 (0.00)	0.96 (0.09)	0.00 (0.00)	1.62 (0.08)	1.70 (0.08)	1.65 (0.08)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.00	p = 0.000	p = 0.000
R&D ratio	-17.89 (5.54)	-0.16 (0.05)	-0.16 (0.05)	-20.35 (7.66)	-0.02 (0.02)	-19.25 (5.64)	-14.72 (5.81)	-17.65 (5.54)
	p = 0.002	p = 0.004	p = 0.004	p = 0.01	p = 0.34	p = 0.001	p = 0.02	p = 0.002
Tax shield	6.62 (5.14)	0.08 (0.05)	0.11 (0.05)	11.31 (6.21)	-0.04 (0.03)	5.26 (5.23)	3.82 (5.26)	6.34 (5.13)
	p = 0.20	p = 0.12	p = 0.04	p = 0.07	p = 0.13	p = 0.32	p = 0.47	p = 0.22
GDP growth	0.04 (0.07)	-0.00 (0.00)	-0.00 (0.00)	-0.00 (0.08)	-0.00 (0.00)	0.04 (0.07)	0.04 (0.07)	0.03 (0.07)
	p = 0.61	p = 0.44	p = 0.74	p = 0.98	p = 0.38	p = 0.62	p = 0.58	p = 0.70
Legal system (1 =common law)	-2.17 (0.71)	-0.02 (0.01)	-0.02 (0.01)	-2.26 (0.80)	-0.00 (0.01)	-1.97 (0.75)	-2.36 (0.73)	-2.34 (0.74)
	p = 0.003	p = 0.005	p = 0.004	p = 0.005	p = 0.81	p = 0.01	p = 0.002	p = 0.002
Inflation	-0.13 (0.11)	-0.00 (0.00)	-0.00 (0.00)	-0.05 (0.13)	0.00 (0.00)	-0.08 (0.12)	-0.10 (0.12)	-0.13 (0.11)
	p = 0.28	p = 0.40	p = 0.61	p = 0.71	p = 0.60	p = 0.51	p = 0.40	p = 0.27
Accounting standards	-1.22 (0.75)	-0.01 (0.01)	0.01 (0.01)	-1.88 (0.82)	0.01 (0.01)	-1.21 (0.80)	-1.08 (0.76)	-1.79 (0.79)
	p = 0.11	p = 0.46	p = 0.45	p = 0.03	p = 0.12	p = 0.14	p = 0.16	p = 0.03
Bank deposits	-0.06 (0.01)	-0.00 (0.00)	-0.00 (0.00)	-0.04 (0.01)	-0.00 (0.00)	-0.05 (0.01)	-0.06 (0.01)	-0.06 (0.01)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.15	p = 0.00	p = 0.00	p = 0.000
Ambiguity	21.03 (3.56)	0.14 (0.04)	0.04 (0.04)	15.77 (4.02)	0.04 (0.02)	22.01 (3.78)	20.21 (3.59)	24.08 (3.76)
	p = 0.000	p = 0.000	p = 0.29	p = 0.000	p = 0.12	p = 0.00	p = 0.000	p = 0.000
Stock market capitalization	-0.00 (0.01)	-0.00 (0.00)	0.00 (0.00)	-0.01 (0.01)	0.00 (0.00)	-0.01 (0.01)	-0.00 (0.01)	-0.004 (0.005)
	p = 0.39	p = 0.97	p = 0.70	p = 0.01	p = 0.53	p = 0.25	p = 0.34	p = 0.36
Corruption avoidance	2.53 (0.66)	0.02 (0.01)	0.00 (0.01)	2.07 (0.74)	-0.00 (0.01)	2.22 (0.72)	2.35 (0.67)	2.93 (0.71)
	p = 0.000	p = 0.02	p = 0.73	p = 0.01	p = 1.00	p = 0.003	p = 0.001	p = 0.000
Investor protection	1.68 (0.22)	0.02 (0.00)	0.01 (0.00)	1.60 (0.24)	0.00 (0.00)	1.59 (0.24)	1.77 (0.22)	1.73 (0.22)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.51	p = 0.000	p = 0.000	p = 0.000
Tax rate	1.75 (0.34)	0.02 (0.00)	0.01 (0.00)	1.38 (0.39)	0.01 (0.00)	2.12 (0.38)	1.64 (0.34)	12.67 (2.09)
	p = 0.000	p = 0.000	p = 0.06	p = 0.001	p = 0.004	p = 0.000	p = 0.000	p = 0.000
Insolvency index	1.94 (0.33)	0.02 (0.00)	0.02 (0.00)	1.70 (0.36)	0.00 (0.00)	2.14 (0.37)	1.95 (0.34)	4.22 (0.99)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 1.00	p = 0.000	p = 0.000	p = 0.000
In-group collectivism (practices)	-0.68 (0.98)	-0.00 (0.01)	0.00 (0.01)	-0.11 (1.08)	-0.01 (0.01)	-1.03 (1.07)	-0.87 (0.99)	-0.89 (1.01)
