Creditor rights and corporate risk-taking

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Abstract

We analyze the link between creditor rights and firms' investment policies, proposing that stronger creditor rights in bankruptcy reduce corporate risk-taking. In cross-country analysis, we find that stronger creditor rights induce greater propensity of firms to engage in diversifying acquisitions, which result in poorer operating and stock-market abnormal performance. In countries with strong creditor rights, firms also have lower cash flow risk and lower leverage, and there is greater propensity of firms with low-recovery assets to acquire targets with high-recovery assets. These relationships are strongest in countries where management is dismissed in reorganization, and are observed in time-series analysis around changes in creditor rights. Our results question the value of strong creditor rights as they have an adverse effect on firms by inhibiting management from undertaking risky investments.

Keywords: bankruptcy code, corporate reorganization, investment, diversification

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Abstract

We analyze the link between creditor rights and firms' investment policies, proposing that stronger creditor rights in bankruptcy reduce corporate risk-taking. In cross-country analysis, we find that stronger creditor rights induce greater propensity of firms to engage in diversifying acquisitions, which result in poorer operating and stock-market abnormal performance. In countries with strong creditor rights, firms also have lower cash flow risk and lower leverage, and there is greater propensity of firms with low-recovery assets to acquire targets with high-recovery assets. These relationships are strongest in countries where management is dismissed in reorganization, and are observed in time-series analysis around changes in creditor rights. Our results question the value of strong creditor rights as they have an adverse effect on firms by inhibiting management from undertaking risky investments.

1. Introduction

Through history, default on debt incurred harsh punishment. In biblical time and in ancient Greece, defaulted debtors were enslaved for a number of years or until the debt was fully discharged and during some periods in Rome, default met with physical punishment.[1] The United Kingdom had debtors' prisons until their abolishment in the 1869 Debtors Act. Now, the norm of limited liability reduces creditor rights by limiting the ability to purse debtors when they default on promised payments.[2] Smith and Warner (1979) document that creditors impose restrictions on financial policies of firms through covenants, even prior to default, in order to control managerial actions that could reduce firm value. But Schwartz (1997, p. 127) points out: "When a firm becomes insolvent, however, the state-supplied dispute resolution procedure—the bankruptcy system and court—is mandatory; parties cannot contract in the lending agreement for an alternative procedure." This means that bankruptcy laws which uniformly apply to all firms and have precedence over private firm-specific contracts may lead to inefficient outcomes for some firms.[3]

In this paper, we study the effect of creditor rights in bankruptcy on corporate risk-taking. In particular, we ask: What effect does the strength of creditor rights have on firms' investment decisions? While a harsh penalty in default reduces fraud and opportunistic behavior by debtors, might it also inhibit entrepreneurial, *bona-fide* risky investment?

Research on creditor rights mainly analyzes their effect on *financing* policies. For example, Djankov, McLeish, and Shleifer (2007, 2008) find that stronger creditor rights encourage greater supply of credit as measured by aggregate lending.[4] This evidence supports the view that strong creditor rights help expand the financing capacity of firms

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[1] In 450 BC: The Twelve Tablets, Section III, Debt. Penalties ranged from imprisonment to extracting part of the body.

[2] Europe still has relatively stricter penalties upon bankruptcy, as noted in *The Economist*, 23 March 2002, *Fear of Failure – Europe's fear of bankruptcie:* "In Europe, by contrast [to the United States], failed firms face bigger hurdles. First, in the continent that created the debtor's prison, insolvency is still tainted with moral failure. In some countries, company directors are personally liable for bankruptcy. That steeply raises the penalties for failure – and so deters entrepreneurs from taking risks."

[3] This is why Schwartz (1997) proposes that the state avails to firms a menu of several bankruptcy procedures. Then, allowing parties flexibility in contracting for preferred bankruptcy procedures alleviates underinvestment arising due to strong creditor rights.

[4] Haselmann, Pistor and Vig (2006) find that the improvement in enforcement of creditor rights in Central and East European countries through the creation of a collateral registry boosted lending.

by limiting the ability of owners to opportunistically expropriate firm value, and thereby reduce the costs that result from the conflict of interests between owners and providers of debt capital (Jensen and Meckling (1976)). Other studies, such as Acharya, Sundaram and John (2004) show theoretically and empirically that corporate leverage responds negatively to stronger creditor rights, relatively more so for firms with greater specificity of assets. Vig (2007) finds that in India, improvement in the rights of secured creditors lowered the usage of secured corporate debt.

In contrast, this paper studies the link between creditor rights and corporate *investment* policy, and the effect of creditor rights on firms' demand for credit. We propose that stronger creditor rights induce firms to make risk-reducing investments such as diversifying acquisitions that are potentially inefficient and value-reducing. The reason is that strong creditor rights in default can lead to inefficient liquidation that extinguishes the continuation option of firm's enterprise and hurts stockholders. Also, creditor rights that mandate the dismissal of management impose an additional private cost on managers. To avoid these costs, shareholders and managers lower the likelihood of distress by diversifying or reducing cash flow risk. Such risk reduction can result in value loss and foregoing of profitable investments, and thereby strong creditor rights can result in dead-weight costs to firms and to the economy at large. We also propose that while stronger creditor rights increase the propensity to lend, they may reduce the firms' willingness to borrow, resulting in lower overall level of corporate debt.

Our empirical analysis studies the effects of creditor rights on the risk-taking activities of firms. We use as an explanatory variable the variation of creditor rights across countries in their bankruptcy codes, documented by La Porta et al. (1998), which are largely a function of the country's legal origin and exogenous to the nature of the country's overall corporate investments.

We employ several different measures of corporate risk-taking and examine their relationship to creditor rights across countries and over time. We find the following:

(1) Stronger creditor rights in a country are associated with a greater propensity to do diversifying acquisitions, across industries as well as across countries.[5] The value effect of diversifying acquisitions – as measured by abnormal stock-market returns at the acquisition announcement – is negative for countries with stronger creditor rights. And, diversifying acquisitions in countries with stronger creditor rights are associated with lower subsequent profitability, measured by the return on assets (*ROA*). These results are obtained after accounting for the selection of the type of acquisition (diversifying or focusing) by the firm. Such negative value and operating performance effects associated with stronger creditor rights are not observed for focusing acquisitions.

(2) In countries with stronger creditor rights, firms choose a mode of operation that reduces cash flow risk, measured by the standard deviation of firms' *ROA*.

We obtain these results both in tests at the level of individual acquisitions or firms and at an aggregate country level. Overall, these results are strongest (statistically as well as economically) for the creditor rights corresponding to (i) whether there is no automatic stay on the debtor's assets in bankruptcy and (ii) whether management is dismissed in bankruptcy. For example, dismissal in bankruptcy reduces the likelihood of a merger being in the same industry by 6.6% (based on Table 3) where the standard deviation of this likelihood across countries is 10.3%, and it lowers the cash flow risk measured at the country level by around 3% (based on Table 5), where the cross-country standard deviation of cash flow risk is 2%. Thus, the effect of creditor rights on corporate investment policy and corporate risk taking seems large. We also examine the effect of creditor rights at the *industry* level because countries differ in the composition of their industries, and industries may differ in the propensity to diversify or reduce risk. We obtain that the findings in (1) and (2) above still hold. In addition, we find that

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[5] We focus on M&As because they provide a unique opportunity to observe a major corporate investment and its effect on corporate risk – whether the acquisition is diversifying (across industries) or focusing (within-industry). In M&As, we can also identify whether the assets in which the company invests are of high or low recovery value. Also important for our setting, corporate investment in the form of M&A decisions is not tainted by cross-country differences in reporting practices that affect other measures of investment such as capital expenditures and R&D.

(3) In countries with stronger creditor rights, companies have lower financial leverage, after controlling for both country-level and firm-level variables that affect leverage. These results are notable because proponents of stronger creditor rights posit that they have a positive effect on lending. However, stronger creditor rights may inhibit borrowing, resulting in overall lower corporate leverage.

(4) In countries with strong creditor rights, target firms whose assets have high recovery value in default[6] (or distress) are more likely to be acquired by firms whose assets have low recovery value. This is because a high recovery value of assets enables firms in distress to defer default by liquidating some of these assets and using the proceeds to service debt. Thus, by acquiring a high-recovery target, a low-recovery firm reduces or defers the likelihood of default in case of distress.

(5) Finally, all of the above effects of stronger creditor rights – greater propensity to engage in diversifying acquisitions, the resulting reduced value and operating performance, lower cash flow risk, lower financial leverage, and greater propensity of low recovery firms to acquire high recovery targets – are also observed with a strengthening (and vice-versa for weakening) of a country's creditor rights.

The corporate choice of risk affects corporate value because if managers seek to reduce risk in countries with strong creditor rights, they may choose to diversify even if that does hurts firm value. The effect of corporate diversification on corporate value is a subject of debate. For example, Morck, Shleifer and Vishny (1990), Comment and Jarrell (1995) and Moeller and Schlingemann (2005) show that diversifying mergers result in reduction in value. Moreover, Berger and Ofek (1995) show that diversified conglomerates have significant value discount compared to the conglomerate's imputed

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[6] Assets with high recovery value have lower costs of liquidation. These assets lose less of their value in distressed sales and, following the definition of Shleifer and Vishny (1992), have lower *specificity* in that they are fungible across industries and hence trade at prices that are close to their value in best use. Our exact measure of high-recovery industries is based on the realized recovery rates on debt of defaulted firms in different industries documented by Acharya, Bharath and Srinivasan (2007).

value if its divisions were valued according to their standalone counterparts in the industry. However, Campa and Kedia (2002) and Villalonga (2004) find that the diversification discount disappears after addressing endogeneity econometrically, which means that business segments acquired by conglomerates are inferior to their industry's standalone counterparts. These results are recently overturned by Ammann, Hoechle and Schmid (2008), Laeven and Levine (2007) and Schmid and Walter (2009) who affirm the existence of a discount in industrial and financial conglomerates.

