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**2007-005**

## DEBT AND EXPROPRIATION

Mara Faccio, Larry H. P. Lang, and Leslie Young\*

We regress leverage on an index of corporate exposure to expropriation by the controlling shareholder — the ratio of his ownership rights  $O$  to his control rights  $C$  — and on an index of creditor rights. Amongst corporations that can access related party loans, a lower  $O/C$  ratio increases leverage when creditor protection is weak; but reduces leverage where creditor protection is strong. In the first case, higher leverage gives the controlling shareholder control of more resources to expropriate. In the second case, minority shareholders and external lenders constrain the leverage of group affiliates that seemed more vulnerable to expropriation.

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## **DEBT AND EXPROPRIATION**

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## I. Introduction

The role of debt in corporate governance depends on how governance is exercised, i.e., on the structure of corporate ownership and control. Default on corporate debt might not affect the professional manager's net worth, but would certainly devastate his reputation and career. This would not be a concern for the controlling shareholder of a corporate group, who employs himself as top manager and can borrow through a group affiliate from a group bank. By pyramiding, he can control corporations and banks at the base with a low ownership stake, then use bank loans to transfer resources up to the top of the pyramid, expropriating shareholders and bank depositors at the bottom. Thus, debt could constrain the expropriation of dispersed shareholders by professional managers, as in the U.S.; yet it could facilitate the expropriation of minority shareholders and bank depositors by the controlling shareholders of the corporate groups that dominate the business scene in Europe and Asia.<sup>1</sup> This paper seeks to distinguish between these two roles of debt by considering the ownership, control and leverage of all listed corporations with credible accounting data in the five largest European economies and nine East Asian economies.

In their pioneering analysis of the agency problems between professional managers and dispersed corporate shareholders, Jensen and Meckling (1976) argued that debt constrains managerial expropriation by imposing fixed obligations on corporate cash flow. This argument was further developed by Jensen (1986, 1989) in the context of leveraged buyouts, which forced

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<sup>1</sup> La Porta, Lopez-de-Silanes and Zamarripa (2002) show that related party lending represents in Mexico a substantial fraction of funds borrowed by firms. Extensive evidence of looting is also found in Russia and Chile, particularly within business groups that include banks (Akerlof and Romer, 1993, Laeven, 2001). On the other hand, Krozner and Strahan (2001) argue that board linkages between banks and non-financial firms did not systematically lead to conflicts of interests, or a misuse of funds in the US.

managers to disgorge their corporations' free cash flow, replacing equity with debt.<sup>2</sup> Underlying the constraint that debt imposes on managerial expropriation in the U.S. is the role of reputation in the manager market (Fama and Jensen (1983a,b)). Although the manager is not personally liable for his corporation's debts, default would trigger winding-up proceedings that would force him to search for re-employment, just when his reputation had been crippled. However, debt could play a different role in corporate governance if the key decisions were made by a manager whose reputation and career are not tied specifically to the corporation liable for the debt and/or the debt is provided, not at arms length, but by a bank that shared a controlling shareholder with the corporation.

In contrast to the US, many corporations in Europe and Asia have a controlling block of shares held by one shareholder, who also appoints the top managers, so that the key agency problem is between the controlling and the minority shareholders. The controlling shareholder often exerts control through a pyramid structure, controlling corporations lower down the pyramid through corporations higher up the pyramid.<sup>3</sup> If the controlling shareholder owns 100% of corporation X, that owns 60% of corporation Y, that owns 25% of corporation Z, then its ownership rights in Z are  $O = 100\% \times 60\% \times 25\% = 15\%$ , yet, via its majority control of X and Y, its control rights in Z are  $C = 25\%$  — usually enough for effective control. By directing Z to buy goods or assets from X at a premium, the controlling shareholder expropriates 100% -15% of the

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<sup>2</sup> Easterbrook (1984) argues that debt forces managers to be accountable to the external capital market. Lang et al. (1996) document that debt curtails investment by firms with poor prospects, and that leverage increases when growth opportunities are less (see also Kim and Sorensen (1986), Titman and Wessels (1988)). Maloney et al. (1993) document that leverage improves managerial decision-making on key issues like acquisitions.

<sup>3</sup> See, e.g., La Porta et al. (1999).

premium from Z's other shareholders.<sup>4</sup>

Within a corporate pyramid, increased indebtedness by an affiliate need not constrain expropriation by the controlling shareholder because the debt can be rolled over by group banks, recycled into external loans guaranteed by other affiliates, or reshuffled ahead of auditors to other affiliates by intra-group loans or transfer pricing. Even a default by the affiliate need not damage the reputation of the manager/controlling shareholder if the affiliation is through obscure control webs passing through several layers of the pyramid. In any case, reputational damage can be shrugged off by a manager/controlling shareholder who employs himself within the pyramid, in contrast to the severe problems that default would cause a professional manager thrown onto the external manager market tainted by clear responsibility for the defaulting firm. Thus, the higher fixed obligations implied by the affiliate's higher debt need not constrain the controlling shareholder more tightly. On the contrary, it could facilitate expropriation of the affiliate by allowing the controlling shareholder to control more resources without diluting his control stake or assuming more liabilities directly.<sup>5</sup> Those expropriated can include not only minority shareholders, but also creditors left with uncollectible debt and taxpayers forced to bail out the financial system endangered thereby.

How to determine whether debt constrains expropriation, as argued by Jensen *et al.*, or facilitates expropriation, as argued above? Our approach is to regress corporate leverage on an

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<sup>4</sup> Backman (1999) provides many examples of such related-party transactions in Asian corporate groups, which were a major cause of the Asian Financial Crisis.

<sup>5</sup> In a U.S. context, Harris and Raviv (1988) and Stulz (1988) argue that controlling shareholders may use leverage to inflate the voting power of their shares, and reduce the discipline of the market for corporate control. Stulz (1988) shows that managers who value control very highly rely primarily on debt financing in order to minimize dilution of their equity stakes in the firm, thus making the firm less vulnerable to hostile takeover.

index of the corporation's exposure to expropriation by the controlling shareholder — the ratio of his ownership rights  $O$  to his control rights  $C$  — and on an index of creditor rights in the corporation's jurisdiction. Amongst companies with no access to related party loans, the  $O/C$  ratio and the quality of creditor protection have insignificant impacts on leverage. Amongst companies that can access related party loans, the  $O/C$  ratio has a significantly negative impact on leverage in economies where creditor protection is weak; but a significantly positive impact in economies where creditor protection is strong. In the first case, it appears that higher leverage gives the controlling shareholder control of more resources to expropriate. In the second case, it appears that minority shareholders and external lenders constrain the leverage of group affiliates that seem more vulnerable to expropriation.

Section II describes our data and Section III the regression variables. Our regression results are reported in Section IV and interpreted in Section V. Section V concludes.

