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National Culture and Capital Structure Decisions: Evidence from Foreign Joint Ventures in China[*]

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Abstract

We investigate the role of firms' country of origin in financial leverage decisions using data on foreign joint ventures in China. We hypothesize that national culture enters the joint optimization process leading to foreign joint ventures' leverage decisions and that it affects leverage decisions both directly and indirectly. Using cultural values of mastery and embeddedness to explain country of origin effects, we find that mastery has negative and significant direct effects on foreign joint ventures' leverage and short-term debt decisions, and a positive and significant direct effect on the likelihood of foreign joint ventures' having long-term debt. The indirect effects of mastery on leverage decisions sometimes reinforce and sometimes offset the direct effects. Embeddedness has no significant direct effect on foreign joint ventures' leverage decisions, but exerts its influence entirely through indirect effects. Finally, the economic significance analysis of the total effects suggests that national culture has significant explanatory power in the leverage decisions of foreign joint ventures in China.

Keywords: country of origin; cultural values; embeddedness; foreign direct investments; leverage; mastery
JEL Classification: G15 International Financial Markets; G32 Financing Policies

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INTRODUCTION

Are capital structure decisions affected by a firm's country of origin? Standard finance theories suggest that financing decisions should be determined only by economic considerations such as profit maximization and transactions costs. Cultural theorists, in contrast, have suggested that cultural background may have inescapable influences on decisions of every kind, including capital structure decisions (House, Hanges, Javidan, Dorfman, and Gupta, 2004). Indeed, Chui, Lloyd, and Kwok (2002) identify cross-country differences in the capital structure decisions of domestic firms that are consistent with the predictions of cultural theories, and find that these differences remain significant even when firm- and country-level factors are accounted for.

In this paper, we extend studies of cultural influences on corporate decisions to the setting of foreign joint ventures in China. Our work contributes to the growing literature on the interaction between culture and economic outcomes (See Guiso, Sapienza, and Zingales, 2006 for an excellent survey) in several important ways. First, we provide a novel demonstration of how informal institutions from within a country such as culture can affect capital structure decisions of foreign joint ventures outside that country. Second, we link the effects of culture to other corporate decisions, such as the choices of firm size and industry affiliation, and demonstrate that culture affects leverage decisions both directly and indirectly. Our investigation of the indirect effects of culture is new to the literature. Finally, we employ a hierarchical linear model to separate the variance in foreign joint ventures' firm-level leverage decisions explained by the foreign joint venture firm- versus country-level variables.

Why should country of origin matter in the capital structure decisions of foreign joint ventures in China? North (1993) argues that individuals embody the informal institutional constraints of their culture of origin as reflected in customs, traditions, and codes of conduct. We extend this logic to corporate decision making. When a foreign company enters into China and faces a totally different cultural and institutional setting from that of their home country, they may maintain the informal institutional

constraints of their home country. Thus, foreign joint ventures in China allow us to study the portability of culture in corporate decisions.

Financial decision-making inevitably involves trade-offs, and some of these are related to cultural values. For example, debt financing provides a source of capital and interest tax shields, but also reduces the independence of the firm, increases the likelihood of financial distress, and may put a firm in great financial uncertainty. Cultural values may affect the way that foreign joint ventures perceive and weigh the benefits and costs associated with debt financing, and hence affects their capital structure decisions. This implies that foreign joint ventures from different cultural backgrounds will differ in their use of debt financing.

Using cultural values developed by Schwartz (2004), we test whether between country differences in the cultural values of mastery (versus harmony) and embeddedness (versus autonomy) affect corporate financing decisions in a foreign subsidiary environment.

Cultures high on mastery emphasize the importance of controlling the natural and social environment to attain goals, whereas cultures low on mastery emphasize a harmonious fit to the world as is. Cultures high on embeddedness emphasize the importance of tradition and the role of an individual's responsibility and relationship to the shared group goal, while cultures low on embeddedness emphasize an individual's self-directedness and autonomy from the larger society. We expect that there is a cultural effect on foreign joint ventures' leverage decisions; however, the direction of that effect is ultimately an empirical question. Furthermore, we expect cultural values to affect leverage decisions both directly and indirectly via choices of firm size, industry concentration and affiliation, and region of investment.

Using foreign joint ventures in China's manufacturing sector, we find that mastery is negatively and significantly associated with foreign joint ventures' leverage and short-term debt decisions, and is positively and significantly associated with the likelihood of foreign joint ventures' having long-term debt. We find no direct effect of embeddedness on any measures of leverage, though we do find evidence of indirect effects linking cultural values to choices of firm characteristics, industry concentration and affiliation, and investment location. The direct and indirect effects of mastery on leverage are sometimes

consistent in sign and reinforcing, and are sometimes opposite in sign and offsetting. Embeddedness exerts its influence entirely through indirect effects. Finally, we demonstrate that the direct and indirect influences of cultural values in foreign joint ventures' home countries are of economic importance even after controlling for formal institutions in their home countries and firm characteristics. Thus, our study provides clear evidence regarding the importance of informal institutions such as culture in corporate finance decisions, and thus complements the literature on formal institutions and finance (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1997).

The remainder of the paper is structured as follows. We review the related literature and explore the potential role of cultural values in foreign joint ventures' leverage decisions in the next section. Section 3 discusses the sample and variable construction. Section 4 describes the empirical models. Section 5 presents our main results and provides some interpretation. Section 6 presents our conclusions.

LITERATURE REVIEW AND CULTURAL VALUES AND LEVERAGE

Prior Literature

Our study is related to two strands of literature: the literature on capital structure decisions in an international setting, and the literature on the role of culture in finance.

The theory of optimal capital structure suggests that financing decisions require trade-offs among at least five elements: (1) tax benefits of debt financing, (2) costs of financial distress, (3) agency costs of debt, (4) agency costs of equity, and (5) signaling effects of security issuance (see Jensen and Meckling, 1976; Myers, 1977; Barnea, Haugen, and Senbet, 1980, 1981; Myers, 1984; Myers and Majluf, 1984; Haugen and Senbet, 1988; Harris and Raviv, 1991; Chaplinsky and Harris, 1996). Prior work by Rajan and Zingales (1995), La Porta et al. (1997), Demirgüç-Kunt and Maksimovic (1998), Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2001), Bancel and Mittoo (2004), Harvey, Lins, and Roper (2004) and Fan, Titman, and Twite (2008) using international data shows that firm characteristics (e.g. size and profitability) that capture the trade-off between tax benefits and bankruptcy costs are still important determinants of local firms' capital structure decisions. Further, a country's development of its legal and

institutional framework mitigates the existence of asymmetric information and agency costs. When the legal system is inefficient or costly to use, short-term debt is more likely to be employed than long-term debt (Demirgüç-Kunt and Maksimovic, 1999; Giannetti, 2003; Fan et al., 2008).

Our study focuses on debt financing of non-publicly traded firms, while past research on capital structure choices in developing countries has mainly focused on the largest public firms in those countries (Giannetti, 2003, and Li, Yue, and Zhao, 2009 are notable exceptions). Large listed companies have easier access to both domestic and international financial markets than their non-listed counterparts, and as a result their capital structure decisions are less subject to the institutional constraints imposed by their home countries. Our sample of non-publicly traded foreign joint ventures provides a context to more clearly reveal the role of home country influences in corporate leverage decisions.

The concept of culture has been used previously to help explain international investment and corporate decisions. Grinblatt and Keloharju (2001) show that investor stock trading decisions are affected by culture as proxied by common language and cultural background. Pagano, Röell, and Zechner (2002) and Sarkissian and Schill (2004) present evidence showing that cross-listing firms seek prospective investors in culturally proximate markets to ensure the smooth flow of information between home and destination markets. Shao, Kwok, and Guedhami (2009) find that there is a positive relation between embeddedness and dividend payouts, and a negative relation between mastery and dividend payouts. Siegel, Licht, and Schwartz (2008, 2010) show that cross-country investment flows of equity, debt, mergers and acquisitions, and foreign direct investments are greatest when countries match on the cultural dimension of egalitarianism. Li, Griffin, Yue, and Zhao (2010) find that there is significant association between the national culture of corporate managers and their risk taking. Finally, Chui, Titman, and Wei (2009) suggest that individualism is positively associated with overconfidence and self-attribution bias, and show that individualism is strongly correlated with the magnitude of momentum profits.

Our work is most closely related to Chui et al. (2002) who demonstrate that domestic firms in countries with high scores on the cultural values of mastery and embeddedness have lower corporate debt ratios. They regress country-level corporate debt ratios on mastery and embeddedness and show that both values are negatively associated with debt ratios. They also regress firm-level debt ratios on the two

cultural values; both values are still negatively associated with leverage, although the adjusted R^2 falls from 44% to less than 6%. Their results are robust after controlling for industry effects and differences in legal systems and economic development.

Different from their work, we focus on the leverage decisions of foreign joint ventures in China to test the portability of national cultures in a setting where foreign joint ventures operate and make corporate decisions outside their home countries. Further, we apply a novel empirical methodology that accounts for the hierarchical structure of our data. This empirical specification allows us to decompose the association between firm characteristics and leverage, as well as regional characteristics and leverage, into country-level and individual firm-level components. We then identify important indirect effects of culture on leverage and assess the relative importance of the direct and indirect effects. Finally, our analysis takes an important additional step—explaining not only the level of leverage as examined by Chui et al. (2002), but also the maturity structure of debt using cultural values.

Our Conceptual Framework

How might cultural values affect corporate financing decisions? Figure 1 presents our conceptual framework describing the role of culture in the joint optimization process leading to leverage decisions that we focus on in this paper.

Insert Figure 1 about here.

Variables that operate at the national culture level are assumed to affect all foreign joint venture managers from the same country (House et al., 2004). Fundamental causes for these cultural differences include shared history, geography, and economic conditions (Hofstede, 2001). Stulz and Williamson (2003), and Licht, Goldschmidt, and Schwartz (2007) demonstrate that culture, in turn, influences formal institutions such as rule of law and investor protection (see path (1) in Figure 1). Demirgüç-Kunt and Maksimovic (1998, 1999), Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2001) and others have established the strong association between formal institutions of a country and capital structure decisions of its domestic firms (see path (2)). Building on Chui et al. (2002), we hypothesize that the cultural values

of foreign joint venture managers affect the joint optimization process leading to leverage decisions even when their home country formal institutions are controlled for (see path (3)). In addition to country-level influences as discussed above, there are firm-level constraints that enter into the joint optimization process such as the pre-existing strategies and focus of foreign joint ventures' parent companies, and the demand for certain industrial/consumer products (see path (4)).[2]

In the context of the joint optimization process involving capital structure, investment, control, and governance, foreign joint venture managers must make trade-offs among these outcome variables subject to a number of restrictions including institutions, capital availability, and the production process (see path (5)). For example, a Swedish telecommunications manufacturer may require a certain number of cellular phone cases from China, and the firm's international scope of operations allows access to certain financing arrangements. As a result, the joint optimization process of its subsidiary in China may be subject to specific pre-existing constraints including the formal institutions in Sweden, funding availability, the size of the foreign joint venture, and its industry affiliation. For any given financing decision, other variables such as size and industry affiliation could be either pre-determined as conditioning variables (as in the example above) or could be choice variables of foreign joint venture managers in the joint optimization process.

How does culture enter this process? Culture affects the perceived benefits and costs of having debt (see path (6)) as well as the choices of other variables entering into the joint optimization process (see paths (3) and (5)). In the model presented in Figure 1, foreign joint ventures' financing decisions are made conditional on certain firm characteristics such as size, profitability, industry concentration, and regional environment (see path (7)). In such cases we can distinguish the direct effects of culture, which is the relation between cultural values and leverage decisions holding constant other variables present in the joint optimization process (see path (6)), from the indirect effects of culture, which includes the influences of culture on other variables present in the joint optimization process such as firm characteristics and regional environment (see paths (3), (5), and (7)). The total effects of culture on

[2] We thank an anonymous referee for this insight.

leverage decisions is the sum of the direct and indirect effects (see paths (6) and (7), respectively). Later in our empirical analysis we try to assess the relative importance of the direct and indirect effects of culture.

Cultural Values and Leverage Decisions

Following the conceptual framework presented in Figure 1, we distinguish between country-level and firm-level determinants of foreign joint ventures' leverage decisions. Our main proposition is that one important country-level determinant of capital structure decisions for foreign joint ventures in China is the national culture of the foreign joint venture's home country, which operates both directly on the choice of leverage and indirectly through the selection of the other variables during the joint optimization process.

For our measure of cultural values, we use the Schwartz Value Survey instrument (Schwartz, 2004). Following Chui et al. (2002), we focus on mastery and embeddedness. Figure 2 outlines our thought experiment regarding their potential (directional) effects on foreign joint ventures' leverage decisions.[3] As noted before, the theory of optimal capital structure spans at least five perspectives. In our particular setting, we exclude tax benefits of debt financing and signaling effects of security issuance, as we do not expect cultural variation on leverage responses to tax rate and security issuance given that all foreign joint ventures in our sample are not publicly-traded, and hence have no access to public debt or equity markets.