Diversification can be beneficial in countries with under-developed capital markets, because internal capital markets in conglomerates may substitute for outside capital markets, helping to overcome the problems of asymmetric information and moral hazard that limit external finance. But conglomerates may also reduce value because of inefficient subsidization of poorly performing groups by better performing ones, in what Scharfstein and Stein (2002) call the "dark side" of internal capital markets. Indeed Berger and Ofek (1995) find that conglomerates overinvest in segments whose industry has poor investment opportunity, and Lamont (1997), Scharfstein (1998), Shin and Stulz (1998), Rajan, Servaes and Zingales (2000) and Lamont and Polk (2002) find evidence of inefficient investment in conglomerates. Comment and Jarrell (1995, p. 68) also question the link between conglomerates and internal capital markets, showing that "diversified firms do not rely any less on external capital market transactions" than do undiversified firms.[7]

The effect of conglomeration is also debatable in emerging markets where external capital markets malfunction. Khanna and Palepu (2000) find that in India, most diversified business groups add value, measured by Tobin's q, which contrasts the results obtained in the U.S.[8] However, Lins and Servaes (2002) reject the theory on the benefits of internal capital markets. They analyze over 1000 firms from seven emerging markets in 1995 and find that diversification leads to discount. Lee, Peng and Lee (2008), who

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[7] However, there is some ongoing debate here too. Analyzing plant-level data, Maksimovic and Phillips (2002) suggest that the conglomerate discount results from lower productivity of some peripheral segments, whereas its main segments are as efficient as their stand-alone industry counterparts. This, in their view, implies that the conglomerate discount is endogenous and not a result of agency problems.

[8] Analyzing 1309 Indian firms in 1993 which are about equally divided between diversified and focused firms, Khanna and Palepu (2000, p. 887): "Firms affiliated with a large majority of diversified Indian business groups have lower Tobin's q measures than unaffiliated focused firms, but those firms affiliated with the most highly diversified Indian business groups have higher Tobin's q measures than all the other firms in the economy."

study business groups (chaebols) in Korea over the period 1984-1996, find that the effect of diversification on value has changed over time. In the early period, the extent of diversification in the business groups was value increasing, whereas in the more recent period diversification led to a discount. They explain this change by improvements in the institutional setting: liberalization of capital markets and transitions in the product and labor markets, have made internal capital markets less important for raising capital. Notably, the recent period in the study of Lee et al., where diversification discount exists, corresponds to the beginning of our study's sample period. Our study tests directly the consequences of diversifying acquisitions as a function of the country's creditor rights.

Relation to earlier studies on the effects of creditor rights. On the theoretical front, Adler (1992) suggests that while strong creditor rights induce the manager to increase the firm's risk as the firm approaches default, their ex-ante effect is to reduce risk to avoid insolvency. Manso (2005) proposes that penalizing failing entrepreneurs, for example, through tough bankruptcy procedures, inhibits innovation. Acharya and Subramanian (2009b) also argue theoretically that strong creditor rights can deter financial leverage and risk taking in industries that are inherently more innovative. Adler, Capcun and Weiss (2007) propose that the recent strengthening of creditor rights in the U.S. has induced firms to delay default, which could destroy value. Our empirical evidence is consistent with the ex-ante risk-reducing effect of strong creditor rights, assumed in this literature.

Empirically, Acharya and Subramanian (2009a) find that in countries with stronger creditor rights, technologically innovative industries innovate less, employ lower financial leverage, and importantly for welfare conclusions, also grow slower.[9] Chava and Roberts (2008) and Nini, Smith and Sufi (2008) find that restrictive debt covenants and enforcement of covenant violations, which provide firm-specific creditor rights, inhibit capital investment. These findings point at potentially harmful effects of creditor rights for risky investment.

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[9] There is an inverse relationship between the strictness of personal bankruptcy laws and entrepreneurship, as reflected in the extent of self employment. See Fan and White (2004) and Armour and Cumming (2005).

Our findings that diversification is driven by the managerial agency problem is consistent with Amihud and Lev's (1981) suggestion that diversification may reflect managerial motivation to reduce risk rather than a value-maximizing decision.[10] Tufano (1996) studies hedging by 50 publicly traded gold-mining firms in the U.S. and Canada and finds that firms with greater managerial stock ownership hedge more, suggesting that managerial risk-aversion drives hedging. Tufano (1998) suggests an alternative channel whereby hedging benefits management by reducing the discipline imposed by accessing external capital markets for finance.

The outline of the paper is as follows. Section 2 presents a model that motivates the causal effect of creditor rights on corporate investment choice. Section 3 discusses the data and empirical design and presents the results of our tests. Section 4 offers concluding remarks.

2. Theoretical motivation

We present a stylized model to analyze the effect of creditor rights on owner-manager's risk-taking incentives. The model examines the effect of reorganization outcomes for management and shareholders of a distressed firm on the ex-ante investments of the firm. Figure 1 presents the time-line of the model.

INSERT FIGURE 1 HERE.

Consider a firm at date 0 that is run by an owner/entrepreneur (the "manager" of the firm). The firm has made some past investment (say I units) and has some existing debt in place of face value F which is maturing at date 1.[11] The manager owns all equity of the firm. The manager can choose at date 0 the risk of the firm's future cash flows to be realized from this investment at date 1. We adopt the technology for choice of risk from a part of the banking literature, starting with the models of Blum (1999, 2002) and

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[10] Comment and Jarrell (1995) show that focused firms (firms whose revenue is concentrated in a fewer business segments) have significantly higher idiosyncratic risk. Hence, diversifying acquisitions are known to reduce risk by reducing revenue concentration but their incidence has not yet been linked to the strength of creditor rights.
[11] We do not model the choice of leverage, but we control for potential endogeneity of leverage to creditor rights.

Allen and Gale (2000). The risk choices at date 0 are indexed by $y \geq 0$, which represents the firm's cash flow in case the investment succeeds at date 1. Success is likely with probability $p(y)$, where $0 < p(y) < 1$, $p'(y) < 0$, and $p''(y) < 0$. With remaining likelihood, $[1 - p(y)]$, the investment fails at date 1 and produces cash flow of zero. Thus, y is also an index for the risk of default of the firm: Greater y reduces the likelihood of success $p(y)$ (in a concave fashion). Agents are risk-neutral and the risk-free rate of interest is zero.

At date 0, the owner/manager makes the choice of risk, maximizing equity value net of creditor payments, and anticipating the outcomes from resolution of distress (if any) at date 1.

In case of default at date 1, the continuation prospects of the firm depend upon managerial ability. Managerial ability at date 1 may be either high or low with equal probabilities. We assume that neither the manager nor the firm's board of directors that hires her know this ability unless it is investigated at date 1, as we explain below. Also, for simplicity, we assume that managerial ability does not affect the date-0 investment. In other words, managers are assumed to be randomly endowed at date 1 to be high or low type with equal likelihood. Managerial ability does affect firm's outcomes at date 1 in case of default. In particular, if there is default at date 1, then a firm operating under a high-ability manager yields cash flow of H while a low-ability manager yields zero cash flow. If the firm is liquidated to outsiders and ceases to exist, it will fetch cash flow of L. We assume that $2L < F < H$.

These assumptions on managerial ability are arguably simplistic, but they offer the following advantages. First, they rule out signaling of ability by managers through the choice of risk. Second, they also rule out learning by firms about ability of managers through first-period outcomes. Third, and more importantly, they capture the notion of "ability" in that if the firm ends up in default at date 1 (which is outside of managerial control given the choice of risk at date 0), then the type of manager affects the firm's ability to turn around.

Consistent with managerial type being most relevant when firm is in default, any investigations of this type also occur only in distress. The following are the possible

outcomes upon default at date 1, which occurs if the realization from the investment is zero:

(1) With probability r $(r > 0)$, the firm is liquidated to outsiders by creditors, which yields L. This may occur due to failure amongst the different creditors of the firm to agree on a reorganization outcome (we discuss below possible explanations for such a failure).

(2) With probability q $(q > 0)$, creditors investigate the type of management and find it out. Then, if the manager's ability is found to be low, the manager is dismissed and the firm is liquidated, realizing cash flow of L. If the manager's ability is found to be high, the firm continues with the current manager and realizes cash flow H. The likelihood of each such event occurring is 0.5.

(3) With the remaining probability of $(1 - q - r)$ (assumed positive), creditors are unable to learn managerial type. If the firm continues with the current manager, the cash flows are H or 0 with probability of 0.5. If H is sufficiently high compared to proceeds from liquidation (we assumed that $0.5H > L$), creditors are better off if the firm continues compared to liquidation even if the manager type in unknown. Therefore, creditors agree to a reorganization proceeding with the current manager. Notably, if the manager turns out to be of bad type, assets that are used for one more period have depreciated and become worthless. Thus, continuing for another period makes the firm forego the ability to liquidate the assets to outsiders for L.

Assumption (2) is consistent with empirical evidence. For example, Eckbo and Thornburn (2003) find that in Sweden, where creditor rights include the automatic firing of the manager in default, the rehiring probability of dismissed managers increases in a measure of managerial ability.[12]

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[12] In particular, Eckbo and Thornburn (2003) find that managerial ability (based on trustee assessment that the bankruptcy was *not* due to managerial incompetence or economic crime) is increasing in the firm industry-adjusted pre-bankruptcy operating performance and the recovery rate of its debt, and decreasing in the trustee's evaluation of the manager and in the delay from insolvency to filing.

If manager is found to be of low ability and is dismissed (probability of $0.5q$) or the firm fails to reorganize and is liquidated (probability of r), managers are assumed to suffer a private or personal cost of $m > 0$ due to loss of reputation or private benefits of control. This assumption is consistent with empirical evidence. Gilson (1989), Baird and Rasmussen (2006) and Ozelge (2007) find that upon distress, there is a significantly higher probability of top-management dismissal, especially due to direct intervention by lending banks, compared to firms not in distress. Gilson documents that the likelihood of managerial dismissal in leveraged firms following adverse stock performance is almost thrice as high as that in firms that are not distressed, and that managers dismissed in distress suffer a significant private cost in the form of diminished future employment opportunities. Eckbo and Thornburn (2003) also find that in Sweden, managers of bankrupt companies suffer a median (abnormal) income loss of 47%. We also assume that business failure which might occur if a low-quality manager continues does not incur the cost m that is incurred as a result of forced dismissal by creditors. And, if the firm continues without knowing the manager's ability (with probability $0.5(1 - q - r)$) and the manager turns out to be of low ability, we assume for simplicity that the manager has received private benefits of control for one additional period which offset the private cost suffered when the type is revealed at the end.