## **II. Data**

We consider the 5 largest West European economies (France, Germany, Italy, Spain, and the U.K.) and 9 East Asian economies (Hong Kong, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand). The 1996 accounting data of all corporations listed in these countries is taken from the Worldscope database. We eliminate corporations reporting data that are not credible (i.e., negative debt or negative sales), and corporations with missing data on short-term debt, long-term debt, book or market value of equity, total assets, sales, earnings, or income taxes. We also exclude corporations whose main or secondary two-digit SIC is in the financial industry (SIC: 60-69), because their leverage ratios do not bear on agency issues. The 1996-97 ownership and group affiliation data on these corporations are taken from Worldscope, national stock exchanges, national company handbooks and the other sources listed

in Appendices A and B. The network of indirect ownership via other corporations is traced back in order to identify all the ultimate owners of each corporation that own at least 5% of its shares. For these corporations, we also compute the control stake of any ultimate owner that maintains a chain of control over that corporation that includes at least 5% of the control rights at each link.<sup>6</sup> This ownership and control data is taken from Claessens et al. (2000) for East Asia and from Faccio and Lang (2000) for Western Europe. The screening up to this point leaves 3964 non-financial corporations. Further screening is required to ensure that our sample of corporations account for debt on a consistent basis, in particular, in consolidating accounts with subsidiaries.

Consolidation forces the assets and liabilities of each subsidiary to be recognized in the accounts of the parent corporation. This can significantly affect our measures of leverage in some countries. Rajan and Zingales (1995) noted that, in the year a corporation consolidates its accounts, its debt-to-capital ratio increases, on average, by 5% over the previous year. This suggests that if our sample included a parent corporation with unconsolidated accounts, then we would typically be under-recording its leverage compared to a similar corporation with consolidated accounts.<sup>7</sup> To ensure consistency in the reporting of debt, we eliminate all 435 corporations reporting unconsolidated accounts, as well as 81 corporations that provided no information about whether or not their accounts were consolidated. This elimination biases our empirical results against the conclusion that debt facilitates expropriation. This is because some eliminated corporations could have been using debt booked to subsidiaries to expropriate, while

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<sup>6</sup> The same 5% cut-off was used by La Porta et al. (1999) and Claessens et al. (1999a).

<sup>7</sup> In our sample, industry and country-adjusted leverage ratios are significantly higher (at the 1% level) for companies reporting consolidated accounts (88.8% of the total); for the first measure of leverage defined in Section IIIA, the difference is 7.9%, for the second it is 12.3%.

avoiding account consolidation legitimately or illegitimately.<sup>8</sup>

We define control of a corporation as direct or indirect holdings of its voting stock that sum to at least 20 percent.<sup>9</sup> We define a corporation to be “group-affiliated” if it meets one of the following criteria: (i) it is controlled by a shareholder via pyramiding, i.e., indirectly via a chain of other corporations in the sample; (ii) it controls another corporation in the sample; (iii) it has the same controlling shareholder as at least one other corporation in the sample; (iv) its controlling shareholder is a corporation or financial institution that is “widely-held” in that no shareholder holds 10% or more of the voting rights<sup>10</sup>. We define a corporation to have access to related party loans if it belongs to a group that also controls a financial institution<sup>11</sup>.

The consolidated accounts of a parent corporation recognize the assets and liabilities of the subsidiaries that they “control”, as defined in the accounting rules of their host country. This accounting definition is typically much more restrictive than ours. For example, the European Union Directive 7/83 requires a parent corporation to produce consolidated accounts if it holds a majority of the subsidiary’s voting rights, or controls the majority of its board. Therefore,

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<sup>8</sup> Though by the end of our sample period, most companies had moved to consolidated accounts, this was true for only 63.6% of companies in Korea, 78% in Germany, and 80.9% in Japan. Therefore, we have screened out a significant number of firms from these countries, thereby understating the role of some large groups, such as the Korean chaebols. After our screening, Hyundai and Lucky Goldstar have only 8 group affiliates each. Chaebol became famous after the Asian financial crisis for using subsidiaries to “park” debt out of the sight of auditors of the parent.

<sup>9</sup> Researchers typically use either the 20 percent or the 10 percent standard; we obtain similar results with the 10 percent standard.

<sup>10</sup> Such corporations have the same incentive and opportunity to manipulate the corporations that they control as the controlling shareholder of a corporate pyramid. The same definition was used in Claessens et al. (1999b). Khanna and Palepu (2000) use a different definition.

<sup>11</sup> Financial institutions include banks, insurance companies, mutual funds, private pension funds, merchant banks and venture capitalists. Similar results are obtained if we confine financial institutions to banks.

corporation A might control corporation B in our sense of holding at least 20% of B's voting rights, yet A would not control B in the accounting sense, so A and B would not consolidate their accounts. Conversely, corporation A could control an unlisted corporation B in the accounting sense — and therefore consolidate their accounts — yet A and B would not, on that basis, be affiliated to a group according to our definition, which requires that a group include at least two listed firms. Thus, affiliation to the same group in our sense is neither necessary nor sufficient for two firms to consolidate their accounts.

Our definition of a “group” brings our empirical analysis to bear on listed corporations that typically have many outside shareholders, who might be expropriated by the controlling shareholder. Therefore, our analysis incorporates debt between two listed corporations affiliated to the same group, provided that neither is controlled by the other in the accounting sense; such debt is relevant to the agency issues addressed in this paper. Our analysis ignores debt between a listed corporation and the unlisted subsidiaries that it controls in the accounting sense, which is eliminated by consolidation; such debt is not relevant to agency issues since it is hardly likely to constrain the management of the parent corporation, nor to facilitate expropriation in view of its transparency in the consolidated accounts. Our analysis excludes the unlisted subsidiaries of corporations reporting consolidated accounts; these subsidiaries usually have a few block shareholders and thus are not exposed to the agency problems which are our focus. Non-financial companies do not consolidate account with financial firms, so our leverage measures include loans from group banks and financial companies.

Our analysis will be based on the 3448 non-financial corporations known to have consolidated accounts. A significant policy implication of our research is that it would be desirable to require account consolidation at the much lower levels of control where we find evidence of expropriation.

### III. Regression Variables

We regress corporate leverage on two variables associated with agency problems: the O/C ratio, and creditor rights as a proxy for institutional quality, plus variables to control for other factors which might have a systematic impact on leverage, and therefore might induce spurious correlations. The regression variables are now described.

#### *A. Leverage*

We define debt as the sum of long-term and short-term financial debt. This excludes non-financial liabilities, such as accounts payable, provisions for pensions, deferred taxes, and other provisions for future liabilities. Two alternative measures of leverage are used:

- The debt/total asset ratio ( $D/TA$ ), where total assets includes debt, non-financial liabilities, and shareholder equity.
- The debt/(debt+equity) ratio ( $D/(D+E)$ ), where the denominator includes debt and shareholder equity, but excludes all non-financial liabilities.