Insert Figure 2 about here.

The cultural value of mastery may affect foreign joint ventures' capital structure decisions, as it encourages exerting control over one's environment and emphasizes individual success. This could

[3] In this paper, we assume that a foreign joint venture manager makes decisions that reflect the cultural values of the foreign joint venture's home country even if the foreign joint venture manager is not from the same culture. Hofstede (1985) maintains that in many cases, the corporate culture of a firm reflects the cultural values of its home country, which in turn affects the decisions of managers (even foreign managers). To the extent that foreign joint venture managers do not reflect the cultural values of their firm's home country, this would add noise to our empirical analysis and bias our results against finding any effect of culture on foreign joint ventures' leverage decisions.

moderate foreign joint venture managers' perception of benefits and costs associated with debt financing in terms of the remaining three perspectives on optimal capital structure. First, in terms of the costs of financial distress, which could be small economically in a well functioning system (Haugen and Senbet, 1978), high mastery managers who focus on personal success will be concerned about the loss of control associated with bankruptcy (see path (1) in Figure 2). The focus on personal success associated with high mastery exacerbates the costs of financial distress, and hence leads to reduced use of debt. We view the focus on personal success by high mastery managers as an individual attribute that is not influenced by the social context, and thus this concern for personal success is highly relevant in our foreign joint venture setting. Second, in terms of the agency costs of debt, high mastery managers dislike loss of control due to debt monitoring, and so avoid debt to reduce the discipline and constraints that it imposes (see path (2)).[4] The focus on maintaining control associated with high mastery magnifies the agency costs of debt, and hence leads to reduced use of debt. This tendency is highly relevant in our foreign joint venture setting. Third, in terms of the agency costs of equity, high mastery managers value control and therefore may seek debt financing to allow them to achieve a high level of ownership with minimum own equity (see path (3), Jensen and Meckling, 1976). The focus on seeking control associated with high mastery magnifies the agency costs of equity, and hence leads to increased use of debt. In summary, two of the three perspectives on optimal capital structure provide support for a negative association between mastery and the use of debt, while the third perspective suggests the opposite. The directional association between mastery and foreign joint ventures' leverage decisions is therefore ultimately an empirical question.

Note that total debt (leverage) is the sum of short-term and long-term debt. From the perspective of lenders, lending on a long-term basis is more risky because of greater information asymmetries and asset-substitution possibilities in the long-run. Thus, lenders monitor borrowers more intensively when they lend long-term and also place direct constraints on managers through the inclusion of more detailed covenants. On the other hand, while short-term debt's shorter maturity and need to roll-over periodically

[4] We thank an anonymous referee for this insight on high mastery.

effectively places constraints on managers, it also has fewer covenants. *A priori*, it is not clear whether high mastery managers perceive long-term or short-term debt as placing more constraints on themselves.[5]

Given that high mastery managers avoid loss of control, we expect that they would avoid whichever source of debt financing they find more constraining. Following this logic, in our empirical investigation we examine the directional association between mastery and long-term debt (short-term debt), and conclude that whichever type of debt is negatively associated with mastery is perceived to be more constraining. Thus, the sign of the coefficient on mastery in the regression of long-term debt (short-term debt) is diagnostic of which type of debt is perceived to be more constraining. For example, if the only negative and significant association is between mastery and short-term debt, we would infer that the particular financing hierarchy for high mastery managers is as follows: equity first, long-term debt next, and short-term debt last.

The cultural value of embeddedness describes cultures in which a person is looked upon as an entity embedded in the collectivity. Emphasis is given to maintenance of the status quo, propriety, and restraint of actions that might disrupt the solidarity of a group or the existing order. The polar opposite of embeddedness is autonomy, where a person is encouraged to express his own preferences with minimum constraints.

The cultural value of embeddedness may affect foreign joint ventures' capital structure decisions, as it makes managers more sensitive to interpersonal relationships and to the costs of "losing face." First, in terms of the costs of financial distress, high embeddedness managers care about harmonious working relationships with employees, customers, and suppliers, and are motivated to avoid "loss of face" when a debt financed venture fails (see path (4), Titman, 1984). The focus on harmony associated with high embeddedness exacerbates the costs of financial distress, and hence leads to reduced use of debt. However, we view the concern for "losing face" by high embeddedness managers as an attribute of the relationship between an individual and his social environment. The importance of the concern for "losing face" varies across different social contexts, and is highest in the individual's home country setting. Thus,

[5] We thank an anonymous referee for the above discussion.

this motivation may be weakened in the context of foreign joint ventures in China. Second, in terms of the agency costs of debt, high embeddedness managers prefer security, conformity, and tradition, and hence avoid risky investments and risky debt financing (see path (5), Chui et al., 2002). The focus on security associated with high embeddedness mitigates the agency costs of debt, and hence leads to reduced use of debt. This tendency is highly relevant in our foreign joint venture setting. Third, in terms of the agency costs of equity, high embeddedness managers put group interests ahead of self interests. The board and shareholders are aware that high embeddedness managers are less prone to agency problems, and therefore do not require the disciplinary role of debt to reduce agency costs (see path (6), Jensen, 1986). In this case, high embeddedness mitigates the agency costs of equity. On the other hand, high embeddedness managers dislike autonomy and hence do not mind constraints of debt. Both influences are highly relevant to our foreign joint venture setting, and so *a priori*, it is not clear which one dominates. We expect that the directional association between embeddedness and foreign joint ventures' leverage decisions is ultimately an empirical question.

Finally, foreign joint ventures from countries with different cultural values are expected to make different financing decisions due to the indirect effects of culture. For example, foreign joint venture managers from a country with high scores on mastery will seek out environments where they have maximum personal control and minimum constraints. This implies the choice of smaller firms, less concentrated industries, and industries with lower leverage. Further, the key characteristic of high embeddedness managers is to avoid risk (Chui et al., 2002), so we expect that foreign joint venture managers from a country with high scores on embeddedness will tend to make safer investments as characterized by larger firms, less concentrated industries, and a higher level of regional institutional development.[6] In summary, we expect that indirect effects of culture influence foreign joint ventures' leverage through their choices of firm characteristics, industry concentration and affiliation, and region of investment.

[6] We thank an anonymous referee for this insight on high embeddedness.

DATA AND SAMPLE OVERVIEW

Our Sample

Our primary data sources are the foreign joint venture data collected by the National Bureau of Statistics (NBS) in 2002 and the Annual Survey of Manufacturers by the NBS.[7] The first data set contains the level of foreign ownership at the time of the founding as well as the country of origin of the foreign joint venture. Close to 50% of our sample foreign joint ventures are from Hong Kong. To avoid ambiguity regarding the true country of origin behind foreign investments from Hong Kong, our sample excludes foreign joint ventures from Hong Kong.[8] The second data set consists of all manufacturing firms in 30 2-digit SIC industries. We utilize 2003 firm financial information as our foreign ownership data is from 2002, and most of our multivariate analyses are implemented in lead-lag fashion. We drop observations with negative values of total assets, total liabilities, and sales. To deal with outliers and the most severely mis-recorded data, we winsorize all firm-level variables at the 1% level in both tails of the distribution.

In our context, foreign joint ventures in China face a common set of country-level formal institutional constraints, but vary in cultural values from their countries of origin. Hence, our data offer an opportunity to explore the portability of the influences of cultural values on corporate financial decisions in a common country-level environment.[9]

Variable Construction

[7] Huang, Jin, and Qian (2008) employ the same foreign joint venture data set as we do to explore the role of ethnicity in foreign joint ventures and demonstrate that ethnic Chinese invested joint ventures do not outperform non-ethnic firms.

[8] It is worth noting that excluding foreign joint ventures from Taiwan does not change our main results (results available upon request).

[9] Fan, Wong, Zhang (2009) and Li, Yue, and Zhao (2009) show that in China there are significant province-level variations in institutional development. In our empirical specification, we control for differences in the level of institutional development across different regions.

We calculate a firm's leverage ratio (LEV) as its total liabilities divided by total assets.[10] We compute a firm's short-term debt ratio (STD) as its short-term liabilities divided by total assets. Demirgüç-Kunt and Maksimovic (1999) indicate that firms in developing countries tend to employ more short-term than long-term financing. Finally, we also construct an indicator variable, the LTD dummy, set equal to one if the firm has long-term liabilities in a specific year, and zero otherwise.[11]

We consider the following firm characteristics that are known to affect capital structure (Bradley, Jarrell, and Kim, 1984; Rajan and Zingales, 1995; Frank and Goyal, 2009).[12] Firm size is the log of annual sales in millions of RMB yuan. Profitability is earnings before tax divided by total assets (ROA), adjusted by the industry median. Asset tangibility is total fixed assets divided by total assets. Asset maturity is (current assets/total assets) × (current assets/cost of goods sold) + (fixed assets/total assets) × (fixed assets/depreciation) divided by 100. Industry median is the median leverage measure for firms with the same 2-digit SIC code. Industry concentration is the Herfindahl index using sales of domestic Chinese firms with the same 2-digit SIC code. All the firm-level explanatory variables are measured in the year before leverage decisions (i.e., 2002).

Most foreign joint ventures in China are green field investments (Graham and Wada, 2001). The locational distribution of foreign joint ventures is highly uneven. The majority is located in four coastal provinces (Guangdong, Jiangsu, Fujian, and Shanghai), while most of the rest are located in other coastal provinces. Of the residual, the majority is located in provinces immediately adjacent to the coastal provinces, therefore in our empirical specification we control for the developmental discrepancies across provinces in China. Our data on institutional development across provinces in China comes from Fan and

[10] The NBS started to provide information on accounts payable in 2005. We find that for a subset of our sample with available information on accounts payable, more than half of their short-term debt comes from short-term bank loans. The correlation between short-term debt and short-term debt excluding accounts payable is 0.755 for firms covered in the 2005 data, and 0.656 for our foreign joint venture subsample.

[11] The reason we employ a binary variable to capture firms' long-term leverage decision is due to the lack of variation for the majority of sample firms with zero long-term debt.

[12] China's accounting system began its reform in 1992. Thereafter, China's accounting standards for listed firms have been moving gradually toward the North American Generally Accepted Accounting Principles (GAAP).

Wang (2004).[13] Higher scores on marketization suggest greater market development. We divide the raw score in 2002 by 10 to ensure that our regression analysis will have reasonably sized coefficients. Guangdong, the province adjacent to Hong Kong, has the highest marketization score of 0.974, while Tibet has the lowest score of 0.205. We control for the economic development of different provinces by including the growth rate of provincial GDP per capita.

We also control for important home country characteristics of foreign joint ventures. We use the median leverage measure of domestic firms in foreign joint ventures' home countries as a summary measure of both formal and informal institutional development in the home country, the latter including culture. Prior work by Demirgüç-Kunt and Maksimovic (1998, 1999), Booth et al. (2001) and others has established the strong association between formal institutions of a country and the capital structure decisions of its domestic firms. Under our multivariate regression framework with the culture variables explicitly controlled for, the coefficient in front of this summary measure primarily captures the effect of the home country formal institutional development on leverage.

Finally, we include the physical distance between the foreign joint venture's home country and China. Siegel et al. (2008) demonstrate that physical distance, as a proxy for the extent of information asymmetry between the foreign investor and the target country, is an important factor in international investment decisions.

Our final sample includes 8,187 foreign joint ventures in China involving investors from 32 different countries and regions where they are the majority owner (i.e., foreign ownership is greater than 50%).[14] Table A1 in the Appendix gives a detailed breakdown of the countries from which the foreign investors come; the number of observations from each country when the foreign investor is the majority owner; and key descriptives regarding leverage measures, firm size, foreign ownership, and the level of

[13] Fan and Wang (2004) construct a comprehensive marketization index to proxy for the market development of a province. It measures the following aspects: 1) the relationship between government and markets, 2) the development of non-state sectors in the economy, 3) the development of product markets 4) the development of factor markets, and 5) the development of market intermediaries and the legal environment. See Li, Yue, and Zhao (2009) for more detailed discussion of the index.

[14] Three countries are lost as they have only a single observation. Our main results are not affected if we include these three country-firm observations.

regional development. Table A2 presents industry classification and distribution across countries of these foreign joint ventures. Panel A lists the description of each 2-digit SIC industry. Panel B shows that different industries attract different levels of foreign investment, with electrical equipment, apparel, and communication equipment being the top three industries with the largest number of foreign joint ventures. Panel C shows that there is a strong industry effect in leverage measures of these foreign joint ventures.

Table 1 presents the descriptive statistics of our sample. Panel A reports that our sample foreign joint ventures have an average (median) leverage of 46.6% (46.4%). The sample average (median) short-term debt is 43.6% (42.9%), suggesting that most of the debt in these foreign joint ventures is short-term. About one-fifth of these foreign joint ventures have access to long-term debt. Using a large sample of unlisted Chinese firms, Li, Yue, and Zhao (2009) demonstrate that the sample mean (median) ratio of total liabilities to total assets is 56.7% (58.9%), the sample mean (median) ratio of short-term debt to total assets is 50.3% (51.1%), and 35.4% of their domestic Chinese firms have access to long-term debt. We conclude that the foreign joint ventures in our sample tend to have lower total debt (leverage), lower total short-term debt, and a lower probability of having long-term debt when compared to domestic Chinese firms. This is probably due to the underdeveloped credit markets in China which constrain foreign joint ventures' access to debt capital, and long-term debt in particular (Li, Yue, and Zhao, 2009).