	p = 0.49	p = 0.82	p = 0.83	p = 0.92	p = 0.29	p = 0.34	p = 0.38	p = 0.39
In-group collectivism (values)	0.48 (1.16)	0.01 (0.01)	0.01 (0.01)	1.23 (1.28)	-0.01 (0.01)	0.83 (1.18)	0.06 (1.18)	0.52 (1.17)
	p = 0.69	p = 0.66	p = 0.27	p = 0.34	p = 0.43	p = 0.49	p = 0.97	p = 0.66
Institutional collectivism (practices)	1.90 (1.13)	0.03 (0.01)	0.03 (0.01)	-0.97 (1.26)	0.01 (0.01)	1.84 (1.17)	1.65 (1.14)	1.59 (1.15)
	p = 0.10	p = 0.02	p = 0.02	p = 0.45	p = 0.46	p = 0.12	p = 0.15	p = 0.17
Institutional collectivism (values)	6.12 (1.39)	0.07 (0.01)	0.07 (0.01)	2.50 (1.54)	0.02 (0.01)	6.38 (1.53)	5.94 (1.40)	5.65 (1.43)
	p = 0.000	p = 0.000	p = 0.000	p = 0.11	p = 0.10	p = 0.000	p = 0.000	p = 0.000
Power distance (practices)	-4.53 (0.87)	-0.05 (0.01)	-0.04 (0.01)	-3.50 (0.98)	0.001 (0.01)	-5.33 (1.04)	-4.48 (0.88)	-4.64 (0.89)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.87	p = 0.000	p = 0.000	p = 0.000
Power distance (values)	-9.13 (1.23)	-0.10 (0.01)	-0.08 (0.01)	-8.34 (1.37)	-0.02 (0.01)	-9.60 (1.34)	-9.25 (1.25)	-9.68 (1.25)
	p = 0.000	p = 0.00	p = 0.000	p = 0.00	p = 0.05	p = 0.000	p = 0.000	p = 0.000
Uncertainty avoidance (practices)	-3.27 (0.38)	-0.03 (0.004)	-0.03 (0.004)	-2.47 (0.42)	-0.002 (0.003)	-3.14 (0.54)	-3.38 (0.39)	-3.29 (0.38)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.42	p = 0.000	p = 0.000	p = 0.000
Uncertainty avoidance (values)	-3.20 (0.57)	-0.03 (0.01)	-0.03 (0.01)	-3.26 (0.63)	0.00 (0.00)	-3.04 (0.60)	-3.27 (0.58)	-3.25 (0.58)
	p = 0.000	p = 0.000	p = 0.000	p = 0.000	p = 0.38	p = 0.000	p = 0.000	p = 0.000
Risk aversion in gains (H1a: -)	**-0.87 (0.27)**	**-0.01 (0.00)**	**-0.00 (0.00)**	**-1.02 (0.30)**	**0.00 (0.00)**	**-0.85 (0.29)**	**-0.99 (0.28)**	**-11.38 (3.13)**
	p = 0.002	**p = 0.02**	**p = 0.10**	**p = 0.001**	**p = 0.52**	**p = 0.004**	**p = 0.000**	**p = 0.000**
Risk taking in losses (H1b: +)	**1.07 (0.29)**	**0.01 (0.00)**	**0.00 (0.00)**	**0.82 (0.32)**	**0.001 (0.002)**	**1.05 (0.30)**	**1.03 (0.29)**	**10.06 (2.45)**
	p = 0.000	**p = 0.001**	**p = 0.09**	**p = 0.02**	**p = 0.77**	**p = 0.001**	**p = 0.000**	**p = 0.000**
Tax rate * Risk aversion in gains (H2a: -)	**-1.46 (0.27)**	**-0.01 (0.00)**	**-0.01 (0.00)**	**-1.73 (0.31)**	**-0.00 (0.00)**	**-1.78 (0.31)**	**-1.44 (0.28)**	**-15.99 (2.95)**
	p = 0.000	**p = 0.000**	**p = 0.000**	**p = 0.000**	**p = 0.22**	**p = 0.000**	**p = 0.000**	**p = 0.000**
Insolvency index * Risk taking in losses (H2b: -)	**-0.43 (0.20)**	**-0.00 (0.00)**	**0.00 (0.00)**	**-0.26 (0.23)**	**-0.00 (0.00)**	**-0.55 (0.21)**	**-0.43 (0.21)**	**-4.28 (1.64)**
	p = 0.04	**p = 0.50**	**p = 0.59**	**p = 0.26**	**p = 0.93**	**p = 0.01**	**p = 0.04**	**p = 0.01**
Adj. R^2	0.42	0.41	0.41	0.36	0.24	0.41	0.44	0.44
Num. obs.	10,355	10,355	10,355	4221	6134	10,025	10,118	10,355