Book values are used rather than market values, which already reflect market expectations of expropriation.

#### *B. Ownership and Control of Corporations*

Dispersed shareholders have difficulty concerting their actions, so the largest shareholder can control a corporation if it holds enough voting shares. For each corporation in our sample, we identify the “controlling shareholder”, if any, i.e., the largest shareholder holding at least a 20 percent of control rights, a standard of control used in earlier studies such as La Porta et al. (1999) and Claessens et al. (2000). If the controlling shareholder is a corporation or financial institution, then we identify its owners, its owners' owners, etc. If the controlling shareholder is an unlisted company, then we consider the corporation to be family controlled (with the

exception of corporations controlled by unlisted financial institutions). We do not distinguish amongst family members as shareholders, but use the family as the unit of analysis.

The controlling shareholder of a corporate group can gain control rights in a corporation  $Z$  in excess of its ownership rights by pyramiding, i.e., owning  $Z$  indirectly through other corporations. If it owns a fraction  $x$  of the shares of corporation  $X$ , which owns a fraction  $y$  of the shares in corporation  $Y$ , which owns a fraction  $z$  of the shares in  $Z$ , then via this ownership chain, it owns a fraction  $xyz$  of the shares of  $Z$ . However, its share of the control rights of  $Z$  via this control chain can be measured by its weakest link, i.e., the minimum of  $x$ ,  $y$  and  $z$ . Let  $O$  be the controlling shareholder's share of the ownership rights in a corporation and let  $C$  be its share of the control rights, aggregated over all control chains. The  $O/C$  ratio will be low if it controls the corporation via long chains of intermediate corporations, so that it has the ability and incentive to expropriate minority shareholders via unfairly-priced intra-group transactions. Like Bebchuk et al. (1998), Claessens et al. (1999a), La Porta et al. (2000), and Faccio et al. (2001), we use  $O/C$  to quantify a corporation's vulnerability to expropriation because its conceptual simplicity facilitates exposition and empirical analysis. Since  $O/C$  might fail to reflect this vulnerability fully, our regressions are biased toward finding insignificant results.

### *C. Creditor Rights*

We use the index of creditor protection developed in LaPorta, Lopez-de-Silanes, Shleifer and Vishny (1998), which aggregates 4 categories of creditor rights. To test for the impact of creditor protection on the relationship between leverage and vulnerability to expropriation, we also include the product of the Creditor Rights index with  $O/C$  as an independent variable in the regression.

#### *D. Tobin's Q*

Tobin's  $Q$  is the ratio of market value of equity plus book value of debt to the sum of book value of equity plus book value of debt. The empirical evidence in the U.S. is that corporations with a high  $Q$  tend to have low leverage. Rajan and Zingales (1995) report a negative relationship between leverage and the market-to-book ratio for a sample of large corporations in the U.S., Germany, France, United Kingdom and Canada.<sup>12</sup> Tobin's  $Q$  is often interpreted as a proxy for a corporation's growth opportunities.<sup>13</sup> Titman (1984), Bradley, Jarrell and Kim (1984), Titman and Wessels (1988), and Maksimovic and Titman (1991), amongst others, find a negative relationship between leverage and other proxies for growth opportunities, such as the human capital of its employees, the brand image of its products, or other intangible assets that cannot be accepted as collateral by prudent lenders.<sup>14</sup> This negative relationship is also consistent with Myers' (1977) analysis of debt overhang as a constraint on a corporation's willingness to undertake positive NPV projects financed by stockholders because this would benefit bondholders. Higher-growth corporations might exhibit lower leverage because they face higher

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<sup>12</sup> However, the relationship is not significant in Italy and Japan when a book value measure of leverage is used; it becomes significant when leverage is measured at market value. McConnell and Servaes (1995) find that for high growth firms,  $Q$  is negatively affected by leverage; for low growth firms, they find a positive correlation between  $Q$  and leverage. Lang et al (1996) find that higher levels of leverage have a negative impact on the growth of the firm when  $Q < 1$ , but a positive (though insignificant) impact when  $Q > 1$ . They argue that debt disciplines management when  $Q < 1$ , preventing them from investing in negative NPV projects. For firms with  $Q > 1$ , (i.e., good investment opportunities) high leverage does not constrain management.

<sup>13</sup> Another widely-used proxy for growth opportunities is the historical sales growth rate, which we used as a check, but without finding any significant difference in the results. The use the  $Q$ -ratio is supported by the consideration that lenders should be more concerned about future growth (i.e., ability to pay back debt) rather than historical growth.

<sup>14</sup> Some studies of the U.K. (e.g., Lasfer (1995)) also find a negative relationship between leverage and growth.

costs of financial distress (Fama and French (1992))<sup>15</sup>. We control separately for this latter risk via the ratio of earnings before interest, taxes and depreciation (EBITDA) to interest expenses — see the discussion of bankruptcy risk below.

#### *E. Firm Size*

This is measured by the logarithm of the corporation's total assets,  $Ln(TA)$ . Rajan and Zingales (1995) argue that size could proxy for the probability of default, which is higher for smaller firms. On the other hand, larger, more visible firms suffer less from informational asymmetry, have easier access to equity markets and, therefore, should be less levered. Mixed evidence is provided by Hoshi, Scharfstein and Kashyap (1990), Kester (1986), Kim and Sorensen (1986), and Rajan and Zingales (1995).

#### *F. Asset Tangibility*

This is measured by the ratio of fixed to total assets ( $Tangib$ ). Rajan and Zingales (1995), argue that fixed assets are easier to collateralize, and so reduce the agency costs of debt. However, Berger and Udell (1994) argue that this relationship would be weaker in relationship-oriented economies. Myers (1977) suggests that the debt overhang problem would be less for corporations with tangible assets, which could imply a positive association between leverage and tangible assets. Harris and Raviv (1990) argue that corporations with more tangible assets have a higher liquidation value, which increases the usefulness of information to stockholders; since debt provides them information (e.g., on the corporation's ability to service debt), they require higher leverage in corporations with more tangible assets.

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<sup>15</sup> The preceding studies do not control for this possibility in analyzing the relationship between leverage and growth, so it is not possible to distinguish between the two hypotheses.

### *G. Volatility.*

We control for volatility using asset betas; see Table 1 for computational details. In line with Myers (1977), leverage has been found to decrease with operating risk (Kim and Sorensen (1986)) and return volatility (Bradley, Jarrell and Kim (1984)).