Insert Table 1 about here.

Panel B indicates that our sample foreign joint ventures make average annual sales of RMB 78.26 million yuan with a median of RMB 28.52 million yuan. The average industry-adjusted ROA is 3.2% with a lower median of 0.8%. About one-third of total assets are tangible for an average firm in the sample, and the average asset maturity is 6.4%. The average Herfindahl index is 0.003. The average of industry median leverage is 60.1% and the average of industry median short-term debt is 52.5%. The industry frequency of having long-term debt is 31.7%. The average (median) level of foreign ownership in our sample foreign joint ventures is 91.4% (100%), which is not surprising given that our sample is limited to foreign majority-owned joint ventures.

Panel C presents descriptive statistics for the province-level variables. We show that the average level of marketization is 0.816, the average per capita GDP growth is 9.8%, and the median growth rate is 9.3%.

Panel D presents descriptive statistics for the country-level variables used in our study. We show that the average level of mastery is 3.873 and the median is 3.881. The three countries with the highest score on mastery are South Africa (4.263), India (4.162), and Greece (4.136); while the three countries with the lowest score on mastery are Finland (3.388), Chile (3.535), and Indonesia (3.568). The average level of embeddedness is 3.783 and the median is 3.774. Among our 32 countries, the three countries with the highest score on embeddedness are Egypt (4.692), Indonesia (4.531), and Malaysia (4.349); while the three countries with the lowest score on embeddedness are Switzerland (3.045), France (3.081), and Austria (3.185). The average (median) of median leverage of the foreign joint ventures' home country firms is 49.7% (46.1%), the average (median) of median short-term debt of the foreign joint ventures' home country firms is 30.0% (28.7%), and the average (median) of median ratio of long-term debt to total assets of the foreign joint ventures' home country firms is 7.6% (6.7%). The average distance between the country of origin of the foreign joint venture and China is 4,324 kilometers.

Panel E presents the correlation matrix of firm and regional characteristics using firm-level observations. There is an extremely high correlation between our leverage and short-term debt ratios (0.921). There is a negative association between our short-term debt ratio and foreign joint ventures' use of long-term debt (−0.095). On the other hand, there is moderate correlation among most of the firm-level explanatory variables. The exceptions are strong relations between industry median leverage and industry median short-term debt (0.680), and between industry median leverage and industry frequency of using long-term debt (0.504).

Panel F presents descriptive statistics for the country-level variables using country-level observations. Panel G presents the correlation matrix of home country characteristics using country-level observations. Consistent with Chui et al. (2002), there is strong negative correlation between embeddedness and leverage of the foreign joint ventures' home country firms.

OUR EMPIRICAL SPECIFICATIONS

The Data Structure

Our data structure is multilevel. At the country level, we have investors from 32 different countries investing in China. At the firm level, we have over 8,000 foreign joint ventures with a majority foreign ownership stake.[15] Additionally, there are 30 different provinces/regions in China with large developmental disparities and a highly uneven distribution of foreign joint ventures. From a modeling perspective, it is important to distinguish the effects that take place at the country level from those that take place at the individual firm level; both to understand the role of country- versus firm-level determinants, and to appropriately model the effects of culture at the country level.

We employ a hierarchical nested form of the general linear model to explore our multilevel data (see Raudenbush and Bryk, 2002 and Goldstein, 2003, for an introduction to hierarchical linear models (HLM); and Martin, Cullen, Johnson, and Parboteeah, 2007, for an application of the model in examining cross-country and cross-firm differences in the use of bribery). In our data, the sample foreign joint ventures within their home countries form the base level observations and their home countries serve as the higher level observations. There are two distinct benefits from using an HLM in our setting. First, the HLM framework separates the variance in firm-level leverage decisions explained by the firm- versus country-level explanatory variables. Second, the HLM framework corrects for the distortion introduced by varying sample sizes across countries. Unlike the OLS regression where each firm-level observation receives equal weight, the HLM regression simultaneously models regressions at both the firm- and country-level. The country-level regression is weighted by the precision of the firm-level data, which is inversely related to the sample size within a country. The power of multilevel models comes from their ability to pool firm-level effects across countries while also examining country-level relations.

[15] Note that using the level of foreign ownership as the founding date of the joint venture does not change our main results. Results are available upon request.

In our empirical investigation we present the results of both the multilevel analyses, incorporating information about the foreign joint ventures' home country affiliation and the standard regression analyses across all foreign joint ventures. In the latter case, we ignore the foreign joint ventures' affiliation with a specific country, except for calculating clustered standard errors. The multilevel results provide insight into whether the effects take place at the firm- or the country-level, and also provide a stricter and more appropriate test of the relevant coefficients. It is possible for the coefficients on the country-level variable, such as a cultural value variable, to be spuriously significant just due to the large sample size at the firm-level. This problem is accentuated when countries differ markedly in the number of foreign joint ventures they contribute to the sample.

To proceed, we need to process the raw data in the following way. First, we center every right-hand side variable by its grand mean (averaged across firms and countries) so that every transformed variable has a mean of zero. Second, we create country-level mean values (averaged within a country) on those grand-mean-centered variables that vary by firm, and we give a suffix to each of these variables as "_ctrymean." Here, we treat the regional institutional and economic developmental measures in the same way as variables that vary by firm. Finally, we create within-country residuals by taking the grand-mean adjusted variables in Step 1 and subtracting the corresponding within-country means in Step 2. We name these firm-level deviations from their corresponding country-level means as "_firmdev." By centering the within-country variables (varying by firm) and adding the country-level means to the set of predictors, we completely separate the covariances between- and within-country. The decomposition allows us to explore the potentially differential effects of firm-level characteristics such as asset maturity at the firm- and country-level. Furthermore, using mean-centered variables on the right-hand side makes interpretation of the intercept values natural—the expected value of the dependent variable when all right-hand side variables are at their means. In the end, our model specification contains some variables that have only country-level values (cultural values, foreign joint ventures' home country leverage, and distance), while others have country-level and firm-level values (such as firm size, profitability, and

foreign ownership); where the country-level values are all grand-mean centered and the firm-level values are deviations from the corresponding country-level means.

Our Empirical Specifications

To explore the relation between country-level factors and capital structure decisions, we employ two different model specifications. The first model takes the following form:

$$\begin{aligned} &Leverage\ Measure_{i,j,t} = \alpha + \beta_1 Firm\ Size_{i,j,t-1} + \beta_2 Profitability_{i,j,t-1} + \beta_3 Asset\ Tangibility_{i,j,t-1} \\ &+ \beta_4 Asset\ Maturity_{i,j,t-1} + \beta_5 Industry\ Concentration_{i,j,t-1} + \beta_6 Industry\ Leverage_{i,j,t-1} \\ &+ \beta_7 Foreign\ Ownership_{i,j,t-1} + \beta_8 Marketization_{i,j,t-1} + \beta_9 Per\ Capita\ GDP\ Growth_{i,j,t-1} \\ &+ \beta_{10} Mastery_j + \beta_{11} Embeddedness_j + \beta_{12} Home\ Country\ Leverage_j + \beta_{13} Distance_j + e_{i,j,t}. \end{aligned} \quad (1)$$

For foreign joint venture *i* from country *j* in year *t*, Leverage Measure can be the leverage ratio (LEV), the short-term debt ratio (STD), or the likelihood of having long-term debt (LTD dummy).

Equation (1) is a standard cross-sectional (OLS/Probit) regression with lagged right-hand side variables. We expect that foreign joint ventures clustered within a province are more likely to have similar characteristics, and hence present within-province correlations. These intra-province correlations have to be taken into account in parameter estimation. We adopt robust standard errors adjusted for clustering at the province-level.

Our second model is an HLM (Probit) specified as follows:

$$
\begin{aligned}
&Leverage\,Measure_{i,j,t} = \alpha + \beta_1 Firm\ Size_firmdev_{i,j,t-1} + \beta_2 Profitability_firmdev_{i,j,t-1} \\
&+ \beta_3 Asset\ Tangibility_firmdev_{i,j,t-1} + \beta_4 Asset\ Maturity_firmdev_{i,j,t-1} \\
&+ \beta_5 Industry\ Concentration_firmdev_{i,j,t-1} + \beta_6 Industry\ Leverage_firmdev_{i,j,t-1} \\
&+ \beta_7 Foreign\ Ownership_firmdev_{i,j,t-1} + \beta_8 Marketization_firmdev_{i.j,t-1} \\
&+ \beta_9 Per\ Capita\ GDP\ Growth_firmdev_{i,j,t-1} \\
&+ \gamma_1 Firm\ Size_ctrymean_{j,t-1} + \gamma_2 Profitability_ctrymean_{j,t-1} \\
&+ \gamma_3 Asset\ Tangibility_ctrymean_{j,t-1} + \gamma_4 Asset\ Maturity_ctrymean_{j,t-1} \\
&+ \gamma_5 Industry\ Concentration_ctrymean_{j,t-1} + \gamma_6 Industry\ Leverage_ctrymean_{j,t-1} \\
&+ \gamma_7 Foreign\ Ownership_ctrymean_{j,t-1} + \gamma_8 Marketization_ctrymean_{j,t-1} \\
&+ \gamma_9 Per\ Capita\ GDP\ Growth_ctrymean_{j,t-1} \\
&+ \gamma_{10} Mastery_ctry_j + \gamma_{11} Embeddedness_ctry_j + \gamma_{12} Home\ Country\ Leverage_ctry_j \\
&+ \gamma_{13} Distance_ctry_j + e_{i,j,t}.
\end{aligned}
\tag{2}
$$

Unlike the standard cross-sectional regression with clustered standard errors as shown in Equation (1), we decompose firm and province characteristics into firm-level deviations and country-level means to examine the differential firm- and country-level effects, and more appropriately estimate the significance of the cultural value variables (which vary only across countries). This model is estimated using an iterative maximum likelihood fitting procedure available in MLWin.

MAIN RESULTS

Table 2 presents the estimation results. When the leverage ratio is the dependent variable, under the standard OLS regression model we demonstrate that firm size, asset maturity, and foreign ownership are positively associated with leverage; while profitability, asset tangibility, and industry concentration are negatively associated with leverage. Given that existing capital structure theories are developed to explain the financing choices of firms in the industrial world, it is notable that the same set of firm characteristics has reasonable explanatory power for leverage decisions of foreign joint ventures in China.

Insert Table 2 about here.

After decomposing total variation in firm- and province-level characteristics into firm-level deviations and country-level means under our HLM specification, we still find strong significant

association between some of our _ctrymean variables and leverage. For example, there is a significantly negative association between firm-level leverage and country-mean profitability. This implies that foreign joint ventures from countries that tend to choose highly profitable firms also tend to make choices leading to low levels of leverage.

We note that the strength of association could be materially different for the _firmdev variables vis-à-vis the _ctrymean variables under our HLM specification. For instance, in the case of asset maturity the coefficient on the firm-level deviation measure is 0.118, while the coefficient on the corresponding country-level mean measure is 0.843. In our data, because there is much more variation at the firm-level than at the country-level (see Table 1), the impact of a unit change in mean asset maturity at the country-level has a much larger effect on leverage than a unit change in asset maturity at the firm-level.

With respect to our two province-level environment variables, we show that marketization is negatively and GDP growth is positively associated with leverage using both the firm-level deviations and the country-level means. The above finding suggests that foreign joint ventures' leverage decisions are influenced both by variations within a home country in the choice of firm environment characteristics, and by variations across home countries in such choices.

With respect to our two country-level cultural values (corresponding to the direct effects of culture), results from the HLM specification suggest that there is a significantly negative association between mastery and leverage. There is almost no association between embeddedness and leverage. Finally, we show that there is a significantly negative association between the median leverage of domestic firms in the foreign joint venture's home country and the foreign joint venture's leverage.[16]

Table 2 also presents our regression results using the ratio of short-term debt to total assets as the dependent variables. Given the very high correlation between our total debt (leverage) and short-term debt variables (Table 1 Panel E), it is not surprising that many of the findings with respect to leverage discussed earlier apply here. Most importantly, we still find that there is a significantly negative

[16] Note that the correlation between the median leverage of a foreign joint venture and the corresponding leverage measure of domestic firms in the foreign joint venture's home country, using country-level observations, is positive and significant (unreported).

association between mastery and short-term debt. Embeddedness continues to have no significant association with foreign joint ventures' short-term debt.