case because of high variation in capital structure in 2007 and 2008 as a result of turmoil in the financial markets. In further non-tabulated robustness checks, we extend the sample period to 2005–2014. In this analysis, we find strong support for H1a, H1b, and H2a, and the test for H2b receives weaker support. Given the reduced probability of default for the large firms in our sample, we think the non-finding on H2b does not contradict our main theoretical line of reasoning. Rather, it supports the notion that without substantial risk of default, the expected cost of financial distress for large companies is not sufficiently relevant to significantly alter the risk-taking behavior in the domain of losses.

7. Discussion and Conclusion

This paper integrates and tests theory from the domains of international business and finance to explain capital structure decisions. In the past, these two streams of literature used to exist largely independent of each other, while investigating the similar dependent variables. We connect the streams of literature to make predictions about why firms are financed differently in different countries. We argue that prospect theory is a good complement to expected utility theory in the sense of how managers evaluate different uncertain future prospects. We believe that the multi-country setting is a powerful environment to perform rigorous tests on the institutionally informed model that we propose, because it provides variation on both the industry and the country level, which is necessary to generate sufficient variation on the risk perception variable. We think that the integration of finance and strategy reasoning may aid our understanding of a decision that is typically made in a finance department of large corporations, but both influences and is constrained by the broader strategic direction and locally embedded structure of the firm that is being investigated.

In particular, the findings presented above illustrate that including prospect theory into our understanding of cross-national variation to risk-taking provides a clearer understanding of how firms choose to finance their operations. The informal institutional environment (in the sense of national culture) in the country where a firm is headquartered affects as how uncertain future gains and losses are evaluated by a firm's decision makers. Firms' assessment of uncertain future profits and the probability of future default influence the degree to which they raise debt capital. In countries with higher risk-aversion in the evaluation of potential future gains, firms will undervalue potential future tax savings from debt and consequently use less debt to finance operations. In countries with high risk-taking in potential future losses, firms will opt for a higher ratio of debt in their corporate financing mix. These effects are, however, as we explain in Hypotheses 2a and 2b, contingent on the formal institutional framework in a country. The higher the corporate tax rate, the higher the effect of tax shields on free cash flows to shareholders. Consequently, the effect of risk-aversion in the gains domain on corporate debt ratios is reinforced in such cases. The stronger the insolvency framework in a country, the lower the effect of potential default on the free cash flows to shareholders, and the weaker is also the influence of risk taking in the losses domain on corporate financing. The empirics in this paper are focused on cross-sectional variation across countries. We believe that the cross-country setting is a good environment for a first test of the suggested theory because it allows a clear distinction of institutional environments and data on risk perception is readily available. The theoretical reasoning, however, is broader and future research may provide additional tests of the proposed theory in different environments, including within-country or even within-firm variation.