The assumed inefficiency in reorganization, which leads to liquidation rather than continuation, reflects creditors' failure to reach an agreement amongst themselves regarding bankruptcy proceedings. For example, suppose that firm's debt of face value F consists of secured debt of amount F_1 and unsecured debt of amount $(F - F_1)$, where $F_1 < L$. Suppose also that secured creditors have claim to all assets of the firm and there is no automatic stay on secured creditors' rights. Then, because secured creditors are fully covered under liquidation but face some default risk in case firm is continued (and managerial type turns out to be low), they have incentives to liquidate the firm. In contrast, unsecured creditors value the continuation outcome. Thus, there is a conflict of interest amongst creditors whether to expend any time and effort in learning about managerial type at all: secured creditors may just prefer to seize and liquidate the assets. Such reorganization failure is also more likely if reorganization petition requires majority consent of creditors and secured (or more generally, senior) creditors can block

continuation in favor of liquidation. Another possibility (outside of our model) is that firm's continuation requires additional financing, but due to debt overhang problem, this can be raised only if the firm can arrange supra-priority financing, such as the debtor-in-possession financing in the United States. However, if creditor rights do not allow secured creditors' claims to be subordinated in this way, then no continuation may be feasible, resulting in liquidation of the firm.

We assume that the probabilities q and r reflect the law on *creditor rights* in which the firm operates. These parameters map directly into their empirical counterparts of creditor right scores (as measured, for example, in LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998)). The empirical counterpart for q is the score *MANAGES*, which equals 1 if management is dismissed in bankruptcy. The counterpart for r is the set of other creditor right scores, namely *AUTOSTAY*, *SECURED* and *REORG*. These correspond to there being no automatic stay on assets of the debtor in bankruptcy (so that creditors can seize assets right away if they wish to), secured creditors being paid first, and reorganization requiring creditors' consent, which as explained above could lead to failure to reorganize due to disagreement amongst creditors.[13] In our model, while the creditor right to dismiss management leads to more information about managerial type and therefore better continuation and liquidation decisions, the other three creditor rights may result in inefficient liquidations of the firm. However, all these creditor rights impose a private cost on management and induce in them aversion to risk (even though they are endowed with a risk-neutral preference in our model). We derive this result next.

In the presence of leverage and risk of default, the owner/manager chooses the risk y to maximize the expected value of equity net of the private costs from distress, given as:

$$p(y) [y - F] + [1 - p(y)] [- (r + 0.5 q) m + (0.5 q + 0.5(1 - q - r)) (H - F)]. \quad (1)$$

This expression reflects the fact that management suffers a private cost m when the firm is liquidated – either due to failure to reorganize or due to revelation of his type being low - and has residual value in distress in other cases provided there is excess cash flow after creditors are paid off. This latter scenario has a probability of *(0.5 q + 0.5(1 – q –r))*

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[13] Schwartz (2001, p. 128) points out that "without a bankruptcy procedure, creditors acting individually may force liquidations, thereby preventing the reorganization of viable but temporarily insolvent firms."

because there is excess cash flow after paying creditors only if managerial type is discovered by creditors to be high and firm is continued (probability of *0.5 q)* or if managerial type is not discovered but it turns out ex post to be high.

The optimal choice of risk for the levered firm y^* is thus given by the first-order condition:

$$p(y) + p'(y) [y - F + (r + 0.5\ q)\ m - 0.5\ (1 - r)\ (H - F)] = 0 , \qquad (2)$$

and, the second-order derivative is

$$2\ p'(y) + p''(y) [y - F + (r + 0.5\ q)\ m - 0.5\ (1 - r)\ (H - F)] . \qquad (3)$$

Note that $p'(y) < 0$ at the optimal risk choice y^*, so we must have

$$[y - F + (r + 0.5\ q)\ m - 0.5\ (1 - r)\ (H - F)] > 0 , \qquad (4)$$

so that the second-order derivative above is negative and the first-order condition indeed gives the optimum that maximizes the objective of manager. To see this, note that because *p(y) > 0 and p'(y) < 0*, the expression *p(y) + p'(y) [y – x]* is greater than zero for all *y ≤ x*. Hence, the solution to the equation *p(y) + p'(y) [y – x] = 0* must satisfy *y > x*.

The three terms after *y* inside [.] in the condition (4) for y^* illustrate the additional effects on risk-taking for a levered firm. The first term, *–F,* reflects the fact that a levered firm has incentives to shift risk given equity's "option" like payoff at date 1. This effect is not however sensitive to creditor right parameters *q* and *r*. The second term *(r + 0.5 q)m* reflects the risk-aversion induced in managerial objective by the fact that management suffers a private cost upon being dismissed. The manager is risk neutral, but the personal cost that he endures because of dismissal in bankruptcy makes his reward function concave, making him averse to risk. This effect is increasing in *r,* the failure of creditors to agree on reorganization, and also increasing in *q,* the likelihood that management is dismissed in bankruptcy, both assumed to be a property of the creditor rights of the country. The third term *– 0.5 (1 – r) (H – F)* also corresponds to a risk-shifting incentive. This is the "option" effect from date 2 when the firm is continued. Crucially, the magnitude of this effect diminishes in *r,* the likelihood that creditors fail to allow the firm to efficiently reorganize in bankruptcy.

To summarize, creditor rights that enable dismissal of management in bankruptcy and that are less likely to lead to a reorganization outcome discourage ex-ante risk-taking by firm's management.

We prove these two results formally as follows. Denoting the first-order condition for management's optimization as $f(y^*(q,r), q, r) = 0$, the second-order condition implies $\delta f / \delta y < 0$. In turn, taking the derivative of f with respect to q or r, and applying the implicit-function theorem gives

(i) *sign $(dy^* / dq) = sign (\delta f / \delta q)$, which is negative because* (5)
$\delta f / \delta q = p'(y)\, m < 0$,

and, similarly,

(ii) *sign $(dy^* / dr) = sign (\delta f / \delta r)$, which is also negative because* (6)
$\delta f / \delta r = p'(y)\, [\, m + 0.5\, (H - F)] < 0$.

Thus, the risk that a levered firm undertakes declines in the likelihood that management is dismissed in bankruptcy and that reorganizations promoting continuations of the firm do not materialize. These two implications constitute the foundation of our empirical investigation.

3. Hypotheses, Data and Empirical Design

Motivated by the model's results, we examine the following five hypotheses concerning the effects of creditor rights on corporate propensity to take risk by testing four hypotheses, using data on corporate behavior and creditor rights from 38 countries.

Hypothesis I: The propensity to do diversifying acquisitions increases in the strength of the country's creditor rights.

Hypothesis II: The firm's cash flow risk, measured as the volatility of its cash-flow-to-assets ratio, is decreasing in the strength of the country's creditor rights.

Hypothesis III: The firm's leverage (debt-to-assets ratio) is decreasing in the strength of the country's creditor rights.

Hypothesis IV: In countries with strong creditor rights, target firms in high-recovery industries are more likely to be acquired by firms in low-recovery industry.

The first hypothesis is tested primarily for diversification across industries, but we also test it for cross-border acquisitions, which are a form of diversification. The second hypothesis tests a broader implication of creditor rights for corporate risk taking, examining whether companies' cash flow risk is decreasing in creditor rights. And the third hypothesis complements these tests by looking at financial leverage of firms in countries as a function of creditor rights.

The fourth hypothesis examines the effect of creditor rights on the choice of assets by acquirers. A firm with high-recovery assets can liquidate some of them in time of distress and use the proceeds to defer default. High-recovery assets lose less of their value in distressed sale and fetch prices that are closer to their value in best use (using the notion of "asset specificity" from Shleifer and Vishny (1992)). Bidder firms with low-recovery assets are therefore more vulnerable to default risk because they are less able to defer default by asset liquidation. Indeed, Berger, Ofek and Swary (1996) find that a high recovery value of assets (imputed from book value items) has particularly high value for firms in financial distress. Also, Eckbo and Thornburn's (2003) study suggests that it is in managerial interest to increase the recovery rate of debt in default (which is related to assets' characteristics), because the probability of rehiring managers who are automatically dismissed in bankruptcy is an increasing function of the recovery rate of the firm's debt.

We test these effects of creditor rights both in the cross-section of countries and in time-series, around changes in creditor rights of a country. The main tests are conducted in a transaction- or firm-level cross-section. We also do the tests in aggregate country-level and industry-level values for the variables that we test.

These four hypotheses relate creditor rights to the corporate risk taking. The question is whether creditor rights induce corporate managers to trade off value for lower risk when doing acquisitions, that is, whether managers give up value in order to gain lower risk in countries with stronger creditor rights. We propose the following:

Hypothesis V: In countries with stronger creditor rights, diversifying acquisitions have lower post-merger profitability and lower value. There is no such negative effect of strong creditor rights in case of focusing acquisitions.

This hypothesis is tested using two measures of performance around the time of acquisitions: the post-merger return on assets (*ROA*) compared to the *ROA* in the year before the acquisition, and the change in the acquirer's stock price (cumulative abnormal return) at the announcement of the acquisition.

The data in our analysis include country variables – legal and economic – and data on individual companies and acquisition transactions. Table 1 describes how the variables are constructed and the data sources.

INSERT TABLE 1 HERE

3.1. Creditor Rights

We use the data on creditor rights from LaPorta, Lopez-de-Silanes, Shleifer, and Vishny (1998), who record creditor rights provisions in a cross-country sample as of 1994. The variable *CRIGHTS* is the sum of four provisions: *AUTOSTAY*, the absence of automatic stay on the assets of the debtor in reorganization; *REORG*, the requirement of creditors' consent or minimum dividend for a debtor to file for reorganization; *SECURED*, ranking secured creditors first in the disposition of assets of the bankrupt firm upon filing for reorganization; and *MANAGES*, the removal of management from managing the activities of the firm upon filing for reorganization. Each of these provisions takes a value of 1, if it is present in the country's bankruptcy code or zero if it is absent. Consequently, the range of values for *CRIGHTS* is 0 through 4. In our 38-country sample (see Table 2), the mean of *CRIGHTS* is 2.08 with standard deviation of 1.28. As a robustness check, we use the creditor rights data of Djankov et al. (2007) to re-estimate our models and to examine the effects of *changes* in creditor rights.