### *H. Bankruptcy Risk.*

Harris and Raviv (1990) find that leverage is negatively correlated with the interest coverage ratio and the probability of reorganization following default. Ross (1977) and Harris and Raviv (1990), amongst others, find that leverage is positively related to the probability of default. To control for bankruptcy risk, we rank corporations in ascending order of the ratio of earnings before interest, taxes and depreciation (EBITDA) to interest expense. *BankrDec* assigns corporations to their decile in this ranking. Corporations in the first decile, with the lowest ratio of EBITDA to interest expense, face the most difficulty in meeting interest payments. This variable indirectly accounts for profitability also, since higher values of the EBITDA/interest expense ratio imply higher profitability.<sup>16</sup> Thus, we do not further control for profitability.

Friedman, Johnson, and Mitton (2003) argue that entrepreneurs can use debt to prop up their corporations when they get into financial distress, thereby retaining the option for future expropriation (“tunnelling”). Our analysis shall control for financial distress in the form of bankruptcy risk, allowing us to focus on other ways in which debt might facilitate expropriation, which might be captured through the impact of the O/C ratio on leverage.

### *I. Diversification.*

We measure diversification by the number of different two-digit SIC industries in which the

firm operates (*NoSic*), following Lang and Stulz (1994). Diversification can affect leverage in at least two ways. First, through diversification, a corporation can reduce its firm-specific risk, indicating higher leverage. Second, diversified corporations might be able to access internal capital markets, indicating lower consolidated leverage.

#### IV. Regressions

Table 1 summarizes the regression variables, broken down by economy of origin: the number of corporations in our sample, creditor rights, the percentage of corporations that can access related party loans, leverage, and Tobin's Q. Table 1 also reports the results of tests for differences between the mean leverage of subsets of corporations that we conjecture have different exposures to expropriation. We find that corporations that can borrow from related parties have significantly higher leverage than those that cannot; corporations in economies with weak creditor rights (index < 3) have significantly higher leverage than those with strong creditor rights (index  $\geq 3$ ); corporations where the ownership and control rights of the controlling shareholder are identical ( $O/C = 1$ ) have significantly lower leverage (as measured by the ratio of debt to debt plus equity) than corporations where  $O/C < 1$ .

[Table 2 about here]

The significant difference between the leverage of corporations that can/cannot access related party loans leads us to carry out separate regressions for corporations in these two categories. The observations for a given country may be affected by factors special to that country, such as accounting conventions, so we adjust the standard errors for clustering at the country level and

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<sup>16</sup> Harris and Raviv (1990) summarize the literature on the relationship between leverage and profitability. Kester (1986) documents that leverage is inversely related to profitability in the U.S. and Japan.

for heteroskedasticity. Adjusted p-values are reported in parentheses below our coefficient estimates.

Table 2 Panel A displays our results for corporations that can access related party loans. Leverage is significantly higher for corporations that are more vulnerable to expropriation in that they have a lower O/C ratio, and are domiciled where creditor protection is weaker. The significantly positive coefficient on the product of the O/C ratio and the index of creditor protection indicates that, in economies with better creditor protection, a higher O/C ratio has a more positive — or less negative — impact on leverage. Of the other control variables in the regression, we find that leverage is positively related to size, and is negatively related to the corporation's riskiness and exposure to bankruptcy.

By contrast, Panel B shows that neither the O/C ratio nor the quality of creditor protection has a significant impact on the leverage of companies that cannot access related party loans, either because they do not belong to a corporate group, or because their group does not include a financial institution.

Might the O/C ratio have been chosen by the controlling shareholder to facilitate leverage? To cope with this possibility of an endogenous O/C ratio, we require an instrumental variable for O/C that is correlated with the private benefits of control, but is independent of leverage. Like Gompers, Ishii and Metrick (2007), we define a dummy equal to 1 if the company's name includes the name of any of its top officers (CEO, chairman of the board, president, a vice-president, or secretary of the board), as reported in *Worldscope*, and 0 otherwise. By construction, this non-pecuniary variable cannot be influenced by the financial attributes of a company, such as leverage. However, it reflects non-pecuniary private benefits that the

controlling shareholder can extract from the firm, so it should be correlated with the firm's control structure.

[Table 3 about here]

Table 3 reports the estimated coefficients and associated p-values (in parentheses) of two-stage least squares (2SLS) regressions with this instrumental variable for the O/C ratio. The results are similar to those in Table 2, indicating that those results were not biased by an endogenous O/C ratio.

Tables 2 and 3 report a significantly positive interaction between the impact of the O/C ratio and the index of creditor protection on leverage. This leads us to partition our sample of firms that can access related party loans between those in economies with good creditor protection (index  $\geq 3$ ) and those in economies with poor creditor protection (index  $< 3$ ). Table 4 displays the results of separate two-stage least squares regressions for these two sub-samples using the same instrumental variable for the O/C ratio as before. For countries with good creditor protection, corporations that have a lower O/C ratio have significantly lower leverage. The reverse is true for countries with poor creditor protection.

## V. Interpretation

Our regressions are inconsistent with the hypothesis that debt constrains expropriation, but are consistent with the hypothesis that debt facilitates expropriation. In countries with good creditor protection, firms that are more exposed to expropriation through having a lower O/C ratio ought to have higher leverage, under the hypothesis that debt constrains expropriation. Our finding of a positive relationship between O/C and leverage is inconsistent with this hypothesis, but is consistent with the hypothesis that debt facilitates expropriation. Good creditor protection prevents controlling shareholders from using related party transactions to exploit bank depositors

and minority shareholders. Indeed, minority shareholders, as well as external lenders, would tend to become more cautious about loans undertaken by corporations with a lower O/C ratio, recognizing their greater exposure to expropriation by the controlling shareholder. This would account for our finding that such corporations tend to have lower leverage.

In countries with poor creditor protection, corporate leverage is likely to be controlled by the controlling shareholder. Therefore, under the hypothesis that debt constrains expropriation, a corporation that is more exposed to expropriation through a lower O/C ratio should tend to have lower leverage, as the controlling shareholder seeks to relax the constraints imposed by debt. Hence, our finding that a lower O/C ratio is associated with higher leverage is inconsistent with the hypothesis that debt constrains expropriation. However, our finding is consistent with the hypothesis that debt facilitates expropriation: under this hypothesis, a corporation that is more exposed to expropriation through a lower O/C ratio should tend to have higher leverage, as the controlling shareholder uses debt to secure more resources that he can pass up the pyramid via related-party transactions.

## **VI. Conclusions**

Our empirical results for companies that can access related party lending are inconsistent with Jensen's hypothesis that debt constrains expropriation, but are consistent with the hypothesis that debt facilitates expropriation. Jensen's hypothesis presumed that debt-holders monitor management — implausible for corporations whose controlling shareholder also controls the financial institution making the loan. The controlling shareholder can hardly be using debt to monitor himself. On the contrary, a corporation that can access related party loans can exploit the financial institution's shareholders and depositors. Indeed, a higher level of debt might mislead shareholders who believe that creditors are monitoring the management and are

therefore more willing to invest in a highly-levered company.