We believe this paper is an example where the integration of finance and international business research furthers both streams of literature. International business research in particular has a long tradition of considering theories of individual decision-making that deviate from expected utility theory. There is, however, relatively little discussion of how different decision-making processes affect outcomes in corporate finance literature. At the same time, corporate finance theory provides straightforward settings where decision-making theories can be tested. The combination of recent empirical work on risk-perception across borders, and the persistent puzzle of capital structure differences after controlling for many firm-, industry-, and some country-level institutional factors, provide an interesting opportunity to apply prospect theory reasoning to a well testable domain of empirical investigation.

This paper makes three important theoretical contributions to the IB and finance literatures. First, we extend the understanding of culturally-induced bias' in risk taking beyond the level of uncertainty avoidance. Strategic decisions in the area of international business are frequently associated with high sunk costs, and substantial risk. Understanding how firms in different locations incorporate risk differently into their strategies is one of the core questions in international business research. Building on our general notion, we encourage research on investment and location decisions, value chain configuration, and corporate finance to further elaborate and test the theoretical notions we suggest in other settings.

Second, this paper extends literature on capital structure in two ways: We propose a theoretical approach on how to integrate the informal and formal institutional environment into trade-off theory. In addition, we propose to exchange expected utility theory for prospect theory (or at least complement the former with the latter) as a basis for the comparison of uncertain future benefits and uncertain future losses. Doing so, we contextualize trade-off theory to include informal institutional characteristics, which IB research typically understand as cultural characteristics.

Third, we suggest how risk taking is conditional on the formal and informal institutional environments. The influence of risk aversion in gains and risk taking in losses on capital structure is constrained by the potential gains and losses that an institutional environment provides a framework for. Again, research investigating entry modes, internalization, market selection, or offshoring may also benefit from a prospect-theory-driven perspective on risk taking. Further, uncertainty and risk are elements of core theories in international business research, such as agency theory, real option theory, or transaction cost economics. All those theories could be enriched by extending the expected utility framework to account for differential risk perceptions in the gains and losses domains.

Finally, the sample we analyze provides additional insights because of its broad basis. The sampling period chosen allows for a broader test of trade-off theory because the possibiilty of default is a material threat to large corporations in the period 2008–2010, other than in most other time periods that were used for empirical studies of capital structure in the past. The robustness checks provided speak for the generalizeability of the results obtained, both in terms of time frame and cross-sections.

Our study also has several limitations. First, we limit our theoretical discussion of capital structure literature to trade-off theory. In doing so, we disregard other plausible explanations for how firms choose their capital structure (e.g., pecking order or market timing theory). Second, we limit the theoretical discussion of institutional characteristics to two high-level characteristics of the national institutional environment. Third, our measure of asymmetric risk preferences does not directly capture the acting managers' risk preferences; it instead captures that of the general public. While this is a limitation of a lot of literature at the interface of IB and finance or accounting (e.g., Chui et al., 2012; Kanagaretnam et al. 2014; Kitching et al. 2016; Li et al. 2011; Sekely & Collins, 1988; and Zheng et al.,2012), we want to highlight the need for more granular research identifying how managers' risk preferences differ from the general public's. At the same time, capturing the individual managers' risk preferences would make it more difficult to link to informal and formal institutional characteristics, which necessarily are country-level constructs. Fourth, we disregard the complexity of decision-making in groups as opposed to individual decision making (see Larrick, 2016 for a review of literature in this field). Finally, our sample is limited to large listed firms from mostly developed countries, where decisions arguably are more formalized than in small companies

from emerging markets. Consequently, the effect of risk preferences of firms' capital structure may yet be stronger (or different) in other firms. Nevertheless, we believe the paper adds an important element to the discussion how perceptions shape firm-level strategy outcomes.

Data Availability

The authors do not have permission to share data.

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