3.2. Creditor rights and diversification in M&A activity

Our first set of tests is based on measuring corporate risk reduction through diversifying acquisitions. The data on acquisitions is obtained from the Securities Data Corporation (SDC)'s Platinum Mergers & Acquisitions database for the period 1994-2004. Our sample consists of 38 countries with data on creditor rights as of 1994 and that satisfy the requirements on transactions specified below. First, we only include mergers where both the acquirer and the target are under the same jurisdiction as it applies to creditor rights. Separately, we present evidence on the effect of creditor rights on geographic diversification, using cross-border transactions. We exclude acquisitions where the acquirer is in the financial industry (SIC header 6), which includes acquirers in LBOs, or a regulated industry (SIC headers 48 and 49). We further exclude transactions where the acquirer and the target are the same company (repurchases recorded as acquisitions), transactions where the acquirer is a mutual company, investment company, subsidiary, or state-owned enterprise, and transactions in which the percentage acquired from the target is less than 20 percent.[14] Finally, we begin by including only countries with at least 50 transactions that satisfy the above criteria, but additional data requirement on transaction value reduces the sample size for some countries.

INSERT TABLE 2 HERE.

We test Hypothesis I by estimating the likelihood of same-industry acquisition in a country as a function of the creditor rights in that country, controlling for other variables. By our hypothesis, this likelihood should be negatively related to creditor rights. We define a diversifying acquisition as one where the acquirer and target are not in the same industry (using 2-digit SIC code).[15] We do the analysis at both the individual acquisitions level (Table 3) and at the aggregate country level, examining the proportion of the same-industry domestic mergers among all domestic mergers in the sample period.

The main explanatory variable in our analysis is *CRIGHTS*, the aggregate measure of creditor rights from La Porta et al. (1998), and its components, *AUTOSTAY*,

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[14] Our results are robust to setting the cutoff at 10% acquired or to adopting more conservative criteria, following Moeller, Schlingemann, and Stulz (2004), of the acquisition being at least 51% of the target company, the transaction value is at least 1 million US$, the transaction represents at least 1% of the total assets of the acquirer, and the transaction is completed within three years of the announcement of the deal.

[15] The results are qualitatively similar when we employ industry classification at the 3-digit SIC level.

REORG, SECURED and *MANAGES*. We predict that the coefficient of *CRIGHTS* is negative, that is, there is lower likelihood of same-industry mergers in countries with stronger creditor rights.

The control variables include shareholder rights index, *SHRIGHTS* (obtained from LaPorta et al. (1998)). If diversifying (focusing) mergers are in shareholder interest, after controlling for creditor rights, this variable should have a negative (positive) coefficient. We also include variables that proxy for the development and efficiency of the capital market (see La Porta et al., 1997): *Log*(*Market Cap*), the value of securities on the national stock markets in 1994 in U.S. dollars, in logarithm,[16] *Accounting Disclosure*, measured by the extent to which the firm's financial statement includes 90 items (as of 1994), and *Rule of Law*, an index that captures better enforcement of legal rights in a country (from La Porta et al. (1998).) The effect of these variables should be positive if the internal capital markets in conglomerates substitute for less-efficient outside capital markets. Similarly, *Emerging Market* dummy variable (= 1 if the country has GDP-per-capita below the sample median) should have a negative coefficient if internal capital markets in conglomerates are valuable. *Flexibility to Fire* (an index of rules and regulations reflecting the ease of firing workers) proxies for the efficiency of the labor market, which may affect the type of mergers. *Legal Origin* influences a number of institutional variables in a country including creditor- and shareholder rights (La Porta et al., 1998) and also interacts with the likelihood of bankruptcies (Claessens and Klapper, 2005). The sources for these three legal control variables are Levine and Demirguc-Kunt (2001) and La Porta et al. (1998).

Additional controls are the country's macroeconomic volatility, *MacroRisk*, measured by the standard deviation of quarterly changes in the country's index of industrial production. It has negative coefficient if managers in riskier countries do more diversifying mergers. We also include the country's average real *GDP per-capita* over 1994-2000 (in logarithm) from the Penn World Table Version 6.1 as a proxy for the degree of economic development, because developed and developing countries may have

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[16] Our results are robust to an alternative definition of capital market development, using the ratio of the market capitalization to the GDP as of 1994. However, this definition of capital market development ranks Malaysia, Hong Kong and South Africa at the top while the U.S. ranks in eighth place, after Chile; and, equally strangely, Japan is ranked thirteenth, after Thailand and the Philippines.

different investment opportunity sets. The model also includes *Transaction Value* (the amount paid in U.S. dollars, in logarithm) and firms' leverage.

We include the leverage of both the acquirer and the target firms because in acquiring the equity of the target firm the acquirer should take into account the target's financial risk. Leverage represents financial distress risk which induces diversifying mergers, and therefore we expect the coefficients of leverage to be negative. In estimation, we face a data limitation. Over 45% of the acquirers in our sample and 88% of the target firms do not have accounting information. Consequently, leverage data on *both* acquirer and target are available for only 2,586 transactions, about 8% of the sample (without the U.S. and the U.K, we have only 746 transactions with leverage data.) In addition, a firm's leverage in any country is partly endogenous to the country's creditor rights. We therefore use *estimated* leverage variables, derived from an instrumental variables regression. For all transactions with data on leverage (defined as total liabilities net of equity and deferred taxes, divided by total assets) for both acquirer and target, we estimate a regression of acquiring firm's leverage on all country-level control variables and on two exogenous variables, the ranks (in quartiles) of the U.S. median leverage and the U.S. median tangibility (the ratio of fixed assets to total assets) for the industry of acquiring firm over the years 1992-2004. The U.S. has low level of creditor rights (*CRIGHTS* = 1) which implies under our hypotheses a less-constrained choice of leverage, and it has the most data on all industries, making the estimation more reliable. Thus, the leverage of an acquirer firm in any industry in any country is imputed based on the estimated leverage in that country and industry, obtained from a model of the acquirer's leverage as a function of two exogenous industry variables, using U.S. data, and of the acquirer's own country's exogenous control variables. Target firms' leverage is imputed in a similar way. We estimate a leverage model for targets for which we have data, and then use this model to impute the leverage of any target in a country and industry.

We estimate a probit model where the dependent variable pertains to transaction j in country c,

$$Pr(\text{same industry merger})_{j,c} = \alpha * CRIGHTS_c + \text{control variables}. \tag{7}$$

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The dependent variable equals 1 if acquirer and target are in the same 2-digit industry. Our hypothesis implies that $\alpha < 0$. The model includes year dummy variables and the estimation clusters standard errors by country.

INSERT TABLE 3 HERE.

The results in Table 3 support our hypothesis. The coefficient of *CRIGHTS* is negative and statistically significant (column 1), meaning that stronger creditor rights are associated with greater propensity to diversify (lower probability of same-industry merger). The results remain the same when we exclude the U.S. (column 6) or both the U.S. and the U.K. (column 7), that have by far the largest number of acquisitions. The creditor rights component with the most negative effect is *MANAGES*, underscoring the importance of managerial dismissal in bankruptcy as an inducement to diversify. Based on Columns (1), (6) and (7) of Table 3, the marginal effect of *CRIGHTS* on the propensity to acquire same-industry target, evaluated at mean *CRIGHTS* ("local elasticity"), is –9.49%, and it is –16.48% when excluding the U.S. and the U.K.

Notably, shareholder rights have quite the opposite effect than that of creditor rights. The variable *SHRIGHTS* has a positive effect which is significant when the U.S. is excluded, suggesting that shareholders' interests induce focusing acquisitions, after controlling for the effect of creditor rights. As to the importance of internal capital markets in conglomerates, we obtain mixed results. The coefficient of *Log(Market Cap)* is positive, meaning that in countries with developed capital markets, there is a greater likelihood of focusing acquisitions and conglomerate mergers are hence less needed. However, this coefficient becomes negative and insignificant when excluding the U.S. and the U.K. Other results are inconsistent with the importance of internal capital markets in conglomerates: The positive coefficient of *Emerging Market* (the poorer countries) and the negative coefficient of *GDP per capita* mean that diversification is more likely in richer countries, where capital markets are more developed,   Also, *Accounting Disclosure*, an aspect of developed capital market, has negative effect which implies more conglomerate mergers in countries with developed capital markets. However, the

positive coefficient of *Rule of Law*, which may be associated with capital market development, is consistent with the importance of internal capital markets in countries with inefficient outside markets. The variable *Flexibility to Fire* has insignificant effect when excluding the U.S. and the U.K. The effect of the country's *MacroRisk* is inconclusive, switching signs and changing significance depending on whether the U.S. and the U.K. are included or not. *Target's Leverage* has a significant negative effect on the propensity to do same-industry mergers, suggesting that high financial distress risk induces diversifying acquisitions.

The elasticity of the target leverage (evaluated at the mean of this variable) is -2.96, meaning that a 1% increase in the target leverage ratio reduces the likelihood of same-industry merger by about 3%. Reinforcing this effect, *Acquirer's leverage* too has negative and marginally significant coefficient when excluding the U.S. and the U.K.[17] The coefficients of *French* and *German Legal Origin* are both negative and significant, but this is driven by the U.S. data. When the U.S. is excluded, the coefficients turn positive.

A concern in our analysis is the endogeneity of creditor rights. For example, it could be that a country's culture affects both its choice of creditor rights and its corporate behavior. We do two tests to examine the culture effect. Stulz and Williamson (2003) observe that creditor rights are affected by whether a country's dominant religion is protestant or catholic, and Licht et al. (2005) report that creditor rights are significantly correlated with a country's *Uncertainty Avoidance* index, estimated by Geert Hofstede in the 1970s in a survey of IBM employees, and defined to be "the extent to which members of a culture feel threatened by uncertain or unknown situations" (Hofstede 2001, p. 161).

In our first test, we add to the model of Table 3 religion dummy variables that reflect the religious composition of the country's population. We obtain that their effect is insignificant while the effect of creditor rights remains unchanged. We then re-estimate the model, adding the country's *Uncertainty Avoidance* index described above. In our sample, the correlation between creditor rights and *Uncertainty Avoidance* is -0.43, and is

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[17] The fact that both target's and acquirer's leverage induce diversifying acquisitions is consistent with our focus on the managerial agency problem, and potentially inconsistent with the view of the importance of agency problems between creditors and shareholders. The latter would imply that higher acquirer leverage leads to risk-taking incentives, and thereby, induce focusing acquisitions.

statistically significant. In estimating the model, we obtain that the coefficient of *Uncertainty Avoidance* is negative but insignificant: it is -0.006 ($t = 1.34$) for all countries and -0.002 ($t = 0.51$) when excluding the U.S. and the U.K. This means that the country's uncertainty avoidance induces acquirers to diversify, similar to the effect of creditor rights. Still, the effect of creditor rights remains negative and highly significant as before. The coefficient of *CRIGHTS* is -0.273 ($t = 7.11$) for all countries, and it is -0.427 ($t = 3.72$) without the U.S. and the U.K. We hence conclude that the effect of creditor rights on the propensity to diversify is distinct from the cultural effect of uncertainty avoidance.