Our analysis identifies two groups of potential victims of expropriation via debt: the banks' shareholders and depositors, and minority shareholders of the indebted company. Thus, when creditor protection is poor, the controlling shareholder might allocate capital where he can expropriate a high private return, rather than where the capital earns the highest social return. In this way, poor creditor protection can facilitate the inefficient allocation of capital. This illustrates how poor capital market institutions can impede economic growth, a point previously emphasized by authors such as Demirgüç-Kunt and Maksimovic (1998), Greenwood and Jovanovic (1990), Levine (1997), and Rajan and Zingales (1998).

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**APPENDIX A: DATA SOURCES FOR EAST ASIAN CORPORATIONS (FROM CLAESSENS, DJANKOV & LANG (2000))**

Country	Immediate Ownership Data	Dual-Class Shares	Business Groups: Pyramids and Cross-Holdings
Hong Kong	Worldscope (1998) Asian Company Handbook (1998) Hong Kong Stock Exchange (1997)	Datastream International (1998)	Chu, Yin-Wah and Gary Hamilton, 1993, Business Networks in Hong Kong, University of California, Davis, mimeo. Taylor, Michael, 1998, "Have Cash, Will Travel," <i>Far Eastern Economic Review</i> , Special Section on the Li Ka-Shing Conglomerate, March 5. Hong Kong Stock Exchange (1997).
Indonesia	Worldscope (1998) Asian Company Handbook (1998) Institute for Economic and Financial Research (1996)	Datastream International (1998) Institute for Economic and Financial Research (1996)	Fisman, Ray, 1998, Announcement Effects of Suharto's Illnesses on Related Companies, Harvard Business School, mimeo, September. W.I.Carr Banque Indosuez Group, 1997, Indonesian Group Connections, Jakarta, Indonesia Indobusiness, 1998, 1995 Ranking of the Largest Indonesian Conglomerates, available at <a href="http://indobiz.com/company/warta/conglo/htm">http://indobiz.com/company/warta/conglo/htm</a>
Japan	Worldscope (1998) Japan Company Handbook (1998)	Datastream International (1998)	Dodwell Marketing Consultants, 1997, Industrial Groupings in Japan: the Anatomy of the Keiretsu," 12 <sup>th</sup> Edition, 1996/1997, Tokyo, Japan. Sato, Kazuo, 1984, "The Anatomy of Japanese Businesses," M.E.Sharpe, Chapter 4.
South Korea	Worldscope (1998) Asian Company Handbook (1998)	Datastream International (1998)	Korean Fair Trade Commission, 1997, 1996 List of the Largest 30 Chaebol, Seoul, Korea. Lim, Ungki, 1998, Ownership Structure and Family Control in Korean Conglomerates: with Cases of the 30 Largest Chaebol, Seoul University, Korea.

## APPENDIX A (CONTINUED)

Country	Immediate Ownership Data	Dual-Class Shares	Business Groups: Pyramids and Cross-Holdings
Malaysia	Worldscope (1998) Asian Company Handbook (1998)	Datastream International (1998) Kuala Lumpur Stock Exchange (1997)	Hiscock, Geoff, 1998, Asia's Wealth Club, Nicholas Brealey. <a href="http://www.ambg.com.my">http://www.ambg.com.my</a> for A-M Banking Group <a href="http://www.berjaya.com.my">http://www.berjaya.com.my</a> for Berjaya Group <a href="http://www.simenet.com">http://www.simenet.com</a> for Sime Darby Group <a href="http://www.lion.com.my">http://www.lion.com.my</a> for Lion Group <a href="http://www.hongleong-group.com.sg">http://www.hongleong-group.com.sg</a> for Hong Leong Group
Philippines	Worldscope (1998) Asian Company Handbook (1998) Philippine Stock Exchange (1997)	Datastream International (1998) Philippine Stock Exchange (1997)	Philippine Stock Exchange, 1997, Investment Guide 1996, Manila. Tan, Edita, 1993, Interlocking Directorates, Commercial Banks, Other Financial Institutions, and Non-Bank Corporations, Philippine Review of Economics and Business, 30, 1-50. Singapore Stock Exchange, 1997, Singapore Company Handbook.
Singapore	Worldscope (1998) Asian Company Handbook (1998)	Datastream International (1998) Singapore Stock Exchange (1997)	Hiscock, Geoff, 1998, Asia's Wealth Club, Nicholas Brealey.
Taiwan	Worldscope (1998) Asian Company Handbook (1998)	Datastream International (1998)	China Credit Information Service, 1997, Business Groups in Taiwan, 1996-1997, Taipei, Republic of China. Baum, Julian, 1994, The Money Machine, <i>Far Eastern Economic Review</i> , August 11, for the corporate holdings of the Kuomintang.
Thailand	Worldscope (1998) Asian Company Handbook (1998) Securities Exchange of Thailand (1997)	Datastream International (1998) Securities Exchange of Thailand (1997)	Tara Siam, 1997, Thai Business Groups 1996-1997: A Unique Guide to Who Owns What, Bangkok, Thailand. <i>The Nation</i> , 1998, Thai Tycoons: Winners and Losers in the Economic Crisis, Special Issue, July. Vatikiotis, Michael, 1997, From Chickens to Microchips: the Story of Thai Conglomerates, <i>Far Eastern Economic Review</i> , January 23.