Finally, Table 2 presents our Probit regression results using the LTD dummy as the dependent variable. We show that firm characteristics measured at firm-level deviations (_firmdev) are meaningfully associated with foreign joint ventures' decision to take on long-term debt. For example, firm size, asset tangibility, and asset maturity are positively associated with the likelihood of foreign joint ventures' having long-term debt. In contrast to the results using leverage and short-term debt as the dependent variables, firm characteristics measured at country-level means (_ctrymean) appear to have much less influence on foreign joint ventures' decision to use long-term debt. In particular, only firm size and asset maturity measured at country-level means are significantly associated with the likelihood of foreign joint ventures' having long-term debt. The opposite signs of the coefficients on firm-level deviation and country-level mean measures of asset maturity imply that individual foreign joint ventures, within a home country where managers tend to choose assets with longer maturity, are more likely to employ long-term debt. However, countries whose foreign joint ventures tend to employ assets with longer maturity are characterized by low usage of long-term debt. Notably, mastery is positively and significantly associated with the likelihood of foreign joint ventures' having long-term debt. The negative and significant association between mastery and short-term debt suggests that the particular financing hierarchy for high mastery managers is as follows: equity first, long-term debt next, and short-term debt last, in contrast to the prediction from the pecking order theory of capital structure that debt comes before equity (Myers, 1984; Myers and Majluf, 1984).

It is worth noting that in an untabulated analysis where we include additional home country institutional variables such as the rule of law, creditor protection, and disclosure, our main results regarding the role of cultural values in foreign joint ventures' leverage decisions remain unchanged (results are available upon request).

Indirect Effects of Cultural Values

The evidence from Table 2 thus far captures only the direct effects of cultural values on leverage. Following our modeling framework illustrated in Figure 1, we investigate the indirect effects of culture. Table 3 presents the results from this investigation where the two cultural values (along with the control variables of median leverage measures of the foreign joint ventures' home country firms and distance) are used to predict the firm- and province-level characteristics. The difference across the three panels in Table 3 is that in Panel A, we employ the median leverage of domestic firms in the foreign joint ventures' home country as our proxy for the foreign joint venture home country institutional environment, while we use the median short-term debt ratio and the median long-term debt ratio in Panels B and C, respectively.

Insert Table 3 about here.

Across all three panels, mastery is negatively and significantly related to firm size, industry concentration, and per capita GDP growth of the foreign joint venture's region; implying that foreign joint ventures from countries high on mastery tend to choose smaller firms, less concentrated industries, and regions with rapid economic growth. Mastery is negatively and significantly related to industry median leverage measures in Panels A and B, but not in Panel C.

Across all three panels, embeddedness is positively and significantly related to marketization; implying that foreign joint ventures from countries high on embeddedness tend to choose regions with higher levels of institutional development. Embeddedness is negatively and significantly associated with firm size and industry concentration in Panel B, and remains negatively and significantly associated with industry concentration in Panel C. We find meaningful association between cultural values and foreign joint ventures' choices of firm, industry, and regional characteristics.

Across Panels A and C, countries whose domestic firms have higher median leverage tend to make larger foreign direct investments in China. In Panel C, countries whose domestic firms have higher median long-term debt tend to make investments in China with lower asset tangibility and shorter asset maturity, suggesting that foreign joint ventures from home countries with a better developed institutional framework and better developed credit markets are more willing to invest in less tangible assets and assets with shorter maturity.

Finally, across all three panels, the distance between the foreign joint venture's home country and China is negatively and significantly associated with asset tangibility and foreign ownership, and positively and significantly associated with marketization. In Panel C, the distance between a foreign joint venture's home country and China is negatively and significantly associated with firm size.

Economic Significance of Direct, Indirect, and Total Effects

To assess the economic significance of the effects of cultural values on foreign joint ventures' leverage decisions, we examine the consequence of a change in each cultural value on the foreign joint ventures' leverage decisions. Specifically, we first compute the change in mastery from the 25th percentile to the 75th percentile using our sample of 32 countries: ΔMastery = 75th percentile – 25th percentile = 0.2388. Similarly, we compute the change in embeddedness from the 25th percentile to the 75th percentile: ΔEmbed = 75th percentile – 25th percentile = 0.5272. We then examine the effects on different leverage measures of foreign joint ventures as a result of the above specific change in each cultural value in Table 4, which decomposes the total effects into direct and indirect effects.

Insert Table 4 about here.

Row (1) in Table 4 presents the coefficients from the indirect effect regression in Table 3. Row (2) reports the product of the Row (1) coefficients and the percentile change in mastery: ΔMastery (embeddedness: ΔEmbed). Row (3) presents the coefficients from the direct effect regression in Table 2. Row (4) reports the product of the Row (2) and Row (3) coefficients, which is the indirect effect as a result of specified changes in one cultural value. The sum of indirect effects is the sum of all coefficients in Row (4). The direct effect is the product of the coefficient on mastery (embeddedness) in Table 2 and the percentile change in mastery: ΔMastery (embeddedness: ΔEmbed). The total effect is the sum of indirect and direct effects.

Panel A presents the economic significance of the effects of culture on leverage. We show that when mastery is increased from the 25th percentile to the 75th percentile, the direct effect is to decrease

leverage by 2.15%, and the indirect effect through firm and regional characteristics is to decrease leverage by 1.08%. The total effect is to decrease leverage by 3.23%. Given that the sample mean (median) leverage ratio is 46.6% (46.4%), these effects are of clear economic significance. As some examples of the total effects of mastery on leverage, we show that the leverage ratio of Guangzhou Nanxin Pharmaceutical Limited Corporation, a subsidiary of India's largest pharmaceutical company Ranbaxy Laboratories Limited, is 58.3%. Note that India is the country with the second highest score on mastery. In contrast, the leverage ratio of Meizhuo Paper Machinery (Wuxin) Limited Corporation, a subsidiary of Finnish multinational Metso, is 84.8%. Note that Finland is the country with the lowest score on mastery.

For the cultural value of embeddedness, when it is increased from the 25th percentile to the 75th percentile the direct effect is to increase leverage by 0.05%, and the indirect effect through firm and regional characteristics is to increase leverage by 1.93%. The total effect is to increase leverage by 1.99%. It is worth noting that the total effect of mastery on leverage is negative, consistent with Chui et al. (2002). In contrast, the total effect of embeddedness on leverage in the foreign joint venture setting is positive. As some examples of the total effects of embeddedness on leverage, we show that Kunming Fen Mei Yi Limited corporation, a subsidiary of Swiss firm Firmenich, has a leverage ratio of 12.8%. Note that Switzerland is the country with the lowest score on embeddedness. In contrast, Jin Hua Sheng Paper Limited Corporation, a subsidiary of Indonesian firm APP Indonesia, has a leverage ratio of 74.7%. Note that Indonesia is the country with the highest score on embeddedness.

Panel B presents the economic significance of the effects of culture on short-term debt. We demonstrate that when mastery is increased from the 25th percentile to the 75th percentile, the direct effect is to decrease short-term debt by 2.89%, and the indirect effect through firm and regional characteristics is to increase short-term debt by 2.28%. The total effect is to decrease short-term debt by 0.61%. Given that the sample mean (median) short-term debt ratio is 43.6% (42.9%), the direct and indirect effects are of economic significance. For the cultural value of embeddedness, when it is increased from the 25th percentile to the 75th percentile the direct effect is to decrease short-term debt by 1.95%, and the indirect effect through firm and regional characteristics is to increase short-term debt by 3.19%. The total effect is

to increase short-term debt by 1.24%. It is worth noting that the direct and indirect effects of both mastery and embeddedness are offsetting in the case of short-term debt.

Panel C presents the economic significance of the effects of culture on the likelihood of foreign joint ventures' having long-term debt. Row (5) in Panel C presents the marginal effects on the probability of having long-term debt. We show that when mastery is increased from the 25th percentile to the 75th percentile the direct effect is to increase the likelihood of foreign joint ventures' having long-term debt by 3.74%, and the indirect effect through firm and regional characteristics is to decrease the likelihood of foreign joint ventures' having long-term debt by 6.92%. The total effect is to decrease the likelihood of foreign joint ventures' having long-term debt by 3.18%. Given that the sample frequency of foreign joint ventures' taking on long-term debt is 19%, these effects are of clear economic significance. For the cultural value of embeddedness, when it is increased from the 25th percentile to the 75th percentile the direct effect is to increase the likelihood of foreign joint ventures' having long-term debt by 2.0%, and the indirect effect through firm and regional characteristics is to increase the likelihood of foreign joint ventures' having long-term debt by 0.04%. The total effect is to increase the likelihood of foreign joint ventures' taking on long-term debt by 2.04%. It is worth noting that the direct effect of mastery on the likelihood of foreign joint ventures' possessing long-term debt is positive, but the total effect is dominated by the negative indirect effect.

CONCLUSIONS

In this paper we present evidence supporting the important role of national culture (as captured by mastery and embeddedness) in corporate leverage decisions. We expect that there is a cultural effect on foreign joint ventures' leverage decisions, but the direction of that effect is ultimately an empirical question. Furthermore, we expect both cultural values to have indirect influences on foreign joint ventures' leverage decisions through the choice of firm characteristics, industry, and region of investment.

Using data on over 8,000 foreign joint ventures in China from 32 different countries, we demonstrate that mastery has negative and significant direct effects on foreign joint ventures' leverage

and short-term debt decisions, and positive and significant direct effects on the likelihood of foreign joint ventures' having long-term debt. The indirect effects of mastery on leverage decisions sometimes reinforce, and occasionally offset, the direct effects. Embeddedness has no significant direct effect on foreign joint ventures' leverage decisions, but exerts its influence entirely through indirect effects. Finally, economic significance analysis of the total effects suggests that national culture has significant explanatory power in the financial leverage decisions of foreign joint ventures in China. Note that in this study, we do not have data on the country of origin of foreign joint venture managers. An interesting area for future research, when more detailed data become available, is to examine whether managers' decision-making reflects their corporate culture or their own national culture.

Our paper contributes to the existing literature in three important ways. First, our paper tests the portability of national cultures in a setting where foreign joint ventures operate and make corporate decisions outside their home countries. The results in our paper support the growing awareness among finance researchers that informal institutions such as culture, level of trust, and social capital matter in financial decisions, even when those decisions are made by sophisticated managers and outside of those managers' home countries. Second, we apply a novel empirical methodology that is appropriate for the hierarchical structure of our data. The new empirical specification allows us to decompose the relation between firm characteristics and leverage, as well as regional characteristics and leverage, into country-level and individual firm-level components. Finally, we demonstrate that cultural values not only directly influence capital structure decisions, but also influence other choices such as firm size and investment location that in turn affect capital structure decisions. We hope our research stimulates further studies on the important role of cultural values in corporate finance decisions.

Appendix:

Table A1. Sample Overview

This table presents the country distribution of foreign joint ventures in the data. N gives the number of foreign joint ventures where the foreign investor is the majority owner by country of origin. LEV is measured as the ratio of total liabilities over total assets. STD is the ratio of short-term liabilities over total assets. LTD dummy is set equal to one if the firm has long-term debt, and zero otherwise. Firm size is annual sales measured in millions of RMB yuan. Foreign ownership is the fraction of paid-in-capital contributed by foreign investors. The marketization index captures the regional institutional development and is from Fan and Wang (2004).