In our second test we compare the propensity to do same-industry acquisitions in the U.S. and the U.K. alone. These countries have great similarity in their legal systems, financial development and business culture, yet they are quite different in their creditor rights: *CRIGHTS* = 1 for the U.S. while for the U.K., *CRIGHTS* = 4. In particular, the manager in the U.K. is dismissed in bankruptcy and the firm is run by a court-appointed trustee, while in the U.S. debtor remains in possession. This gives debtors in the U.K. stronger incentive to avoid default. We then estimate model (7) only for the observations from the U.S. and the U.K. The regression includes a dummy variable that equals 1 for acquisitions in the U.K. and 0 for the U.S., and we include as control variables firm-specific and acquisition-specific variables, as well as year dummy variables. The estimated coefficient of the U.K. dummy variable is negative and significant: it is -0.503 with $t = 9.94$ (the standard error is clustered by country). We conclude that even in these two culturally-similar countries, creditor rights have a significant negative effect on the propensity to do same-industry acquisitions.

We do five robustness checks, for which we report the main findings. In the first, we control for the effect of antitrust laws on the propensity to do same-industry mergers by adding the country's index of the competition law as it pertains to mergers from Hylton and Deng (2007).[18] It summarizes four items with different point score for each,

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[18] Hylton and Deng (2007, p. 21) define this variable as follows: "The Merger Score attempts to measure the size of the competition law net applied to mergers. It is the sum of the scores for two parts of each country's merger law; the part governing merger notification requirements, and the part governing the assessment of mergers. It excludes points assigned to defenses, such as efficiency or public-interest defenses. The countries with mandatory-premerger notification requirements tend to have the highest merger scores." It is available for the end of our sample period (for 2004). Hylton and Deng's list includes 35 countries that overlap with ours, to which we add data on Hong Kong and Singapore (the latter has data for 2006). We miss data for Malaysia.

and its value ranges from 0 to 7, where a higher score means a more stringent law. The mean score of this index is 5.3 and the median is 6.0. We find that this variable is not statistically significant. Still, the coefficient of *CRIGHTS* is negative and significant (t = 6.36 for all countries, t = 3.66 when excluding the U.S. and the U.K.)   In the second robustness check, we admit to the sample only acquisitions of at least 90% of the target. Then, the coefficient of *CRIGHTS* is –0.141 with t = 5.11 (29,002 observations), and when excluding the U.S. and the U.K., the coefficient of *CRIGHTS* is –0.251 with t = 3.73 (12,415 observations).   In the third test, we control for the form of financing by adding a dummy variable that equals 1 for cash-only transactions.   This variable is naturally endogenous. Its effect is insignificant in all regressions, while the coefficient of *CRIGHTS* remains negative and highly significant. In the fourth robustness check, we re-estimate model (7) using the data from Djankov et al. (2007) on creditor rights, which slightly differ from that in La Porta et al. (1988) and include changes in creditor rights for five countries in our sample of 38. In this regression, the level of *CRIGHTS* in any year is the level for that entire year. In cases of a mid-year change, we use the level of creditor rights that existed in the year before the change. The estimation results are qualitatively similar to those reported in Table 3. The coefficient of *CRIGHTS* is -0.155 (t = 4.88) for the entire sample, and -0.183 (t = 2.50) when excluding the U.S. and the U.K. As in Table 3, the strongest effect comes from the component *MANAGES* whose coefficient is -0.600 with t = 5.18. In the fifth and last robustness check, we replace the *Rule of Law* index by Berkowitz, Pistor and Richard's (2003) *Legality* index, the first principal component of three proxies of legality developed by Kaufmann, Kraay and Zoido-Lobatón (1999): Government Effectiveness, Rule of Law and Control of Corruption. Its correlation with the *Rule of Law* variable that we use is 0.972. Including *Legality* in the estimation model in lieu of *Rule of Law*, its coefficient is 0.232 (t = 6.65) while the coefficient of *CRIGHT* is -0.258 (t = 6.59), quite similar in magnitude and significance to that reported in Table 3. Without the U.S. and the U.K., the coefficient is -0.424 (t = 3.67). We then add to this regression an interaction term, *CRIGHTS*Legality* (*Legality* is demeaned) and obtain that its coefficient is insignificant (-0.005 with t = 0.15), while the coefficient of *CRIGHTS* remains practically the same in magnitude and significance. When excluding the U.S. and the U.K., the coefficient of the interaction term is negative

and significant, -0.122 ($t = 2.64$) while the coefficient of *CRIGHTS* remains similar to that before, both in magnitude and levels of significance.

Country-level estimation of cross-industry acquisitions. Reverting to the analysis of within-country mergers, we test our hypothesis at the aggregate *country level*, where each country is one observation. The advantage here is that large and small countries are treated alike. The shortcoming is that, as Holderness (2009) points out, it may be inappropriate to infer individual firm behavior from aggregate data because firm-level and transaction-level variables are omitted, which can cause bias if these variables are correlated with country-level variables. With this caveat in mind, we find that the country-level results on the effects of creditor rights are consistent with those obtained from the preceding individual-transaction regressions, thus supporting our conclusions.

We calculate for each country c the measure $SAME_c$ = [(# of mergers in the *same* 2-digit SIC code industry) / (# of all domestic mergers)]. Figure 2 plots the variable *SAME* for different countries as a function of their *CRIGHTS,* showing the negative relationship between the extent of same-industry mergers and strength of creditor rights. We then estimate the following model by the tobit method, with 38 observations (countries):

$$SAME_c = \beta_0 + \beta_1 * CRIGHTS_c + \text{country-level control variables}. \tag{8}$$

For sake of parsimony, we present only the coefficients of the creditor rights variable and its components:

CRIGHTS	–0.030 ($t = 3.28$).
AUTOSTAY	–0.056 ($t = 2.48$).
REORG	–0.017 ($t = 0.74$).
SECURED	–0.022 ($t = 1.25$).
MANAGES	–0.100 ($t = 4.41$).

The results again support our hypothesis. The coefficient of creditor right (*CRIGHTS*) is negative and significant and, as in Table 3, the most important component is *MANAGES*, the indicator of managerial dismissal in bankruptcy.   In contrast to the

negative coefficient of *CRIGHTS*, the coefficient of shareholder rights is positive and significant suggesting that focusing mergers are in shareholder interest, after controlling for creditor rights. As a robustness test, we re-estimate the regression using creditor rights index that reflects the different level of creditor rights for some countries in some years (due to changes over time), using data from Djankov et al. (2007). *CRIGHTS* here is the average of the *CRIGHTS* index of the country over the sample period, weighted by the number of transactions in the years following the year of change relative to the total number of transactions in the country (assuming that the effect of a change is reflected in transactions in subsequent years). The coefficient of this creditor rights variable is -0.020 ($t = 2.18$), again consistent with our hypothesis. Finally, we add to the model the Hoftede's culture-based variable, *Uncertainty Avoidance*. Its coefficient is -0.001 with $t = 0.81$, insignificant, while the coefficient of *CRIGHTS* remains negative and significant: -0.031 ($t = 3.71$).

In a further robustness check we add as explanatory variable the merger-related antitrust index of Hylton and Deng (2007). Its coefficient is statistically insignificant, while the coefficient of *CRIGHTS* remains negative and significant. Further, we split the sample period into two, 1994-1999 and 2000-2004, calculate $SAME_c$ for each subperiod and estimate the relationship between $SAME_c$ and $CRIGHTS_c$ across countries for both subperiods. We exclude a sub-period for a given country if it has less than 30 transactions in that sub-period. The results again support our hypothesis: the coefficient of *CRIGHTS* is negative and significant: -0.025 ($t = 2.05$).

Cross-border acquisitions: So far we have analyzed *industrial* diversification in domestic acquisitions. We now analyze *geographic* diversification by studying *cross-border* acquisitions. In this regression, the dependent variable takes value of 1 if both bidder and target are in the same country (analogous to the earlier analysis where bidder and target are in the same industry), and a value of 0 for cross-border acquisition. We use the creditor rights in the country of the acquirer, which is assumed to make the acquisition decision and whose interests dictate its nature.[19] The analysis includes

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[19] The target may in fact be outside of the sample of countries for which we have data on creditor rights.

acquirers from the 38 countries in our sample, while the target firms can be from any country. The estimation is similar to that of Table 3. We have 52,975 acquisitions which satisfy our criteria and 20,638 acquisitions when excluding acquirers from the U.S. and the U.K.

The estimation results support our hypothesis on the negative effect of creditor rights on same-country acquisitions. To economize in space, we present only the coefficients of the creditor rights variable and its components.

CRIGHTS   −0.111 ($t = 5.23$). [Excl. the U.S. and the U.K.: −0.064 ($t = 2.95$).]

AUTOSTAY   −0.235 ($t = 4.25$).

REORG   −0.331 ($t = 7.01$).

SECURED   −0.018 ($t = 0.23$).

MANAGES   −0.201 ($t = 2.66$).

Again, the coefficient of shareholder rights (*SRIGHTS*) has the opposite sign – it is positive – and it is significant ($t = 2.71$) when we exclude the U.S. and the U.K.

Diversification across industry lines of business. Firms can also diversify by developing their own lines of business in different industries. We now study the relationship between creditor rights and the number of segments, or industry lines of business, that firms have. Segment data are available in the Compustat North America Segment file, which confines the sample to firms that file such reports by the U.S. rules.[20] These include non-U.S. firms whose stock is traded in the U.S. through ADRs (American Depository Receipts) or that are listed in the U.S. or report by U.S. rules to abide by the securities laws, as well as Canadian firms. Surely, this sample is limited to selected firms from foreign countries whose characteristics (like size, visibility or type of business) make their securities trade in the U.S., or to non-U.S. firms that choose to be covered by the U.S. financial reporting rules. With this caveat in mind, we analyze the data on the effect of creditor rights on the firms' tendency to diversify across lines of business.

The sample consists of 836 firms from 21 countries in the manufacturing industries (SIC codes 1000 through 3999), excluding the U.S., with 4,520 firm-years of

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[20] Foreign firms listing in the U.S. are required to file with the SEC and reconcile with the U.S. GAAP and FASB rules (in particular, SFAS 131 and its predecessor, SFAS 14, regarding the reporting of segments data) in their annual reports.

reporting between 1992 and 2005. We also require that firms have leverage data in either the Compustat North America or the Compustat Global Vantage databases, and as before we require at least six firms with data in a country. Because Canadian firms constitute about half of the firm-years in our sample, we repeat our estimation for a sample of 20 countries with 2,132 firm years that excludes Canadian firms.