**APPENDIX B: SOURCES OF OWNERSHIP AND CONTROL DATA FOR WEST EUROPEAN CORPORATIONS**

Country	Immediate Ownership Data	Dual-Class Shares	Business Groups
France	The Herald Tribune (1997), "French Company Handbook 1997", SFB-Paris Bourse Financial Times (1997): "Extel Financial" Worldscope (1998) <a href="http://www.bourse-de-paris.fr/fr/market8/fsg830.htm">http://www.bourse-de-paris.fr/fr/market8/fsg830.htm</a>	Datastream (1999) Financial Times (1997): "Extel Financial" Les Echos (1996) Muus (1998)	The Herald Tribune (1997), "French Company Handbook 1997", SFB-Paris Bourse Financial Times (1997): "Extel Financial"
Germany	Commerzbank (1997): "Wer gehört zu wem" ( <a href="http://www.commerzbank.com/navigate/date_frm.htm">http://www.commerzbank.com/navigate/date_frm.htm</a> ) Financial Times (1997): "Extel Financial" Worldscope (1998)	Datastream (1999) Financial Times (1997): "Extel Financial" Die Welt (1996) Becht and Boehmer (1998)	Commerzbank (1997): "Wer gehört zu wem" Extel Financial
Italy	CONSOB (1997): "Bollettino - edizione speciale n. 4/97 - Compagine azionaria delle società quotate in borsa o ammesse alle negoziazioni nel mercato ristretto al 31 dicembre 1996" ( <a href="http://www.consob.it/trasparenza_soc_quot/trasp_soc_quot.htm">http://www.consob.it/trasparenza_soc_quot/trasp_soc_quot.htm</a> ) Il Sole 24 ore (1997): "Il taccuino dell'azionista"	Datastream (1999) Il Sole 24 ore (1997): "Il taccuino dell'azionista"	Il Sole 24 ore (1997): "Il taccuino dell'azionista" <a href="http://www.fiatgroup.com/it/informazioni/if2informaz-1.htm">http://www.fiatgroup.com/it/informazioni/if2informaz-1.htm</a> <a href="http://www.olivetti.it/group/">http://www.olivetti.it/group/</a> <a href="http://www.pirelli.com/company/index.htm">http://www.pirelli.com/company/index.htm</a>
Spain	Comision Nacional del Mercado de Valores (1998): "Participaciones significativas en sociedades cotizadas" ( <a href="http://www.cnmv.es/english/cnmve.htm">http://www.cnmv.es/english/cnmve.htm</a> )	Datastream (1999) Financial Times (1997): "Extel Financial" ABC (1996) Crespi-Cladera and Garcia-Cestona (1998)	Comision Nacional del Mercado de Valores (1998): "Participaciones significativas en sociedades cotizadas" ( <a href="http://www.cnmv.es/english/cnmve.htm">http://www.cnmv.es/english/cnmve.htm</a> ) Extel Financial Extel Financial
United Kingdom	Financial Times (1997): "Extel Financial" London Stock Exchange (1997): "The London Stock Exchange Yearbook" Financial Times Worldscope (1998) <a href="http://www.hemscott.com/equities/company/">http://www.hemscott.com/equities/company/</a>	Datastream (1999) Financial Times (1997): "Extel Financial" Financial Times (1996)	

**TABLE 1: ACCESS TO RELATED PARTY LENDING, OWNERSHIP/CONTROL & MEAN LEVERAGE RATIOS BY COUNTRY**

The sample includes 3,448 non-financial corporations with consolidated accounts at the end of 1996. *Creditor rights* is the index of creditor protection developed in LaPorta, Lopez-de-Silanes, Shleifer and Vishny (1998). The index aggregates 4 categories of creditor rights. *% corps in a group that controls some financial institution* is the percentage of companies that are affiliated to a group that includes at least one financial institution (e.g., a company with SIC code 6000-6999). A corporation is “group-affiliated” if it satisfies one of the following criteria: (i) it is controlled by a shareholder via pyramiding, i.e., indirectly through a chain of corporations; (ii) it controls another corporation in the sample; (iii) it has the same controlling shareholder as some other corporation in the sample; (iv) its controlling shareholder is a widely-held corporation or a widely-held financial institution. *O/C* is the ratio of ownership rights (e.g., the claims on the company's cash flows by the largest ultimate controlling shareholder) to voting rights (voting stake held by the largest controlling shareholder), for corporations with an ultimate owner who owns at least 5% of the shares. *D/TA* is the ratio of book value of short and long term financial debt to total assets (%). *D/(D+E)* is the ratio of book value of short and long term financial debt to the sum of book value of debt plus book value of equity (ordinary and preferred) (%). *Q* is the ratio of market value of (ordinary and preferred) equity plus the book value of debt divided by the book value of equity plus the book value of debt. <sup>a</sup>, <sup>b</sup>, and <sup>c</sup> denote significance at the 1%, 5%, and 10% levels, respectively.

Country	Number of corps	Creditors rights	% corps in a group that controls some financial institution	O/C	D/TA	D/(D+E)	Q
<b>Panel A: Summary statistics</b>							
France	372	0	11.56	0.941	22.23	36.68	1.61
Germany	309	3	13.59	0.835	23.00	41.75	1.90
HK	212	4	21.70	0.882	24.49	30.63	1.43
Indonesia	81	4	40.74	0.789	35.32	41.45	1.40
Italy	96	2	28.13	0.720	22.82	37.68	1.19
Japan	832	2	64.42	0.596	33.12	47.58	1.38
Malaysia	149	4	23.49	0.844	24.55	32.23	2.91
Philippines	36	0	36.11	0.873	23.64	27.91	1.73
Singapore	145	4	3.45	0.794	22.52	27.79	1.77
South Korea	138	3	38.41	0.908	52.30	69.43	0.99
Spain	82	2	25.61	0.920	18.98	28.77	1.67
Taiwan	83	2	0.00	0.851	25.06	29.17	2.05
Thailand	70	3	12.86	0.939	40.58	47.47	1.35
U.K	843	4	43.42	0.833	17.57	28.17	2.22
All	3,448	2.74	35.64	0.794	25.95	37.99	1.74
<b>Panel B: T-statistics for differences between means</b>							
Strong ( $\geq 3$ ) vs. weak ( $< 3$ ) creditors rights					-4.20 <sup>a</sup>	-6.68 <sup>a</sup>	0.46 <sup>a</sup>
Corporations affiliated vs. non-affiliated to a group that controls some financial institution					3.46 <sup>a</sup>	2.03 <sup>a</sup>	-0.17 <sup>a</sup>
O/C = 1 vs O/C < 1 corporations					-1.05	-2.07 <sup>b</sup>	4.10 <sup>a</sup>

**TABLE 2: OLS REGRESSIONS OF LEVERAGE ON THE OWNERSHIP/CONTROL RATIO BY ACCESS TO RELATED PARTY LENDING**

The sample includes 1,229 corporations affiliated to a group that controls some financial institution and 2,219 corporations that are not affiliated to any group that controls a financial institution. The regressions use ordinary least squares.  $D/TA$  is the ratio of book value of short and long term financial debt to total assets.  $D/(D+E)$  is the ratio of book value of short and long term financial debt to the sum of book value of debt plus book value of equity (ordinary and preferred).  $O/C$  is the ratio of ownership rights (e.g., the claims on the company's cash flows by the largest ultimate controlling shareholder) to voting rights (voting stake held by the largest controlling shareholder), for corporations with an ultimate owner who owns at least 5% of the shares.  $Q$  is the ratio of market value of (ordinary and preferred) equity plus the book value of debt divided by the book value of equity plus the book value of debt. *Creditor rights* is the index of creditor protection developed in LaPorta, Lopez-de-Silanes, Shleifer and Vishny (1998). The index aggregates 4 categories of creditor rights.  $Ln(TA)$  is the natural logarithm of the book value of total assets.  $NoSic$  is the number of different two-digit SIC code sectors in which the firm reports at least 10% of sales.  $Tangib$  is the ratio of fixed to total assets.  $\beta_A$  is the asset beta. We first define a corporation's equity beta as  $\beta_s = \frac{\sigma_I \rho_{I,M}}{\sigma_M}$ , where  $\sigma_I$  is the standard deviation of its stock return,  $\rho_{I,M}$  is the