	N	LEV		STD		LTD dummy		Firm size		Foreign ownership		Marketization	
Country		Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
Argentina	7	0.55	0.52	0.54	0.52	0.29	0.00	33.3	23.0	0.82	1.00	0.78	0.81
Australia	111	0.51	0.51	0.48	0.47	0.16	0.00	49.8	26.9	0.90	1.00	0.81	0.85
Austria	15	0.41	0.43	0.37	0.43	0.13	0.00	54.4	26.2	0.81	0.88	0.77	0.81
Belgium	20	0.49	0.40	0.48	0.40	0.05	0.00	74.4	61.0	0.84	1.00	0.80	0.81
Brazil	7	0.48	0.59	0.43	0.52	0.29	0.00	58.1	15.4	0.94	1.00	0.88	0.91
Canada	75	0.53	0.50	0.52	0.49	0.16	0.00	45.8	20.2	0.88	1.00	0.80	0.85
Denmark	16	0.46	0.44	0.42	0.36	0.13	0.00	234.5	119.6	0.97	1.00	0.76	0.71
Finland	20	0.51	0.54	0.46	0.47	0.20	0.00	254.8	143.3	0.87	1.00	0.81	0.81
France	127	0.44	0.43	0.42	0.41	0.16	0.00	86.8	45.7	0.85	1.00	0.81	0.85
Germany	258	0.43	0.40	0.40	0.37	0.21	0.00	106.4	52.4	0.85	1.00	0.80	0.81
Greece	2	0.58	0.58	0.55	0.55	0.50	0.50	17.9	17.9	0.83	0.83	0.86	0.86
India	3	0.48	0.58	0.48	0.58	0.00	0.00	116.6	55.0	0.94	1.00	0.82	0.81
Indonesia	37	0.54	0.48	0.47	0.47	0.35	0.00	112.3	39.7	0.91	1.00	0.86	0.87
Italy	50	0.50	0.50	0.48	0.49	0.16	0.00	66.5	25.9	0.82	0.90	0.82	0.85
Japan	181	0.41	0.39	0.37	0.35	0.24	0.00	85.5	30.7	0.89	1.00	0.80	0.81
Malaysia	102	0.46	0.45	0.42	0.39	0.22	0.00	80.8	25.8	0.87	1.00	0.82	0.85
Netherlands	110	0.50	0.52	0.46	0.47	0.23	0.00	167.0	63.7	0.86	1.00	0.83	0.81
New Zealand	13	0.50	0.53	0.47	0.53	0.23	0.00	126.2	21.5	0.92	1.00	0.85	0.91
Norway	7	0.59	0.59	0.38	0.45	0.57	1.00	112.0	90.9	0.74	0.70	0.82	0.81
Peru	4	0.47	0.51	0.47	0.51	0.00	0.00	16.4	17.0	0.85	0.86	0.83	0.85
Philippines	69	0.39	0.37	0.38	0.33	0.09	0.00	57.8	29.7	0.92	1.00	0.85	0.87
Portugal	3	0.74	0.79	0.62	0.59	0.67	1.00	251.7	43.7	0.86	1.00	0.77	0.85
Singapore	598	0.47	0.47	0.43	0.43	0.25	0.00	107.0	44.8	0.93	1.00	0.83	0.85
South Africa	3	0.51	0.53	0.51	0.53	0.33	0.00	20.3	21.5	0.84	0.87	0.88	0.87
South Korea	828	0.50	0.52	0.47	0.47	0.16	0.00	77.1	25.6	0.95	1.00	0.73	0.71
Spain	21	0.53	0.55	0.48	0.44	0.14	0.00	46.2	30.3	0.82	0.97	0.81	0.81
Sweden	44	0.50	0.51	0.47	0.45	0.11	0.00	155.8	64.6	0.87	1.00	0.79	0.81
Switzerland	67	0.51	0.50	0.48	0.47	0.21	0.00	169.1	79.2	0.88	0.98	0.80	0.81
Taiwan	2168	0.49	0.49	0.47	0.47	0.14	0.00	40.7	19.9	0.96	1.00	0.86	0.87
Thailand	73	0.49	0.52	0.45	0.42	0.26	0.00	84.9	35.5	0.87	1.00	0.74	0.81
UK	339	0.46	0.45	0.41	0.41	0.27	0.00	119.2	47.8	0.91	1.00	0.82	0.85
US	1,109	0.48	0.48	0.45	0.44	0.17	0.00	87.5	31.5	0.89	1.00	0.82	0.85
Total	8,187	0.47	0.46	0.44	0.43	0.19	0.00	78.2	28.5	0.91	1.00	0.82	0.85

Table A2. Industry Classification and Distribution

This table presents the industry classification and distribution of foreign joint ventures in the data. LEV is measured as the ratio of total liabilities over total assets. STD is the ratio of short-term liabilities over total assets. LTD dummy is set equal to one if the firm has long-term debt, and zero otherwise. Panel A lists the 2-digit SIC industry classification and description. Panel B presents the industry distribution across countries. Panel C presents descriptive statistics of capital structure variables across industries.

Panel A: 2-Digit SIC Industry Classification and Description

SIC	Industry Description
13	Agricultural product processing
14	Food
15	Beverage
16	Tobacco
17	Textile
18	Apparel
19	Leather and allied product
20	Wood processing and related product
21	Furniture and related product
22	Paper and related product
23	Printing and related support activities
24	Educational product
25	Petroleum, coal and nuclear power processing
26	Chemical product
27	Pharmaceutical and medicine
28	Artificial synthetic fibers
29	Rubber product
30	Plastic product
31	Nonmetallic mineral product
32	Primary metal product and processing
33	Nonferrous metal product and processing
34	Fabricated metal product
35	General purpose machinery
36	Industrial machinery
37	Transportation equipment
39	Engine, turbine and power transmission equipment
40	Communication equipment, computer and electronic product
41	Electrical equipment, appliance and component
42	Miscellaneous
43	Recycled resources and material processing

Panel B: Industry Distribution Across Countries

Country	13	14	15	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	40	41
Argentina	0	0	0	0	3	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
Australia	3	7	1	10	17	2	0	5	4	2	1	0	8	1	1	0	4	9	1	0	10	5	3	3	4	8
Austria	0	0	0	0	1	1	1	0	0	0	0	0	0	0	0	1	2	3	0	0	0	1	1	1	3	0
Belgium	2	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	1	0	1	5	0	1	0	1	2
Brazil	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
Canada	2	0	0	3	2	3	3	3	1	2	0	0	10	2	2	0	6	4	1	2	5	3	6	3	2	7
Denmark	0	3	0	1	0	0	1	0	0	0	1	0	0	2	0	1	0	0	0	0	2	1	1	2	0	1
Finland	0	0	0	0	2	0	0	0	0	0	0	0	1	0	0	1	1	0	0	1	0	2	5	0	1	6
France	0	4	2	3	6	8	0	0	1	2	3	3	20	3	0	2	2	7	0	2	9	4	8	10	12	8
Germany	2	1	1	5	6	1	2	0	1	0	4	3	40	5	2	2	11	9	0	3	20	44	17	20	21	22
Greece	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
India	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0
Indonesia	3	2	0	7	0	1	0	0	2	1	1	0	1	0	0	0	2	2	1	1	3	2	0	0	4	3
Italy	0	3	0	3	8	2	1	0	0	0	0	0	4	1	1	2	1	2	0	0	2	3	3	2	6	1
Japan	119	48	16	132	308	31	34	16	24	19	24	2	93	18	7	26	108	64	14	16	100	116	66	60	136	168
Malaysia	5	5	5	5	2	0	7	5	2	4	3	0	3	2	1	3	3	16	0	0	3	3	2	4	4	12
Netherlands	4	5	2	3	3	2	1	0	6	0	1	1	16	3	0	0	3	2	0	2	8	5	7	4	16	11
New Zealand	0	0	0	0	2	2	0	0	0	0	0	0	2	0	0	0	0	2	1	0	0	2	0	0	2	0
Norway	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	0	0	0	0	1	0	1	1
Peru	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Philippines	2	7	2	8	6	7	3	0	3	1	2	0	3	0	0	1	9	2	2	0	1	0	0	1	2	0
Portugal	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Singapore	22	44	19	14	20	7	9	12	36	8	7	1	39	8	2	13	51	37	6	3	40	25	15	16	44	74
South Africa	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0
South Korea	28	19	1	65	84	72	7	6	13	2	49	0	30	3	10	19	54	29	1	3	41	31	6	7	58	131
Spain	0	3	1	0	3	0	0	0	0	0	1	0	1	1	0	0	1	1	1	0	0	4	0	0	1	2
Sweden	0	2	0	0	2	0	3	1	0	0	0	0	2	1	0	0	0	0	1	1	4	5	2	4	9	7
Switzerland	1	2	3	3	0	0	0	0	1	0	1	1	13	5	0	1	2	0	0	2	3	4	6	0	5	6
Taiwan	57	52	12	127	144	87	58	56	51	24	109	3	110	10	13	41	180	109	10	7	175	108	64	92	128	153
Thailand	27	1	3	3	1	1	1	1	0	1	3	0	3	0	1	1	3	2	0	0	3	1	0	2	5	4
UK	24	11	9	11	11	4	7	7	10	0	9	4	23	5	1	2	26	26	5	1	23	16	10	30	18	31
US	32	32	12	31	59	27	16	24	18	4	46	6	89	40	7	9	48	42	1	16	78	97	50	57	84	92
Total	333	251	90	436	692	260	156	136	174	70	266	24	517	113	48	125	517	372	45	61	536	482	275	319	570	751

Panel C: Leverage Measures Across Industries

	13	14	15	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	40	41
LEV																										
Mean	0.49	0.45	0.45	0.46	0.47	0.51	0.50	0.54	0.48	0.42	0.49	0.41	0.45	0.44	0.47	0.46	0.44	0.45	0.51	0.49	0.48	0.43	0.47	0.42	0.48	0.49
5th percentile	0.07	0.09	0.05	0.08	0.06	0.11	0.09	0.16	0.13	0.08	0.11	0.04	0.09	0.08	0.06	0.08	0.08	0.07	0.16	0.18	0.10	0.09	0.07	0.09	0.10	0.10
Median	0.51	0.42	0.46	0.46	0.46	0.52	0.50	0.57	0.48	0.41	0.52	0.34	0.44	0.43	0.48	0.45	0.44	0.45	0.53	0.43	0.48	0.41	0.48	0.42	0.47	0.49
95th percentile	0.91	0.86	0.83	0.84	0.89	0.90	0.93	0.86	0.86	0.75	0.84	0.81	0.85	0.86	0.92	0.87	0.82	0.88	0.81	0.85	0.86	0.81	0.85	0.82	0.86	0.85
STD																										
Mean	0.45	0.40	0.39	0.41	0.44	0.49	0.47	0.50	0.44	0.38	0.47	0.34	0.42	0.40	0.42	0.43	0.41	0.40	0.46	0.45	0.45	0.40	0.44	0.39	0.46	0.47
5th percentile	0.05	0.07	0.04	0.05	0.05	0.11	0.07	0.14	0.09	0.07	0.09	0.02	0.08	0.03	0.06	0.07	0.05	0.06	0.14	0.10	0.08	0.07	0.05	0.07	0.09	0.09
Median	0.45	0.37	0.36	0.40	0.42	0.50	0.44	0.52	0.43	0.39	0.49	0.29	0.41	0.40	0.45	0.42	0.39	0.38	0.46	0.40	0.45	0.38	0.46	0.39	0.46	0.46
95th percentile	0.88	0.81	0.82	0.82	0.87	0.89	0.93	0.84	0.84	0.74	0.84	0.79	0.83	0.83	0.90	0.87	0.80	0.84	0.77	0.81	0.85	0.77	0.81	0.79	0.85	0.85
LTD dummy																										
Mean	0.21	0.23	0.22	0.24	0.13	0.16	0.17	0.17	0.25	0.20	0.14	0.25	0.22	0.21	0.25	0.16	0.20	0.26	0.29	0.26	0.19	0.20	0.19	0.21	0.13	0.19
5th percentile	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Median	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	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
95th percentile	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

References:

Bancel, F. and Mittoo, U.R. 2004. Cross-country determinants of capital structure choice: A survey of European firms. *Financial Management*, 33(4): 103-132.

Barnea, A., Haugen, R.A., and Senbet, L.W. 1980. A rationale for debt maturity structure and call provisions in the agency theoretic framework. *Journal of Finance*, 35(5): 1223-1234.

Barnea, A., Haugen, R.A., and Senbet, L.W. 1981. Market imperfections, agency problems and capital structure: A review. *Financial Management*, 10(3): 7-22.

Booth, L., Aivazian, V.A., Demirgüç-Kunt, A., and Maksimovic, V. 2001. Capital structure in developing countries. *Journal of Finance*, 56(1): 87-130.

Bradley, M., Jarrell, G., and Kim, E.H. 1984. On the existence of an optimal capital structure: Theory and evidence. *Journal of Finance*, 39(3): 857-878.

Chaplinsky, S.J. and Harris, R.S. 1996. Capital structure theory: A current perspective. Darden Case No. UVA-F-1165. Available at SSRN: http://ssrn.com/abstract=909392.

Chui, A.C.W., Lloyd, A.E., and Kwok, C.C.Y. 2002. The determination of capital structure: Is national culture a missing piece to the puzzle? *Journal of International Business Studies*, 33(1): 99-127.

Chui, A.C.W., Titman, S., and Wei, K.C.J. 2009. Individualism and momentum around the world, *Journal of Finance*, 65(1): 361-392.

Demirgüç-Kunt, A. and Maksimovic, V. 1998. Law, finance, and firm growth. *Journal of Finance*, 53(6): 2107-2187.

Demirgüç-Kunt, A. and Maksimovic, V. 1999. Institutions, financial markets, and firm debt maturity. *Journal of Financial Economics*, 54(3): 295-336.

Fan, G. and Wang, X. 2004. *NERI index of marketization of China's provinces*. Beijing: Economics Science Press.

Fan, J.P.H., Titman, S., and Twite, G. 2008. An international comparison of capital structure and debt maturity choices. Chinese University of Hong Kong and University of Texas in Austin Working Paper.

Fan, J.P.H., Wong, T.J., and Zhang, T. 2009. Institutions and organizational structures: The case of state-owned corporate pyramids, Chinese University of Hong Kong Working Paper.

Frank, M. and Goyal, V.K. 2009. Capital structure decisions: Which factors are reliably important? *Financial Management*, 38(1): 1-37.

Giannetti, M. 2003. Do better institutions mitigate agency problems? Evidence from corporate finance choices. *Journal of Financial and Quantitative Analysis*, 38(1): 185-212.

Goldstein, H.I. 2003. *Multilevel statistical models, 3rd edition*. London, UK: Edward Arnold.

Graham, E.M. and Wada, E. 2001. *Foreign direct investment in China: Effects on growth and economic performance. In P. Drysdale (Ed.), High growth: Experience of transitional economies in East Asia*. Oxford, UK: Oxford University Press.