We estimate two models:

(i)   Probit regression, where the dependent variable equals 1 if the firm has more than one business segment and 0 otherwise, and

(ii)   OLS estimation, where the dependent variable is *log(number of segments)*.

The regression model includes the explanatory variables that appear in Table 3, with the firm leverage being estimated and instrumented with the same variables.

We hypothesize that coefficient of *CRIGHTS* is positive, i.e., creditor rights induce firms to diversify across lines of business (internally or by acquisitions). This is indeed what we find. The coefficients of *CRIGHTS* are as follows: [21]

Probit estimation: 0.346 ($t = 2.94$). Excluding Canada: 0.236 ($t = 3.45$).

OLS estimation: 0.110 ($t = 3.72$). Excluding Canada: 0.106 ($t = 2.51$).

These results further support our main hypothesis that stronger creditor rights induce firms to reduce their risk through diversification.

3.3. Value effects of creditor rights in diversifying acquisitions

There is a debate on the effect of diversification on corporate value, with the preponderance of evidence suggesting that it is value-reducing (see our review in the introduction). Here, we examine the effect of diversification on corporate performance only to the extent of its interaction with creditor rights. We hypothesize that diversifying acquisitions lead to lower performance in countries with stronger creditor rights. While some diversifying acquisitions are undertaken for economic reasons (to improve the acquirer's performance), others are motivated by the manager's desire to avoid the threat

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[21] The complete regression results are available from the authors upon request. The standard errors are clustered by country, and we add year dummy variables.

posed by strong creditor rights. Managers then face a tradeoff and may sacrifice corporate performance to reduce their personal costs in default. This incentive to undertake diversifying acquisitions even if they hurt performance increases as creditor rights are stronger. In testing this hypothesis we present as benchmark the performance-creditor rights relationship in focusing (i.e., same-industry) acquisitions, which are more likely to be done for economic reasons (such as synergy) and therefore we do not expect creditor rights to have negative effect.

First, we examine the acquiring firms' return on assets (*ROA*) in the three years after the acquisition compared to the *ROA* in the year before the acquisition. Second, we examine the acquirer's stock price change, measured as the cumulative abnormal return (*CAR*) over a seven-day window surrounding the acquisition announcement. We estimate the following model separately for focusing and for diversifying acquisitions:

$$Performance_{j,c} = a_1 * CRIGHTS_c + control\ variables. \qquad (9)$$

In the first test, $Performance_{j,c}$ is measured by $dROA(k)_{j,c} = ROA_{j,c}(t+k) - ROA_{j,c}(t-1)$, the change in the return on assets of acquirer firm j in country c, k year(s) after the acquisition compared to one year before it. $ROA_{j,c}(t+k) = (EBITDA\ /ASSETS)_{j,c,t+k}$ and t is the effective year of the acquisition. ($ROA_{j,c,t}$ is winzorized, 1% in each tail.) The data source is Compustat Global Vantage and all data are annual. $EBITDA_{j,c,t}$ is earnings before interest, taxes and depreciation and amortization (the sum of data items #14 and #11), which is unaffected by methods of accounting depreciation that differ across countries, and $ASSETS_{i,c,t}$ is the contemporaneous total assets (data item #89). The use *ROA* as performance measure follows Healy, Palepu and Ruback (1992) who suggest that this measure is unaffected by the method of accounting used in mergers. The control variables include all the country variables used in the previous analyses and *Log(transaction Value)*. We add the inverse Mill's ratio from the probit regression presented in Table 3 to control for the endogeneity of the decision to diversify. The model includes industry fixed effects to control for industry-wide changes in profitability. We estimate the model for one, two and three years after the merger ($k = 1, 2, 3$).

INSERT TABLE 4 HERE.

The coefficient a_1 measures the extent to which the post-merger change in the acquirer's *ROA* is affected by the country's creditor rights. Our hypothesis is:

For *diversifying* acquisitions, $a_1 < 0$ because managers may sacrifice corporate performance to attain lower risk.

For *focusing* (same-industry) acquisitions, $a_1 \geq 0$.

The results in Table 4, columns (1)-(6), support our hypothesis. The coefficient a_1 is negative and highly significant in all diversifying mergers for all three post-merger horizons, both for entire sample and for the sample that excludes the U.S. and the U.K. That is, the acquirer's post-merger performance is significantly lower in countries with stronger creditor rights up to three years after the merger, compared to its performance in the pre-merger year. For focusing (same-industry) acquisitions, the coefficient a_1 is not significantly different from zero, again consistent with our hypothesis. We conclude that diversifying acquisitions that seem to be motivated by stronger creditor rights are followed by worsening of corporate performance.

As a robustness check, we re-estimate the model using the creditor rights variable from Djankov et al. (2007). The results are again qualitatively the same. For example, for *dROA(1)*, the coefficient of *CRIGHTS* for diversifying acquisitions is -0.0166 ($t = 2.73$) while for focusing acquisitions, the coefficient is 0.0092 ($t = 1.31$).

When we exclude the U.S. and the U.K. (which have by far the largest number of observations), the results remain qualitatively the same. For diversifying acquisitions, the coefficients of *CRIGHTS* in model (9) for $dROA(1)_{j,c}$ is -0.015 ($t = 3.43$), for $dROA(2)_{j,c}$ it is -0.017 ($t = 4.07$) and for $dROA(3)_{j,c}$ it is -0.013 ($t = 4.17$). In contrast, for same-industry acquisitions, the coefficients of *CRIGHTS* are all insignificantly different from zero. Again, the results suggest that diversifying acquisitions hurt performance in countries with strong creditor rights.

In the second test, *Performance$_{j,c}$* is the acquirer's *CAR*, the cumulative abnormal return over days *t*-3 to *t*+3, where day *t* is the announcement day. We use this relatively wide time window because in some countries, (i) low stock liquidity causes a slower adjustment of stock prices to the information after the announcement, and (ii) lax

enforcement of insider trading rules may cause trading on the information a couple of days prior to the formal announcement. The daily abnormal return is the difference between the daily stock return and the market-model expected return, where the market model parameters are estimated from a regression of weekly stock returns on the country's index. The parameter estimation uses 105 weeks of data with no less than 52 weeks, up to 9 weeks before the week of the acquisition announcement. The cumulative abnormal return is calculated over the seven days surrounding the announcement day. The resulting sample of firms' *CAR* is then winsorized at 1% at both tails. The results on the effect of creditor rights on *CAR* support our hypothesis and are consistent with the results on post-acquisition changes in the acquirer's *ROA*. As presented in Table 4, columns (7)-(8), diversifying acquisitions lower the acquirer's value in countries with stronger creditor rights: the coefficient a_1 of *CRIGHTS* in model (9) is negative and significant for diversifying acquisitions (column (8)), -0.013 ($t = 5.14$), meaning a loss of 1.3% in value upon the announcement of such deals for any unit of *CRIGHTS*, while for focusing (same-industry) acquisitions (column 7) it is positive, 0.011 ($t = 1.65$) The results are similar when we exclude the U.S. and the U.K., which have relatively very large number of cases.[22] Then, the coefficient of *CRIGHTS* in diversifying acquisitions is -0.011 ($t = 2.40$), which is significant, while in focusing acquisitions it is 0.002 ($t = 0.26$), insignificant.

We again test the difference between the U.S. and the U.K. that have very similar culture, legal system and capital market, while their have very different creditor rights: for the U.S., *CRIGHTS* = 1 whereas for the U.K. *CRIGHTS* = 4. We estimate a regression of *CAR* as a dependent variable in a model similar to that in Table 4, with these two countries only, replacing *CRIGHTS* by a dummy variable *UK* which equals 1 for a U.K. acquirer and 0 for a U.S. acquirer, and excluding country-related variables. The results are:

Diversifying acquisitions: The coefficient of *UK* is –0.017, $t = 34.52$.

Focusing acquisitions: The coefficient of *UK* is 0.071, $t = 5.89$.

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[22] The results are qualitatively similar when using Djanov et al.'s (2007) on *CRIGHTS*. The coefficient of *CRIGHTS* in the diversifying acquisitions model is -0.007 ($t = 3.36$) and it is 0.004 ($t = 0.53$) for same-industry acquisitions.

These results demonstrate the value effect of diversifying acquisitions conditional on creditor rights. Strong creditor rights induce managers to undertake risk-reducing acquisitions, even if they result in post-acquisition decline in profitability and in value loss, in order to reduce the threat posed by default.

3.4. Creditor rights and firms' cash flow risk

We now test hypothesis II on the relationship between corporate cash flow risk and creditor rights. In addition to doing diversifying acquisitions, firms can reduce their risk by other means which are not directly observed. We therefore measure directly the level of corporate risk and relate it to the creditor rights in the country.

The risk of operating cash flows of firm j in country c, $RISK_{j,c}$, is the standard deviation of the *industry-adjusted* firm's return on assets. We calculated the annual $ROA_{j,c,t}$, described in the previous section, for the period 1992-2005, and winsorized the entire sample at 0.5% in both tails of the distribution to account for possible data errors and large outliers. Then we subtract from $ROA_{j,c,t}$ the median ROA of its industry (2-digit SIC code) for that year, and calculate the standard deviation of the resulting industry-adjusted series. The entire sample of $RISK_{j,c}$ is again winsorized at 1% in both tails of its distribution to eliminate outliers. We include only firms in the manufacturing industries with data for at least eight years. We exclude utilities and financial firms which are regulated in many countries, and this could affect their risk.

We estimate the effect of creditor rights on firms' risk in the following model:

$$RISK_{j,c} = \gamma * CRIGHTS_c + \text{control variables}. \tag{10}$$

Our hypothesis implies $\gamma < 0$. We again estimate this model at both the firm level (Table 5) and the country level, the latter using the median risk of the firms in the country. The control variables are those used in Table 3, but also adding firm size (the logarithm of firm's initial total assets, as of the beginning of its data in our sample) which negatively correlates with risk.

We estimate the model of single-firm risk level as a panel regression, with country-clustered standard errors. This regression includes 35 countries due to insufficient data in three countries (we required at least 6 firms with the required series of accounting data in a country), giving us a total of 5,394 firms for the firm-level analysis.