correlation coefficient between its stock return and the return on the market index (see below), and  $\sigma_M$  is the standard deviation of the market return. Standard deviations and correlation coefficients are computed using the monthly stock returns over the period Jan 1994 to Dec 1996; for corporations that went public through 1994 the period is Jan 1995 to Dec 1996. We assume that the beta of debt equals zero, and compute the asset beta from the relation  $\beta_A = \frac{S\beta_s}{B(1-t_c) + S}$ ,

where  $S$  is the market value of equity,  $B$  is the book value of debt, and  $t_c$  is the corporation's tax rate. The latter is computed by dividing its taxes by pretax income. The market indexes used are: France: SBF 250; Germany: Faz Aktien; Hong Kong: Hang Seng Index; Indonesia: Jakarta Composite Index; Italy: Banca Commerciale Italy Index; Japan: Nikkei Dow; Malaysia: KLSE Composite Index; Philippines: Philippines S.E. Composite Index; Singapore: Straits Times Industrial; South Korea: South Korea Composite Index; Spain: Madrid Stock Exchange; Taiwan: Weighted Price Index; Thailand: Bangkok Stock Exchange Index; United Kingdom: FT Index. *BankrDec* is the company's bankruptcy decile. We first rank corporations in ascending order of their ratio of earnings before interest, taxes and depreciation (EBITDA) to interest expenses. *BankrDec* assigns corporations to their decile in this ranking. Corporations in the first decile have the lowest (typically negative) EBITDA per unit of interest costs, and face the most difficulty in meeting interest payments. All regressions include industry fixed-effects. P-values, adjusted for heteroskedasticity and clustering at the country level, are reported in parentheses below the coefficients estimates.

Panel A: Corporations affiliated to a group that controls some financial institution (N=1,229)

Dependent Variable:	O/C	Q	Creditors rights	O/C* Cred. rights	Ln(TA)	NoSic	Tangib	$\beta_A$	BankrDec	Intercept	Adj. R <sup>2</sup>	Prob > F
D/TA	-0.158 (0.00)	0.007 (0.51)	-0.062 (0.01)	0.049 (0.00)	0.032 (0.00)	0.007 (0.37)	-0.020 (0.71)	-0.075 (0.00)	-0.058 (0.00)	0.520 (0.00)	45.6%	0.00
D/(D+E)	-0.120 (0.01)	-0.005 (0.41)	-0.050 (0.00)	0.044 (0.01)	0.018 (0.00)	0.005 (0.33)	0.122 (0.01)	-0.051 (0.00)	-0.041 (0.00)	0.369 (0.00)	46.9%	0.00

Panel B: Corporations non-affiliated to a group that controls a financial institution (N=2,219)

Dependent Variable:	O/C	Q	Creditors rights	O/C* Cred. rights	Ln(TA)	NoSic	Tangib	$\beta_A$	BankrDec	Intercept	Adj. R <sup>2</sup>	Prob > F
D/TA	-0.121 (0.20)	0.000 (0.98)	-0.039 (0.18)	0.033 (0.21)	0.028 (0.00)	0.002 (0.78)	0.008 (0.87)	-0.043 (0.15)	-0.053 (0.00)	0.452 (0.00)	41.3%	0.00
D/(D+E)	-0.085 (0.21)	-0.005 (0.13)	-0.024 (0.28)	0.025 (0.19)	0.016 (0.03)	-0.001 (0.89)	0.132 (0.01)	-0.013 (0.52)	-0.038 (0.00)	0.283 (0.01)	41.4%	0.00

**TABLE 3: 2SLS REGRESSIONS OF LEVERAGE ON THE OWNERSHIP/CONTROL RATIO BY ACCESS TO RELATED PARTY LENDING**

The sample includes 1,229 corporations affiliated to a group that controls some financial institution and 2,219 corporations that are not affiliated to any group that controls a financial institution. This table reports the estimated coefficients and associated p-values (in parentheses) of two-stage least squares (2SLS) regressions in which O/C is treated as endogenous variable. The instrumental variable used is a proxy for non-pecuniary private benefits of control based on the name of the firm. We follow Gompers, Ishii and Metrick (2007), in defining a dummy that takes the value 1 if the company's name includes the name of any of its top officers (CEO, chairman of the board, president, a vice-president, or secretary of the board), as reported in *Worldscope*, and 0 otherwise.  $D/TA$  is the ratio of book value of short and long term financial debt to total assets.  $D/(D+E)$  is the ratio of book value of short and long term financial debt to the sum of book value of debt plus book value of equity (ordinary and preferred).  $O/C$  is the ratio of ownership rights (e.g., the claims on the company's cash flows by the largest ultimate controlling shareholder) to voting rights (voting stake held by the largest controlling shareholder), for corporations with an ultimate owner who owns at least 5% of the shares.  $Q$  is the ratio of market value of (ordinary and preferred) equity plus the book value of debt divided by the book value of equity plus the book value of debt. *Creditor rights* is the index of creditor protection developed in LaPorta, Lopez-de-Silanes, Shleifer and Vishny (1998). The index aggregates 4 categories of creditor rights.  $\ln(TA)$  is the natural logarithm of the book value of total assets.  $NoSic$  is the number of different two-digit SIC code sectors in which the firm reports at least 10% of sales.  $Tangib$  is the ratio of fixed to total assets.  $\beta_A$  is the asset beta. We first define a corporation's equity beta as  $\beta_s = \frac{\sigma_1 \rho_{1M}}{\sigma_M}$ , where  $\sigma_1$  is the standard deviation of its stock return,  $\rho_{1M}$ , is the correlation coefficient between its stock return and the return on the market index

(see below), and  $\sigma_M$  is the standard deviation of the market return. Standard deviations and correlation coefficients are computed using the monthly stock returns over the period Jan 1994 to Dec 1996; for corporations that went public through 1994 the period is Jan 1995 to Dec 1996. We assume that the beta of debt equals zero, and compute the asset beta from the relation  $\beta_A = \frac{S\beta_s}{B(1-t_c)+S}$ , where S is the market value of equity, B is the book value of debt, and  $t_c$  is the

corporation's tax rate. The latter is computed by dividing its taxes by pretax income. The market indexes used are: France: SBF 250; Germany: Faz Aktien; Hong Kong: Hang Seng Index; Indonesia: Jakarta Composite Index; Italy: Banca Commerciale Italy Index; Japan: Nikkei Dow; Malaysia: KLSE Composite Index; Philippines: Philippines S.E. Composite Index; Singapore: Straits Times Industrial; South Korea: South Korea Composite Index; Spain: Madrid Stock Exchange; Taiwan: Weighted Price Index; Thailand: Bangkok Stock Exchange Index; United Kingdom: FT Index. *BankrDec* is the company's bankruptcy decile. We first rank corporations in ascending order of their ratio of earnings before interest, taxes and depreciation (EBITDA) to interest expenses. *BankrDec* assigns corporations to their decile in this ranking. Corporations in the first decile have the lowest (typically negative) EBITDA per unit of interest costs, and face the most difficulty in meeting interest payments. P-values, adjusted for heteroskedasticity and clustering at the country level, are reported in parentheses below the coefficients estimates.