Grinblatt, M. and Keloharju, M. 2001. How distance, language, and culture influence stock holdings and trades. *Journal of Finance*, 56(3): 1053-1073.

Guiso, L., Sapienza, P., and Zingales, L. 2006. Does culture affect economic outcomes? *Journal of Economic Perspectives*, 20(2): 23-48.

Harris, M. and Raviv, A. 1991. The theory of capital structure. *Journal of Finance*, 46(1): 297-355.

Harvey, C., Lins, K., and Roper, A. 2004. The effect of capital structure when expected agency costs are extreme. *Journal of Financial Economics*, 74(1): 3-30.

Haugen, R.A. and Senbet, L.W. 1978. The insignificance of bankruptcy costs to the theory of optimal capital structure. *Journal of Finance*, 33(2): 383-393.

Haugen, R.A. and Senbet, L.W. 1988. Bankruptcy and agency costs: Their significance to the theory of optimal capital structure. *Journal of Financial and Quantitative Analysis*, 23(1): 27-38.

Hofstede, G. H. 1985. The interaction between national and organizational value systems. *Journal of Management Studies*, 22(4): 347-357.

Hofstede, G.H. 2001. *Culture's consequences: Comparing values, behaviors, institutions, and organizations across nations, 2nd edition*. Thousand Oaks, CA: Sage.

House, R.J., Hanges, P.J., Javidan, M., Dorfman, P.W., and Gupta, V. 2004. *Culture, leadership and organizations: The GLOBE study of 62 societies.* Thousand Oaks, CA: Sage.

Huang, Y., Jin, L., and Qian, Y. 2008. Does ethnicity pay? Evidence from overseas Chinese FDI in China. MIT Sloan School of Management Working Paper.

Jensen, M.C. 1986. Agency costs of free cash flow, corporate finance and takeovers, *American Economic Review*, 76(2): 323-339.

Jensen, M.C. and Meckling, W. 1976. Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics*, 3(4): 305-360.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R.W. 1997. Legal determinants of external finance. *Journal of Finance*, 52(3): 1131-1150.

Li, K., Griffin, D., Yue, H., and Zhao, L. 2010. Cultural values and corporate risk-raking. University of British Columbia Working Paper.

Li, K., Yue, H., and Zhao, L. 2009. Ownership, institutions, and capital structure: Evidence from China. *Journal of Comparative Economics*, 37(3): 471-490.

Licht, A.N., Goldschmidt, C., and Schwartz, S.H. 2007. Culture rules: The foundations of the rule of law and other norms of governance. *Journal of Comparative Economics*, 35(4): 659-688.

Martin, K.D., Cullen, J.B., Johnson, J.L., and Parboteeah, K.P. 2007. Deciding on bribe: A cross-level analysis of firm and home country influences on bribery activity. *Academy of Management Journal*, 50(6): 1401-1422.

Myers, S. 1977. Determinants of corporate borrowing. *Journal of Financial Economics*, 5(2): 147-175.

Myers, S. 1984. The capital structure puzzle. *Journal of Finance*, 39(3): 575-592.

Myers, S. and Majluf, N.S. 1984. Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics*, 13(2): 187-222.

North, D.C. 1993. Economic institutions through time. Nobel Lecture.

Pagano, M., Röell, A.A., and Zechner, J. 2002. The geography of equity listing: Why do companies list abroad? *Journal of Finance*, 57(6): 2651-2694.

Rajan, R. and Zingales, L. 1995. What do we know about capital structure? Some evidence from international data. Journal of Finance, 50(5): 1421-1460.

Raudenbush, S.W. and Bryk, A.S. 2002. *Hierarchical linear models: Applications and data analysis methods. Advanced quantitative techniques in the social science series*, Thousand Oaks, CA: Sage.

Sarkissian, S. and Schill, M.J. 2004. The overseas listing decision: New evidence of proximity preference. *Review of Financial Studies*, 17(3): 769-809.

Schwartz, S. H. 2004. *Mapping and interpreting cultural differences around the world. In H. Vinkins, J. Soeters, and P. Esters (Eds.), Comparing cultures: Dimensions of culture in a comparative perspective.* Boston, MA: Brill Academic Publishers.

Shao, L., Kwok, C.C.Y., and Guedhami, O. 2009. National culture and dividend policy, *Journal of International Business Studies* forthcoming.

Siegel, J.I., Licht, A.N., and Schwartz, S.H. 2008. Egalitarianism and international investment. Harvard Business School Working Paper.

Siegel, J.I., Licht, A.N., and Schwartz, S.H. 2010. Egalitarianism, cultural distances, and FDI: A new approach. Harvard Business School Working Paper.

Stulz, R.M. and Williamson, R. 2003. Culture, openness, and finance. *Journal of Financial Economics*, 70(3): 313-349.

Titman, S. 1984. The effect of capital structure on a firm's liquidation decision. *Journal of Financial Economics*, 13(1): 137-152.

Figure 1. Direct and Indirect Effects of Cultural Values on Foreign Joint Ventures' Leverage Decisions

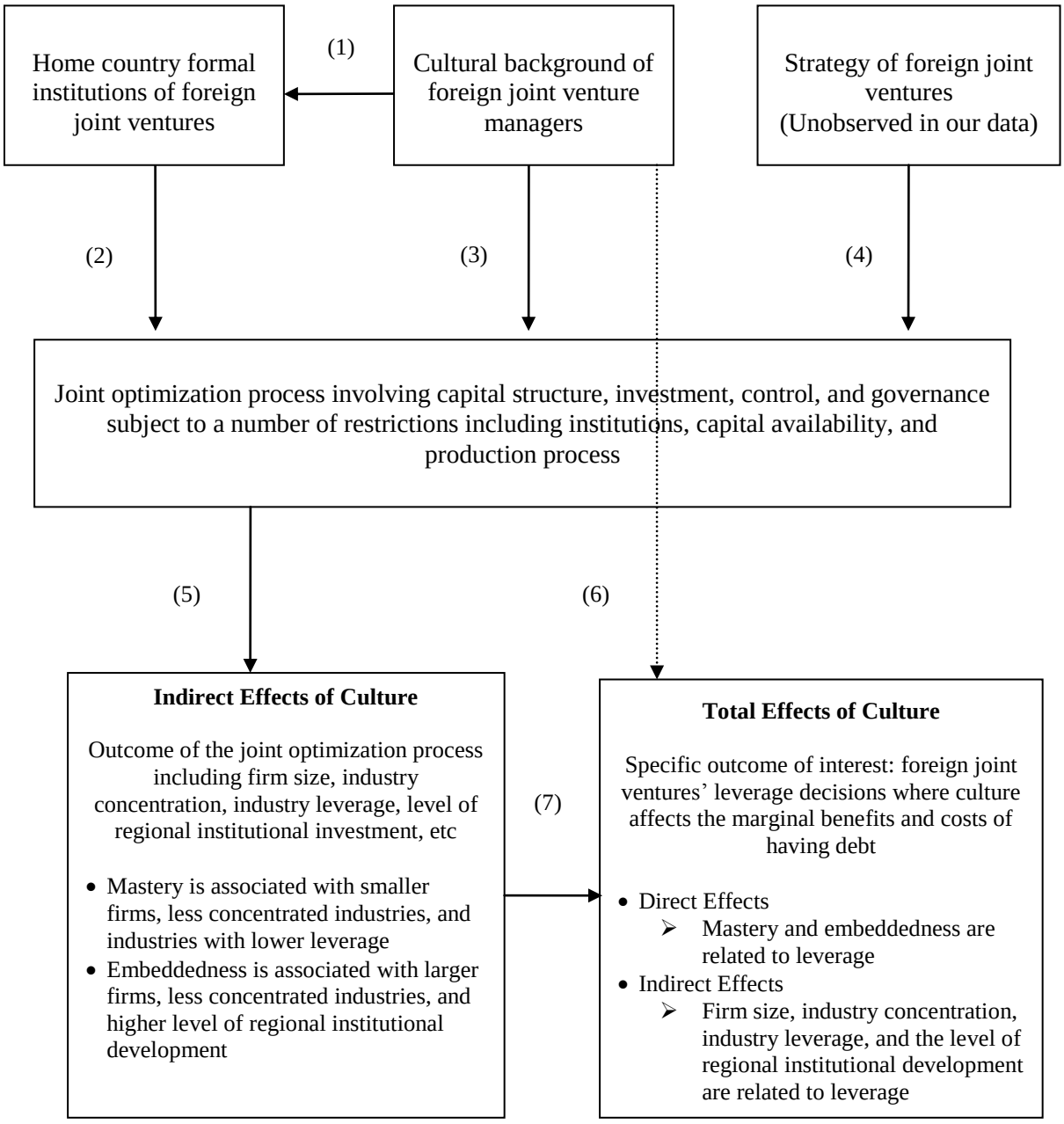

Figure 2. Channels of Influence of Cultural Values on Foreign Joint Ventures' Leverage Decisions

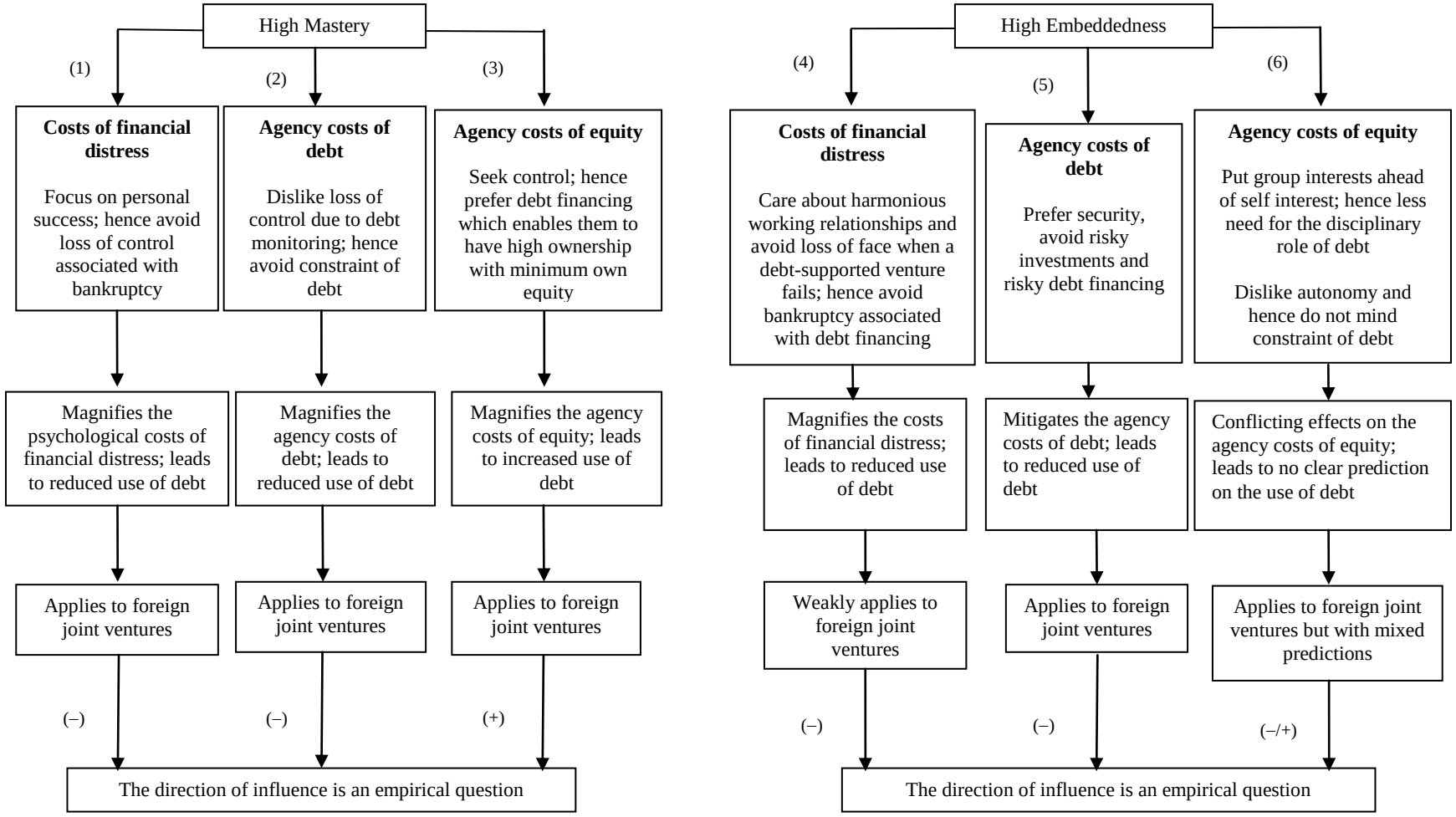

Table 1. Summary Statistics

Our sample contains the population of Chinese manufacturing firms that have foreign investors tracked by the NBS in 2002. We drop observations with negative values of total assets, total liabilities, and sales, and winsorize all firm-level variables at the 1% level in both tails of the distribution. Our final sample has 8,187 foreign joint venture observations where the foreign investor is the majority owner (i.e., foreign ownership > 50%). LEV is measured as the ratio of total liabilities over total assets. STD is the ratio of short-term liabilities over total assets. LTD dummy is set equal to one if the firm has long-term debt, and zero otherwise. Firm size is annual sales measured in millions of RMB yuan. Profitability is earnings before taxes divided by total assets adjusted by the industry median. Asset tangibility is total fixed assets divided by total assets. Asset maturity is the sum of (current assets/total assets) × (current assets/cost of goods sold) and (fixed assets/total assets) × (fixed assets/depreciation), divided by 100. Industry concentration is the Herfindahl index using sales. Foreign ownership is the fraction of paid-in-capital contributed by foreign investors. The marketization index captures the regional institutional development and is from Fan and Wang (2004). Per capita GDP growth is the annual rate of growth in per capita GDP for different provinces and regions. Mastery and embeddedness are from Schwartz (2004). Home country median measures the median value of the foreign joint ventures' home country firms' leverage, short-term debt, and long-term debt. Distance measures the physical distance from the foreign joint venture's home country and China. Panel A presents descriptive statistics of capital structure variables. Panel B presents descriptive statistics of firm characteristics. Panel C presents descriptive statistics of province-level variables. Panel D presents descriptive statistics of various cultural values and country-level controls. Panel E presents the correlation matrix using firm-level observations with P-values in brackets. Panel F presents descriptive statistics of country-level variables using country-level observations. Panel G presents the correlation matrix for country-level variables using country-level observations with p-values in brackets.