INSERT TABLE 5 HERE.

The results in Table 5 support our hypothesis: the coefficient γ of $RISK_{j,c}$ on $CRIGHTS_c$ is negative and statistically significant. Based on model (1), one standard deviation increase in the strength of the creditors' rights ($CRIGHTS_c$) leads to a decrease in $RISK_{j,c}$ of 13.1% of its mean. As in the earlier results on same-industry mergers (Table 3), the most significant component of $CRIGHTS$ that negatively affect $RISK$ is managerial dismissal ($MANAGES$). The addition of that provision alone decreases $RISK_{j,c}$ by 34.1% of its mean, based on model (5). The results on the effect of $CRIGHTS$ are qualitatively unchanged when excluding the U.S. and the U.K. (columns (6) and (7)).

Among the control variables, firms with high financial risk, measured by higher leverage choose to have lower cash flow risk. Leverage is instrumented because of its endogeneity; the instruments are, as in Table 3, the country control variables and two exogenous variables, the U.S. industry rank of leverage and tangibility, for the industry to which firm j belongs. Large firms have lower risk, as expected. As to country variables, higher *Macro Risk* has positive effect on $RISK_{j,c}$, as expected, although its significant is marginal when excluding the U.S. and the U.K. The effect of capital market development, as measured by *Log*(*Market Cap*), is positive although it is insignificant when excluding the U.S. and the U.K. The coefficient of *Flexibility to fire* is positive, but becomes negative and insignificant in the next estimation of the model in a country-level regression.

As a robustness test, we control for cultural differences between countries by adding to the model the culture-based variable *Uncertainty Avoidance* from Hofstede (2001), expecting its effect to be negative. Indeed, its coefficient is -0.0001, but $t = 0.09$, insignificant. Without the U.S. and the U.K., its coefficient is -0.0001 with $t = 0.17$. The

effect of creditor rights on *RISK* is unaltered. In this regression, the coefficient of *CRIGHTS* is -0.006 ($t = 2.88$), and without the U.S. and the U.K. it is -0.0054 ($t = 2.40$).

Next, we do *country*-level tests of the *RISK-CRIGHTS* relationship, where each country is a single observation and they are all treated alike. The dependent variable, $RISK^*_c$, is the country average of the individual firms' industry-adjusted risk, $RISK_{j,c}$. The coefficients of interest, γ of *CRIGHTS and its components* in model (10), are:

CRIGHTS -0.007 ($t = 3.35$).

AUTOSTAY -0.015 ($t = 2.12$).

REORG -0.001 ($t = 0.15$).

SECURED -0.010 ($t = 1.49$).

MANAGES -0.023 ($t = 3.50$)

The results again support our hypothesis. The coefficient of *CRIGHTS* is negative and significant at better than 5%, even though we have only 22 degrees of freedom. As before, the strongest effect is due to the managerial dismissal component (*MANAGES*), with lack of stay on secured creditors (*AUTOSTAY*) being also significantly negative. Of the country control variables, notably *Log*(*Market Cap*) retains its negative effect, though its statistical significance is marginal. When adding the variable *Uncertainty Avoidance* to the model, we obtain that its coefficient is negative, -0.0003 with $t = 2.02$, statistically significant. Yet, the effect of creditor rights remains negative and significant as before. The coefficient of *CRIGHTS* is -0.0063 with $t = 4.00$.

We thus find support through an independent test for the hypothesis that in countries with stronger creditor rights, firms have lower cash flow risk.

3.5. Industry-adjusted propensity to reduce risk

Countries differ in their industrial composition, which may affect the propensity to do same-industry mergers and may affect the average firms risk in the country. We therefore estimate our model at the industry level, employing the Rajan-Zingales (1998) methodology. The model uses as benchmark the inherent propensity to do same-industry acquisitions or the inherent level of firm risk by using the relevant variable from industries in the U.S., which has the most data on firms and is among the least constrained countries in terms of creditor rights. We estimate two models:

$$SAME_{k,c} = \beta_0 + \beta_1 * SAME_{k,US} + \beta_2 * CRIGHTS^{dm}_c * SAME_{k,US} + Country\ fixed\ effects \quad (11)$$

where $SAME_{k,US}$ is the proportion in the U.S. of firms in industry k acquiring firms in the same industry (using 2-digit SIC code), calculated for the period 1994-1997, and $SAME_{k,c}$ is similarly the proportion of same-industry acquisitions of acquirers in industry k in country c for the *subsequent* period, 1998-2004. $CRIGHTS^{dm}_c$ is the de-meaned value of $CRIGHTS_c$, obtained by subtracting the overall mean $CRIGHTS$. We include an industry from a given country if it has at least six qualified transactions during the period 1998-2004. The estimation is done by the tobit method. The second model is,

$$RISK_{k,c} = \delta_0 + \delta_1 * RISK_{k,US} + \delta_2 * CRIGHTS^{dm}_c * RISK_{k,US} + Country\ fixed\ effects \quad (12)$$

where $RISK_{k,US}$ is the median risk level in industry k in the U.S., calculated for the 1992-1998, and $RISK_{k,c}$ is the median risk in the same industry in country c, calculated over the subsequent period 1999-2005.[23]

In both models, we expect that the coefficient of the interaction between creditor rights and the inherent variable to be negative. Indeed, this is what we obtain:

<u>For model (11)</u>: $\beta_1 = 1.310$ ($t = 9.83$), $\beta_2 = -0.263$ ($t = 7.56$), $R^2 = 25.0\%$.

<u>For model (12)</u>: $\delta_1 = 0.862$ ($t = 4.49$), $\delta_2 = -0.158$ ($t = 2.16$), $R^2 = 30.2\%$.

The negative and significant coefficients β_2 and δ_2 imply that across countries creditor rights reduce the tendency of firms in industries to do same-industry acquisitions relative to the inherent such tendency in these industries, and reduce the risk of firms in industries relative to the inherent risk in these industries.

3.6. Creditor rights and financial leverage

Corporate managers can also reduce their exposure to the costs resulting from stronger creditor rights by reducing their financial leverage. Lower leverage reduces the

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[23] The results are qualitatively unchanged when the variables for both the U.S. and all other countries are calculated over the entire sample period, 1992-2005.

likelihood of incurring the costs associated with bankruptcy for any given level of corporate activity and risk. Thus, it is reasonable to assume that stronger creditor rights reduce the corporate demand for leverage. This hypothesis is in contrast with that of La Porta et al. (1998) who suggest that stronger creditor rights increase the *supply* of funds by lenders whose rights are better protected in bankruptcy.

The question is: given the conflicting effects of stronger creditor rights on demand and supply of leverage, what is the equilibrium level of leverage as a function of creditor rights? If the perceived cost by corporate managers of stronger creditor rights outweighs the benefit of greater supply of credit that the stronger creditor rights generate, there should be a negative relationship between creditor rights and corporate leverage. This is the hypothesis that we test. We estimate the model

$$Leverage_{j,t,c} = \delta * CRIGHTS_c + control\ variables. \tag{13}$$

Leverage$_{j,t,c}$ is the industry-adjusted debt-to-asset ratio (in book value) of firm j in year t in country c, where debt is total liabilities minus equity and minus deferred taxes. We calculate each firm's annual leverage and winsorize the data at 1% in both tails of its distribution to eliminate outliers. Then we subtract from it the year's median industry leverage (using 2-digit SIC code) to create the industry-adjusted firm's leverage. The sample of firms is the same as in the tests of cash flow risk. The sample includes 36,237 firm years with leverage data, of which 17,304 are in countries excluding the U.S. and the U.K. The regression includes all country variables and company-specific variables that appear in Table 5 (the cash flow risk estimation) and additional variables that are used in studies of leverage: country corporate tax rate in each year, company asset's tangibility, company size (assets in U.S. dollars) and company profitability, measured by *EBITDA/Assets*. The company control variables are lagged one year relative to the estimated leverage variables, as are the country tax rates.[24] The regression includes year fixed effects and standard errors are clustered by country.[25]

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[24] Data on the country tax rates ends in 2002, and is then applied for 2003-2005.
[25] Clustering can be done instead by firms, given that the observations are firm-years. When we do that, we obtain smaller standard errors than those reported, and consequently, the *t*-statistics are greater. For example, the *t*-statistic of the coefficient of *CRIGHTS* for the entire sample is 8.96, and that of *CRIGHTS* is the sample that excludes the U.S. and

INSERT TABLE 6 HERE.

Our hypothesis is that in model (13), $\delta < 0$, i.e., stronger creditor rights induce corporate managers to reduce financial risk by reducing corporate leverage. The results in Table 6 support this hypothesis: the coefficient of *CRIGHTS* is negative and significant. In the sample of all countries, the coefficient of *CRIGHTS* is -0.022 with $t = 5.20$, and in a sample of 36 countries, after excluding the U.S. and the U.K., it is -0.018 with $t = 3.42$. Based on model (1), one standard deviation increase in $CRIGHTS_c$ leads to an additional decrease in leverage of 19.6% below its average. All four categories of creditor rights have negative and significant coefficients, attesting to the consistency in the negative effect of creditor rights on leverage. Among these, the addition of the managerial dismissal provision decreases leverage by an additional 31.3% below its average, based on model (5).

We get similar results in a robustness test that employs Djankov et al.'s (2007) data on creditor rights. In the sample of all countries, the coefficient of *CRIGHTS* is -0.018 with $t = 3.52$, and after excluding the U.S. and the U.K., it is -0.013 with $t = 4.59$. A second robustness test examines the effect of Hofstede's *Uncertainty Avoidance* index of the country, because it could be that the culture in a country affects both its law regarding creditor rights and the propensity of its business managers to borrow and assume financial risk. Adding *Uncertainty Avoidance* to the control variables in model (13) and Table 6, we obtain that its coefficient is negative, -0.0001, but it is insignificant ($t = 0.56$). Excluding the U.S. and the U.K., the coefficient is 0.0002 ($t = 0.75$). Yet, the negative and significant effect of *CRIGHTS* is unaltered: its coefficient is then -0.0221 ($t = 5.54$) and excluding the U.S. and the U.K., the coefficient is -0.0163 ($t = 3.04$).

We also test our hypothesis at the *country* level. In every year we calculate the average industry-adjusted leverage ratio for the country and then do a regression of the country's average leverage on the creditor rights in the country as well as on all the country variables and on year dummy variables. The results are consistent with those

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the U.K. is 4.77. In Table 8, we present clustering by country, which is more conservative and consistent with the clustering in the other estimations.

obtained in the firm-level test. We present here for brevity the coefficients of creditor rights and its components:

CRIGHTS: −0.019 (t = 9.32).