Panel A: Corporations affiliated to a group that controls some financial institution (N=1,229)

Dependent Variable:	O/C	Q	Creditors rights	O/C* Cred. rights	Ln(TA)	NoSic	Tangib	$\beta_A$	BankrDec	Intercept	Prob > F
D/TA	-1.915 (0.02)	0.006 (0.53)	-0.477 (0.01)	0.628 (0.01)	0.024 (0.00)	0.004 (0.52)	0.082 (0.26)	-0.124 (0.00)	-0.058 (0.00)	1.836 (0.00)	0.00
D/(D+E)	-1.559 (0.00)	-0.005 (0.52)	-0.391 (0.00)	0.517 (0.00)	0.011 (0.05)	0.003 (0.57)	0.208 (0.00)	-0.093 (0.00)	-0.041 (0.00)	1.451 (0.00)	0.00

Panel B: Corporations non-affiliated to a group that controls a financial institution (N=2,219)

Dependent Variable:	O/C	Q	Creditors rights	O/C* Cred. rights	Ln(TA)	NoSic	Tangib	$\beta_A$	BankrDec	Intercept	Prob > F
D/TA	-1.809 (0.91)	0.000 (0.98)	-0.542 (0.91)	0.576 (0.92)	0.015 (0.91)	0.009 (0.90)	0.015 (0.95)	-0.057 (0.73)	-0.054 (0.00)	2.167 (0.90)	0.00
D/(D+E)	3.858 (0.82)	-0.009 (0.60)	1.151 (0.82)	-1.245 (0.82)	0.048 (0.72)	-0.017 (0.81)	0.067 (0.79)	0.022 (0.89)	-0.037 (0.00)	-3.707 (0.83)	0.00

**TABLE 4: 2SLS REGRESSIONS OF LEVERAGE BY CREDITOR PROTECTION.**

The sample includes 1,229 corporations affiliated to a group that controls some financial institution. This table reports the estimated coefficients and associated p-values (in parentheses) of two-stage least squares (2SLS) regressions in which O/C is treated as endogenous variable. The instrumental variable used is a proxy for non-pecuniary private benefits of control based on the name of the firm. We follow Gompers, Ishii and Metrick (2007), in defining a dummy that takes the value 1 if the company's name includes the name of any of its top officers (CEO, chairman of the board, president, a vice-president, or secretary of the board), as reported in *Worldscope*, and 0 otherwise.  $D/TA$  is the ratio of book value of short and long term financial debt to total assets.  $D/(D+E)$  is the ratio of book value of short and long term financial debt to the sum of book value of debt plus book value of equity (ordinary and preferred).  $O/C$  is the ratio of ownership rights (e.g., the claims on the company's cash flows by the largest ultimate controlling shareholder) to voting rights (voting stake held by the largest controlling shareholder), for corporations with an ultimate owner who owns at least 5% of the shares.  $Q$  is the ratio of market value of (ordinary and preferred) equity plus the book value of debt divided by the book value of equity plus the book value of debt. *Creditor rights* is the index of creditor protection developed in LaPorta, Lopez-de-Silanes, Shleifer and Vishny (1998). The index aggregates 4 categories of creditor rights.  $Ln(TA)$  is the natural logarithm of the book value of total assets. *NoSic* is the number of different two-digit SIC code sectors in which the firm reports at least 10% of sales. *Tangib* is the ratio of fixed to total assets.  $\beta_A$  is the asset beta. We first define a corporation's equity beta as  $\beta_S = \frac{\sigma_1 \rho_{1M}}{\sigma_M}$ , where  $\sigma_1$  is the standard deviation of its stock return,  $\rho_{1M}$ , is the correlation coefficient between its stock return and the return on the market index (see below), and  $\sigma_M$  is the standard deviation of the market return. Standard deviations and correlation coefficients are computed using the monthly stock returns over the period Jan 1994 to Dec 1996; for corporations that went public through 1994 the period is Jan 1995 to Dec 1996. We assume that the beta of debt equals zero, and compute the asset beta from the relation  $\beta_A = \frac{S\beta_S}{B(1-t_c)+S}$ , where S is the market value of equity, B is the book value of debt, and  $t_c$  is the corporation's tax rate. The latter is computed by dividing its taxes by pretax income. The market indexes used are: France: SBF 250; Germany: Faz Aktien; Hong Kong: Hang Seng Index; Indonesia: Jakarta Composite Index; Italy: Banca Commerciale Italy Index; Japan: Nikkei Dow; Malaysia: KLSE Composite Index; Philippines: Philippines S.E. Composite Index; Singapore: Straits Times Industrial; South Korea: South Korea Composite Index; Spain: Madrid Stock Exchange; Taiwan: Weighted Price Index; Thailand: Bangkok Stock Exchange Index; United Kingdom: FT Index. *BankrDec* is the company's bankruptcy decile. We first rank corporations in ascending order of their ratio of earnings before interest, taxes and depreciation (EBITDA) to interest expenses. *BankrDec* assigns corporations to their decile in this ranking. Corporations in the first decile have the lowest (typically negative) EBITDA per unit of interest costs, and face the most difficulty in meeting interest payments. P-values, adjusted for heteroskedasticity and clustering at the country level, are reported in parentheses below the coefficients estimates.

Panel A: Corporations based in countries with strong ( $\geq 3$ ) creditor rights

Dependent Variable:	O/C	Q	Ln(TA)	NoSic	Tangib	$\beta_A$	BankrDec	Intercept	Prob > F
D/TA	1.430 (0.04)	-0.032 (0.04)	0.015 (0.59)	0.000 (0.98)	-0.154 (0.12)	-0.100 (0.02)	-0.039 (0.00)	-0.507 (0.10)	0.00
D/(D+E)	1.262 (0.02)	-0.036 (0.03)	0.000 (1.00)	0.003 (0.81)	0.003 (0.97)	-0.072 (0.05)	-0.027 (0.00)	-0.454 (0.14)	0.00

Panel B: Corporations based in countries with weak ( $< 3$ ) creditor rights

Dependent Variable:	O/C	Q	Ln(TA)	NoSic	Tangib	$\beta_A$	BankrDec	Intercept	Prob > F
D/TA	-0.811 (0.02)	0.057 (0.32)	0.035 (0.00)	0.010 (0.20)	0.354 (0.05)	-0.087 (0.08)	-0.065 (0.00)	0.587 (0.01)	0.00
D/(D+E)	-0.634 (0.01)	0.030 (0.43)	0.023 (0.05)	0.005 (0.38)	0.437 (0.01)	-0.062 (0.10)	-0.045 (0.00)	0.391 (0.06)	0.00