Panel A: Leverage Measures

	N	Mean	Std. Dev	5^{th} Percentile	Median	95^{th} Percentile
LEV	8,187	0.466	0.237	0.086	0.464	0.863
STD	8,187	0.436	0.238	0.068	0.429	0.843
LTD dummy	8,187	0.190	0.393	0.000	0.000	1.000

Panel B: Firm-level Characteristics

	N	Mean	Std. Dev	5^{th} Percentile	Median	95^{th} Percentile
Firm Size (in millions)	8,187	78.26	134.8	6.225	28.52	378.8
Log(Firm Size)	8,187	10.43	1.213	8.736	10.26	12.84
Profitability	8,187	0.032	0.113	-0.121	0.008	0.256
Asset Tangibility	8,187	0.347	0.193	0.061	0.333	0.691
Asset Maturity	8,187	0.064	0.103	0.010	0.038	0.173
Industry Concentration	8,187	0.003	0.003	0.001	0.002	0.011
Industry Median LEV	8,187	0.601	0.029	0.556	0.601	0.651
Industry Median STD	8,187	0.525	0.031	0.470	0.522	0.563
Industry Median LTD	8,187	0.317	0.081	0.186	0.307	0.462
Foreign Ownership	8,187	0.914	0.155	0.550	1.000	1.000

Panel C: Province-level Characteristics

	N	Mean	Std. Dev	5th Percentile	Median	95th Percentile
Marketization	8,187	0.816	0.114	0.603	0.854	0.974
Per Capita GDP Growth	8,187	0.098	0.015	0.080	0.093	0.131

Panel D: Country-level Characteristics

	N	Mean	Std. Dev	5th Percentile	Median	95th Percentile
Mastery	8,187	3.873	0.109	3.631	3.881	3.973
Embeddedness	8,187	3.783	0.293	3.188	3.774	4.212
Home country Median LEV	8,187	0.497	0.060	0.440	0.461	0.634
Home country Median STD	8,187	0.300	0.055	0.195	0.287	0.365
Home country Median LTD	8,187	0.076	0.032	0.045	0.067	0.127
Distance (in km)	8,187	4324	3686	959	2125	11236
Log(Distance)	8,187	8.026	0.819	6.866	7.662	9.327

Panel E: The Correlation Matrix of Firm and Regional Characteristics Using Firm-level Observations

	LEV	STD	LTD dummy	Log(Firm size)	Profitability	Asset Tangibility	Asset Maturity	Industry Concentration	Industry Median LEV	Industry Median STD	Industry Median LTD	Foreign Ownership	Marketization
STD	0.921												
	[0.000]												
LTD dummy	0.119	-0.095											
	[0.000]	[0.000]											
Log(Firm Size)	0.052	0.038	0.101										
	[0.000]	[0.001]	[0.000]										
Profitability	-0.234	-0.198	-0.053	0.237									
	[0.000]	[0.000]	[0.000]	[0.000]									
Asset Tangibility	-0.177	-0.240	0.158	0.012	-0.198								
	[0.000]	[0.000]	[0.000]	[0.279]	[0.000]								
Asset Maturity	-0.021	-0.065	0.086	-0.027	-0.066	0.373							
	[0.056]	[0.000]	[0.000]	[0.016]	[0.000]	[0.000]							
Industry Concentration	-0.007	-0.002	0.002	0.199	0.066	-0.053	-0.025						
	[0.501]	[0.893]	[0.849]	[0.000]	[0.000]	[0.000]	[0.022]						
Industry Median LEV	-0.030	-0.040	0.036	0.059	0.042	0.026	-0.006	-0.021					
	[0.007]	[0.000]	[0.001]	[0.000]	[0.000]	[0.017]	[0.597]	[0.055]					
Industry Median STD	-0.004	0.015	-0.032	0.029	0.065	-0.090	-0.058	-0.038	0.680				
	[0.697]	[0.177]	[0.004]	[0.009]	[0.000]	[0.000]	[0.000]	[0.001]	[0.000]				
Industry Median LTD	-0.047	-0.075	0.078	0.083	0.015	0.098	0.043	0.164	0.504	-0.216			
	[0.000]	[0.000]	[0.000]	[0.000]	[0.189]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]			
Foreign Ownership	0.041	0.036	0.004	-0.081	-0.040	0.050	0.017	-0.035	-0.089	-0.008	-0.123		
	[0.000]	[0.001]	[0.704]	[0.000]	[0.000]	[0.000]	[0.122]	[0.002]	[0.000]	[0.499]	[0.000]		
Marketization	0.011	0.038	-0.063	0.011	-0.027	-0.068	-0.031	-0.006	-0.048	0.048	-0.106	0.150	
	[0.313]	[0.001]	[0.000]	[0.314]	[0.016]	[0.000]	[0.005]	[0.582]	[0.000]	[0.000]	[0.000]	[0.000]	
Per Capita GDP Growth	0.062	0.064	0.048	-0.015	0.067	-0.004	-0.001	-0.023	0.047	0.080	-0.051	-0.018	0.003
	[0.000]	[0.000]	[0.000]	[0.185]	[0.000]	[0.699]	[0.907]	[0.037]	0.[0.000]	[0.000]	[0.000]	[0.104]	[0.771]

Panel F: Country-level Characteristics Using the Country-level Observations

	N	Mean	Std. Dev	5th Percentile	Median	95th Percentile
Mastery	32	3.810	0.182	3.569	3.793	4.162
Embeddedness	32	3.640	0.376	3.081	3.561	4.349
Home country Median LEV	32	0.531	0.090	0.386	0.536	0.654
Home country Median STD	32	0.294	0.055	0.190	0.300	0.385
Home country Median LTD	32	0.107	0.055	0.024	0.107	0.195
Distance (in km)	32	7860	4273	1645	7785	16911
Log(Distance)	32	8.793	0.668	7.405	8.960	9.736

Panel G: The Correlation Matrix Using the Country-level Observations

	Mastery	Embeddedness	Home Country Median LEV	Home Country Median STD	Home Country Median LTD
Embeddedness	0.089 [0.629]				
Home Country Median LEV	-0.074 [0.689]	-0.580 [0.001]			
Home Country Median STD	0.044 [0.809]	-0.231 [0.204]	0.701 [0.000]		
Home Country Median LTD	-0.017 [0.926]	-0.536 [0.002]	0.637 [0.000]	0.302 [0.093]	
Log(Distance)	-0.095 [0.604]	-0.341 [0.056]	0.118 [0.519]	-0.234 [0.198]	0.365 [0.040]

Table 2. Capital Structure Regressions

Our sample contains the population of Chinese manufacturing firms that have foreign investors tracked by the NBS in 2002. We drop observations with negative values of total assets, total liabilities, and sales, and winsorize all firm-level variables at the 1% level in both tails of the distribution. Our final sample has 8,187 foreign joint venture observations where the foreign investor is the majority owner (i.e., foreign ownership > 50%). LEV is measured as the ratio of total liabilities over total assets. STD is the ratio of short-term liabilities over total assets. LTD dummy is set equal to one if the firm has long-term debt, and zero otherwise. Firm size is annual sales measured in millions of RMB yuan. Profitability is earnings before taxes divided by total assets adjusted by the industry median. Asset tangibility is total fixed assets divided by total assets. Asset maturity is the sum of (current assets/total assets) × (current assets/cost of goods sold) and (fixed assets/total assets) × (fixed assets/depreciation), divided by 100. Industry concentration is the Herfindahl index using sales. Foreign ownership is the fraction of paid-in-capital contributed by foreign investors. The marketization index captures the regional institutional development and is from Fan and Wang (2004). Per capita GDP growth is the annual rate of growth in per capita GDP for different provinces and regions. Mastery and embeddedness are from Schwartz (2004). Home country median measures the median value of the foreign joint ventures' home country firms' leverage, short-term debt, and long-term debt. Distance measures the physical distance from the foreign joint venture's home country and China. For each different leverage measure (LEV, STD, or LTD dummy), we present estimation results under two model specifications. OLS/Probit gives the regression results using standard cross-sectional regressions with robust standard errors clustering at the province level. HLM (Probit) gives the regression results using the Hierarchical Linear Model specification where the right-hand side variables are decomposed into firm-level deviations and country-level means. Standard errors are in parentheses.

	LEV			STD			LTD dummy		
	OLS	HLM		OLS	HLM		Probit	HLM (Probit)	
		_firmdev	_ctrymean		_firmdev	_ctrymean		_firmdev	_ctrymean
Firm Characteristics									
Firm Size	0.030***	0.030***	0.048*	0.026***	0.027***	0.025	0.135***	0.126***	0.496***
	(0.002)	(0.002)	(0.025)	(0.002)	(0.002)	(0.021)	(0.019)	(0.014)	(0.150)
Profitability	-0.668***	-0.670***	-1.186***	-0.610***	-0.608***	-0.834***	-0.818***	-0.793***	-2.899
	(0.033)	(0.023)	(0.293)	(0.033)	(0.023)	(0.310)	(0.153)	(0.161)	(2.117)
Asset Tangibility	-0.326***	-0.314***	-0.995***	-0.377***	-0.370***	-0.929***	0.909***	0.873***	1.743
	(0.016)	(0.014)	(0.179)	(0.019)	(0.014)	(0.193)	(0.085)	(0.094)	(1.266)
Asset Maturity	0.124***	0.118***	0.843**	0.066***	0.061**	0.314	0.423***	0.485***	-6.477**
	(0.020)	(0.025)	(0.415)	(0.019)	(0.025)	(0.491)	(0.104)	(0.156)	(2.881)
Industry Concentration	-2.020*	-2.041**	-12.860	-1.536	-1.508*	-31.570*	-8.055*	-7.705	-61.760
	(1.096)	(0.826)	(16.250)	(1.158)	(0.824)	(17.570)	(4.685)	(5.636)	(109.900)
Industry Median	-0.118	-0.112	0.518	0.027	0.032	-3.103**	0.973***	0.976***	-1.900
	(0.138)	(0.085)	(1.583)	(0.114)	(0.078)	(1.359)	(0.175)	(0.215)	(3.070)
Foreign Ownership	0.072***	0.063***	0.296*	0.056**	0.050***	0.429***	0.250*	0.281**	-1.592
	(0.024)	(0.016)	(0.171)	(0.021)	(0.016)	(0.152)	(0.136)	(0.112)	(1.079)
Province Characteristics									
Marketization	-0.090***	-0.071***	-0.303*	-0.028	-0.018	-0.187	-0.747***	-0.712***	0.537
	(0.024)	(0.023)	(0.165)	(0.024)	(0.023)	(0.165)	(0.244)	(0.155)	(1.117)
Per capita GDP Growth	1.378***	1.262***	6.518**	1.306***	1.242***	6.523**	6.044***	5.957***	19.982
	(0.206)	(0.158)	(2.751)	(0.204)	(0.158)	(2.729)	(1.868)	(1.063)	(19.238)
Country Characteristics									
Mastery	-0.076**		-0.090***	-0.128***		-0.121***	0.307*		0.602**
	(0.032)		(0.033)	(0.029)		(0.035)	(0.162)		(0.244)
Embeddedness	-0.014		0.001	-0.006		-0.037	-0.184**		0.146
	(0.015)		(0.027)	(0.012)		(0.025)	(0.077)		(0.124)
Home Country Median	-0.384***		-0.282**	-0.631***		-0.342***	-3.121**		-2.908**
	(0.093)		(0.143)	(0.050)		(0.123)	(1.219)		(1.290)
Distance	0.001		0.004	-0.032***		-0.007	0.096***		0.116*
	(0.006)		(0.009)	(0.007)		(0.010)	(0.030)		(0.065)
Intercept	0.763***		0.466***	1.109***		0.436***	-4.170***		-0.926***
	(0.195)		(0.002)	(0.190)		(0.002)	(0.769)		(0.017)
Number of Observations	8,187			8,187			8,187		
Adjusted R^2/Pseudo R^2	0.14			0.16			0.052		

Table 3. Indirect Effects of Country-level Variables

To explore the indirect effects of cultural values and home country leverage on foreign joint ventures' leverage decision, we present estimation results under the HLM specification. Standard errors are in parentheses. Panel A presents regressions of firm-level and province-level characteristics on country-level variables: mastery, embeddedness, log(distance), and home country firms' median leverage. Panel B presents regressions of firm-level and province-level characteristics on country-level variables: mastery, embeddedness, log(distance), and home country firms' median short-term debt. Panel C presents regressions of firm-level and province-level characteristics on country-level variables: mastery, embeddedness, log(distance), and home country firms' median long-term debt.

Panel A: Explaining Firm-level and Province-level Characteristics Using Cultural Values, Home Country Median Leverage, and Distance

	Log(Firm Size)	Profitability	Asset Tangibility	Asset Maturity	Industry Concentration	Industry Median LEV	Foreign Ownership	Marketization	Per Capita GDP Growth
Mastery	-1.201**	0.046	-0.061	0.033	-0.002***	-0.018**	0.024	0.019	-0.006*
	(0.457)	(0.033)	(0.054)	(0.029)	(0.001)	(0.007)	(0.046)	(0.033)	(0.003)
Embeddedness	-0.269	-0.031	0.001	-0.001	-0.001	-0.005	0.025	0.053**	0.002
	(0.286)	(0.021)	(0.034)	(0.018)	(0.000)	(0.005)	(0.029)	(0.021)	(0.002)
Home Country Median LEV	2.191*	-0.015	-0.128	-0.099	0.001	0.002	-0.051	0.061	0.005
	(1.135)	(0.082)	(0.134)	(0.072)	(0.002)	(0.018)	(0.115)	(0.083)	(0.008)
Log(Distance)	-0.196	0.005	-0.050***	-0.002	-0.000	-0.002	-0.024*	0.022**	0.001
	(0.132)	(0.010)	(0.016)	(0.008)	(0.000)	(0.002)	(0.013)	(0.010)	(0.001)
Intercept	0.146	0.007	0.019	0.009	-0.000	0.000	-0.012	-0.013	-0.001
	(0.129)	(0.009)	(0.015)	(0.008)	(0.000)	(0.002)	(0.013)	(0.009)	(0.001)
Number of Observations	32	32	32	32	32	32	32	32	32
Adjusted R^2	0.32	0.06	0.26	0.02	0.31	0.13	0.12	0.15	0.02

Panel B: Explaining Firm-level and Province-level Characteristics Using Cultural Values, Home Country Median Short-term Debt, and Distance

	Log(Firm Size)	Profitability	Asset Tangibility	Asset Maturity	Industry Concentration	Industry Median STD	Foreign Ownership	Marketization	Per Capita GDP Growth
Mastery	-1.247**	0.046	-0.057	0.037	-0.002***	-0.022**	0.026	0.017	-0.006*
	(0.483)	(0.033)	(0.053)	(0.029)	(0.001)	(0.008)	(0.046)	(0.033)	(0.003)
Embeddedness	-0.524*	-0.028	0.008	0.005	-0.001**	-0.005	0.028	0.051***	0.001
	(0.263)	(0.018)	(0.029)	(0.016)	(0.000)	(0.004)	(0.025)	(0.018)	(0.002)
Home Country Median STD	1.213	0.027	-0.232	-0.154	0.000	0.013	-0.084	0.124	0.003
	(1.723)	(0.118)	(0.191)	(0.102)	(0.002)	(0.029)	(0.166)	(0.118)	(0.012)
Log(Distance)	-0.188	0.006	-0.056***	-0.005	-0.000	0.002	-0.025*	0.025**	0.001
	(0.148)	(0.010)	(0.016)	(0.009)	(0.000)	(0.002)	(0.014)	(0.010)	(0.001)
Intercept	0.182	0.006	0.019	0.009	-0.000	-0.005**	-0.012	-0.013	-0.001
	(0.135)	(0.009)	(0.015)	(0.008)	(0.000)	(0.002)	(0.013)	(0.009)	(0.001)
Number of Observations	32	32	32	32	32	32	32	32	32
Adjusted R^2	0.24	0.06	0.27	0.03	0.30	0.20	0.12	0.17	0.02

Panel C: Explaining Firm-level and Province-level Characteristics Using Cultural Values, Home Country Median Long-term Debt, and Distance

	Log(Firm Size)	Profitability	Asset Tangibility	Asset Maturity	Industry Concentration	Industry Median LTD	Foreign Ownership	Marketization	Per Capita GDP Growth
Mastery	-1.297***	0.043	-0.052	0.039	-0.002***	-0.011	0.024	0.018	-0.006*
	(0.427)	(0.032)	(0.047)	(0.026)	(0.001)	(0.030)	(0.046)	(0.034)	(0.003)
Embeddedness	-0.254	-0.015	-0.021	-0.007	-0.001*	-0.015	0.037	0.047**	0.001
	(0.248)	(0.018)	(0.027)	(0.015)	(0.000)	(0.017)	(0.027)	(0.020)	(0.002)
Home Country Median LTD	4.900***	0.201	-0.603***	-0.291**	0.001	0.015	0.075	0.038	0.007
	(1.720)	(0.127)	(0.188)	(0.106)	(0.003)	(0.120)	(0.187)	(0.136)	(0.014)
Log(Distance)	-0.307**	0.002	-0.039***	0.004	-0.000	-0.010	-0.024*	0.021**	0.001
	(0.127)	(0.009)	(0.014)	(0.008)	(0.000)	(0.009)	(0.014)	(0.010)	(0.001)
Intercept	0.147	0.004	0.022	0.010	-0.000	0.015*	-0.014	-0.012	-0.001
	(0.119)	(0.009)	(0.013)	(0.007)	(0.000)	(0.008)	(0.013)	(0.009)	(0.001)
Number of Observations	32	32	32	32	32	32	32	32	32
Adjusted R^2	0.41	0.14	0.45	0.18	0.30	-0.07	0.12	0.14	0.02

Table 4. Economic Significance of Culture

To assess the economic significance of the effects of cultural values on foreign joint ventures' leverage decisions, we first compute the change in mastery from the 25th percentile to the 75th percentile using our sample of 32 countries: ΔMastery = 75th percentile – 25th percentile = 0.2388. Similarly, we compute the change in embeddedness from the 25th percentile to the 75th percentile using our sample of 32 countries: ΔEmbed = 75th percentile – 25th percentile = 0.5272. Row (1) in each table below presents the coefficients from the indirect effect regression in Table 3. Row (2) reports the product of the Row (1) coefficients and the percentile change in mastery: ΔMastery (embeddedness: ΔEmbed). Row (3) displays the coefficients from the direct effect regression in Table 2. Row (4) presents the product of the Row (2) and Row (3) coefficients which is the indirect effect due to specified changes in a cultural value. The sum of indirect effects is the sum of all coefficients in Row (4). The direct effect is the product of the coefficient on mastery (embeddedness) in Table 2 and the percentile change in mastery–ΔMastery (embeddedness–ΔEmbed). The total effect is the sum of indirect and direct effects. Panel A presents the economic significance of the effects of culture on leverage. Panel B presents the economic significance of the effects of culture on short-term debt. Panel C presents the economic significance of the effects of culture on the likelihood of having long-term debt. Row (5) in Panel C presents the marginal effects regarding the probability of having long-term debt.

Panel A: Economic Significance of the Effects of Culture on Leverage

	Log(Firm Size)	Profitability	Asset Tangibility	Asset Maturity	Industry Concentration	Industry Median LEV	Foreign Ownership	Marketization	Per Capita GDP Growth	**Sum of Indirect Effects**	**Direct Effect**	**Total Effect**
Mastery												
(1)	-1.2010	0.0460	-0.0610	0.0330	-0.0020	-0.0180	0.0240	0.0190	-0.0060			
*(2)=(1)*ΔMastery*	-0.2868	0.0110	-0.0146	0.0079	-0.0005	-0.0043	0.0057	0.0045	-0.0014			
(3)	0.0480	-1.1860	-0.9950	0.8430	-12.860	0.5180	0.2960	-0.3030	6.5180		-0.0900	
(4)=(2)(3)*	-0.0138	-0.0130	0.0145	0.0066	0.0061	-0.0022	0.0017	-0.0014	-0.0093	**-0.0108**	**-0.0215**	**-0.0323**
Embeddedness												
(1)	-0.2690	-0.0310	0.0010	-0.0010	-0.0010	-0.0050	0.0250	0.0530	0.0020			
*(2)=(1)*ΔEmbed*	-0.1418	-0.0163	0.0005	-0.0005	-0.0005	-0.0026	0.0132	0.0279	0.0011			
(3)	0.0480	-1.1860	-0.9950	0.8430	-12.8600	0.5180	0.2960	-0.3030	6.5180		0.0010	
(4)=(2)(3)*	-0.0068	0.0194	-0.0005	-0.0004	0.0068	-0.0014	0.0039	-0.0085	0.0069	**0.0193**	**0.0005**	**0.0199**

Panel B: Economic Significance of the Effects of Culture on Short-term Debt

	Log(Firm Size)	Profitability	Asset Tangibility	Asset Maturity	Industry Concentration	Industry Median STD	Foreign Ownership	Marketization	Per Capita GDP Growth	**Sum of Indirect Effects**	**Direct Effect**	**Total Effect**
Mastery												
(1)	-1.2470	0.0460	-0.0570	0.0370	-0.0020	-0.0220	0.0260	0.0170	-0.0060			
*(2)=(1)*ΔMastery*	-0.2978	0.0110	-0.0136	0.0088	-0.0005	-0.0053	0.0062	0.0041	-0.0014			
(3)	0.0250	-0.8340	-0.9290	0.3140	-31.570	-3.103	0.4290	-0.1870	6.5230		-0.1210	
(4)=(2)(3)*	-0.0074	-0.0092	0.0126	0.0028	0.0151	0.0163	0.0027	-0.0008	-0.0093	**0.0228**	**-0.0289**	**-0.0061**
Embeddedness												
(1)	-0.5240	-0.0280	0.0080	0.0050	-0.0010	-0.0050	0.0280	0.0510	0.0010			
*(2)=(1)*ΔEmbed*	-0.2762	-0.0148	0.0042	0.0026	-0.0005	-0.0026	0.0148	0.0269	0.0005			
(3)	0.0250	-0.8340	-0.9290	0.3140	-31.570	-3.103	0.4290	-0.1870	6.5230		-0.0370	
(4)=(2)(3)*	-0.0069	0.0123	-0.0039	0.0008	0.0166	0.0082	0.0063	-0.0050	0.0034	**0.0319**	**-0.0195**	**0.0124**

Panel C: Economic Significance of the Effects of Culture on the Likelihood of Foreign Joint Ventures' Having Long-term Debt

	Log(Firm Size)	Profitability	Asset Tangibility	Asset Maturity	Industry Concentration	Industry Median LTD	Foreign Ownership	Marketization	Per Capita GDP Growth	**Sum of Indirect Effects**	**Direct Effect**	**Total Effect**
Mastery												
(1)	-0.2540	0.0430	-0.0520	0.0390	-0.0020	-0.0110	0.0240	0.0180	-0.0060			
*(2)=(1)*ΔMastery*	-0.3097	0.0103	-0.0124	0.0093	-0.0005	-0.0026	0.0057	0.0043	-0.0014			
(3)	0.4960	-2.8990	1.7430	-6.4770	-61.760	-1.9000	-1.5920	0.5370	19.9820		0.6020	
(4)=(2)(3)*	-0.1536	-0.0298	-0.0216	-0.0603	0.0295	0.0050	-0.0091	0.0023	-0.0286	-0.2663	0.1438	-0.1226
(5) Marginal effect	-0.0399	-0.0077	-0.0056	-0.0157	0.0077	0.0013	-0.0024	0.0006	-0.0074	**-0.0692**	**0.0374**	**-0.0318**
Embeddedness												
(1)		-0.0150	-0.0210	-0.0070	-0.0010	-0.0150	0.0370	0.0470	0.0010			
*(2)=(1)*ΔEmbed*	-0.1339	-0.0079	-0.0111	-0.0037	-0.0005	-0.0079	0.0195	0.0248	0.0005			
(3)	0.4960	-2.8990	1.7430	-6.4770	-61.760	-1.9000	-1.5920	0.5370	19.9820		0.1460	
(4)=(2)(3)*	-0.0664	0.0229	-0.0193	0.0239	0.0326	0.0150	-0.0311	0.0133	0.0105	0.0015	0.0770	0.0785
(5) Marginal effect	-0.0173	0.0060	-0.0050	0.0062	0.0085	0.0039	-0.0081	0.0035	0.0027	**0.0004**	**0.0200**	**0.0204**