AUTOSTAY: −0.015 (t = 3.01).

REORG: −0.027 (t = 6.92).

SECURED: −0. 032 (t = 6.06).

MANAGES: −0.018 (t = 3.05).

Moreover, most of the control variables preserve their signs and significance. The exceptions are average tangibility and average profitability that now become insignificant as compared to the firm-level leverage regressions. On the other hand, country-level variables such as accounting disclosure, rule of law and log GDP per capita become more significant. The question is whether the level of leverage matters from an economic perspective, given Modigliani and Miller's (1958) theorem of the irrelevance of leverage in a frictionless world. But if leverage (at some level) were not beneficial, its level would not have declined when its cost rises in the face of stronger creditor rights. The negative relationship between leverage and creditor rights that we estimate suggests that firms are willing to forego some of the benefits of leverage when faced with stronger creditor rights.

3.7. Risk reduction and industry recovery rates

Our final test of the effect of creditor rights on corporate behavior, which is different from the tests done so far, examines the choice of target in a merger or acquisition in terms of the recovery rate of its assets in default (henceforth recovery). The recovery here is the extent to which the price of the assets sold in distress is close to the value of the asset in its best use, following the definition of (inverse of) *asset-specificity* in Shleifer and Vishny (1992). A firm with high-recovery assets can better deal with financial distress by partially liquidating such assets and using the proceeds to defer default. Assume that the firm would default without the asset sale and the use of the proceeds to service the debt. Then, the call option which is embedded in the firm's equity would expire out of the money and thus become worthless. Then, extending the life of the

option by servicing the debt from liquidated assets makes equity more valuable. This analysis assumes that the firm's volatility does not decline appreciably. If the cash obtained from liquidating risky assets is kept in the firm, for example to satisfy a working capital covenant restriction, the firm's volatility will decline and the net effect on the equity value is uncertain. If a risk-averse manager's objective is to reduce volatility, again high-recovery assets become attractive when strong creditor rights threaten the manager's survival. Thus, management of an acquirer firm in a low-recovery industry, being more vulnerable to default risk, would seek high-recovery assets that enhance the firm's chances of survival.

We thus test whether creditor rights influence the type of target firm that a low-recover bidder seeks. We denote the event of low-recovery acquirer (AL) buying high-recovery target (TH) by $AL \cap TH$, and the probability of this event occurring among all acquisitions of high-recovery target by $Pr(AL \cap TH | TH)$. We estimate the determinants the likelihood of low-recovery firm acquiring high-recovery target by the model

$$Pr(AL \cap TH | TH)_{j,c} = b*CRIGHTS_c + control\ variables. \qquad (14)$$

We hypothesize that $b > 0$: stronger creditor rights induce acquirers in low- recovery industries to buy target firms in high-recovery industries. We assign to firms the recovery level of the industry in which they operate, using the data in Acharya, Bharath and Srinivasan (2007, Table 2) which employs historical experience on defaults in the U.S. over the period 1982-1999. Low recovery industries (in terms of 2-SIC code headers) are: transportation (37, 40, 41, 42, 44, 45, 46, 47), high technology and office equipment (35, 36, 38), consumer/service sector (52, 53, 54, 55, 56, 57, 58, 59, 72, 73, 75, 76, 78, 79), and leisure time/media (27, 48, 70). High recovery industries are: energy and natural resources (10, 12, 13, 14, 24), building products/ homebuilders (8, 15, 17, 24, 28, 29, 32, 34), and healthcare/chemicals (28, 80.)[26] In the estimation model, the universe is all targets with high recovery, and the bidders are either low recovery

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[26] We alternatively follow Dyck and Zingales (2004), characterizing as low recovery rate industries the following ones: mining, manufacturing, and transportation. Our results are similar.

(dependent variable = 1), or high recovery (dependent variable = 0). The control variables used are those used in Tables 3 and 5.

INSERT TABLE 7 HERE

The results in Table 7 support our hypothesis. The coefficient of *CRIGHTS* is positive and significant for the entire sample as well as when excluding the U.S. and the U.K., which constitute more than half the sample (columns (6-10)). That is, stronger creditor rights induce greater likelihood of acquisition of high- recovery targets by low-recovery firms. All components of creditor rights have positive coefficients, and except for the component that secured are paid first (*SECURED*) they are statistically significant. The relatively large coefficient of managerial dismissal component (*MANAGES*) underscores the evidence in Eckbo and Thornburn (2003) cited before. The *MacroRisk* has a positive effect on the likelihood of low-recovery firms acquiring high-recovery firms, which is consistent with the view that such acquisitions are desired as means to reduce risk.

We also estimate the model as a *country-level* regression, where the dependent variable is the proportion of all high-recovery targets in the country acquired by low-recovery bidders (we use logistic transformation). In this regression, each country is a single observation, regardless of the number of transactions in it. For sake of parsimony, we do not present the table. The results are consistent with those of single-acquisition regressions. The coefficient of *CRIGHTS* is 0.288 with $t = 3.37$, highly significant.[27]

This test provides additional evidence that creditor rights affect the choice of investment – here, an acquisition target – particularly by low-recovery acquirers, which seek to acquire high-recovery targets.

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[27] We further conduct a test in the spirit of this hypothesis, examining the proportion among all low-recovery bidders that seek high-recovery targets. In this regression, the effect of *CRIGHTS* is not statistically significant.

3.8. The effects of *changes* in creditor rights

Our analysis has shown a cross-country relationship between creditor rights and a number of variables: acquisitions type (focusing or diversifying, or merging low-recovery acquirer with high-recovery target), post-acquisition change in performance and corporate leverage. This section tests the effect of creditor rights on these variables *over time*, exploiting seven *changes* in creditor rights that occurred in six countries: Indonesia, Israel, Japan (two changes), Sweden, Thailand and Russia,[28] documented in Djankov et al. (2007). These changes imply a decrease in *CRIGHTS* by one unit, except for the 2002 change in Japan that raised *CRIGHTS* by one unit. The changes were motivated by financial crises (Indonesia, Russia, Sweden and Thailand), the need to collect tax (Russia) or emulation of the U.S. in the transformation from a centrally-controlled economy, and in case of Israel, to explicitly promote risk-taking and entrepreneurship.

We estimate the following regression, a variant of model (7):

$$DepVar_{j,c} = \alpha * \Delta CRIGHTS_c + \text{control variables}. \tag{15}$$

DepVar is (i) the probability of same-industry acquisitions, *Pr(same industry)*;(ii) the probability of same-country acquisition, *Pr(same country)*; (iii) the change in acquirer's *ROA k* years after the acquisition, *dROA(k) = ROA(t+k) - ROA(t-1)*; (iv) the cumulative abnormal return on the acquirer's stock from 3 days before the acquisition announcement to 3 days after the announcement, *CAR (t-3 to t+3)*; (v) corporate *Leverage*; and (vi) the probability of a low-recovery acquirer buying a high-recovery target, *Pr(AL∩TH|TH)_{j,c}*. If creditor rights became weaker, we set *ΔCRIGHTS_c* = 0 for the years that *follow* the year of change and set *ΔCRIGHTS_c* = 1 for the period that precedes it (including the change year), when *CRIGHTS_c* are stronger. Analogously, *ΔCRIGHTS_c* = 1 during the period *following* the year of strengthening of creditor rights and *ΔCRIGHTS_c* = 0 beforehand. As discussed, all changes in *CRIGHTS_c* during the sample period but one made them weaker. For most countries in our sample (with no changes in creditor rights), *ΔCRIGHTS* = 0 for the entire sample period. The control variables are *Transaction Value*

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[28] Russia is included only in this table's regressions, not in any other estimation, because it has a unique legal origin. Its inclusion with a unique dummy variable for its legal origin will not change any of the results reported.

(in logarithm), with year fixed effects, industry fixed effect (except for (vi)) and, importantly, country fixed effects which account for all country-based variables, in line with the difference-in-differences methodology. In the *Leverage* equation, we add leverage-related firm-specific variables: *Tangibility*, *Log(assets)* and *EBITDA/Assets*. We estimate the regressions on the probability of focusing acquisitions by the probit method and the other models by OLS, with standard errors clustered at the country level to account for potential within-country correlation in the residuals.

INSERT TABLE 8 HERE.

By our hypotheses on the effect of creditor rights, we expect that in model (15) $\alpha < 0$ for the first five dependent variables, and we expect $\alpha > 0$ for $Pr(AL \cap TH|TH)_{j,c}$. The regression results in Table 8 support our hypothesis.

(i) *DepVar = Pr(same industry)*. The coefficient of $\Delta CRIGHTS_c$ is negative and statistically significant: $\alpha = -0.145$ ($t = 6.19$). This means that weakening of creditor rights significantly increases the likelihood of same-industry mergers and reduces the extent of diversifying, risk-reducing mergers. The marginal effect from this regression is -0.057, i.e., an increase in the strength of the creditor rights by one provision is associated with a statistically significant drop in the probability of a same industry merger by 5.7%.

(ii) *DepVar = Pr(same country)*: $\alpha = -0.213$ ($t = 2.83$). Weakening of creditor rights reduces the likelihood of cross-country mergers.

(iii) *DepVar = dROA(1), dROA(2) and dROA(3)*: The coefficients of $\Delta CRIGHTS_c$ are, respectively, $\alpha = -0.042$ ($t = 5.78$), $\alpha = -0.051$ ($t = 9.22$) and $\alpha = -0.023$ ($t = 4.98$). All coefficients are negative, as expected, and significant. The negative and significant coefficient for *dROA(1)*, for example, means that in countries where creditor rights were weakened, acquirers were induced to make more profitable acquisitions than they used to before the weakening of creditor rights and the improvement in their *ROA* was 0.042. Notably, in this regression we include *all* acquisitions, not only the diversifying ones, because of the self-selection in diversification. When including only diversifying mergers, the three coefficients of $\Delta CRIGHTS_c$ are slightly more negative: -0.062 ($t = 6.87$), -0.069 ($t = 9.24$) and $\alpha = -0.027$ ($t = 4.30$).

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(iv) *DepVar = CAR(t-3 to t+3)*: The negative and significant coefficient of *ΔCRIGHTS$_c$*, $α = -0.005$ ($t = 3.31$), means after creditor rights were weakened, acquisitions contributed more value-enhancing, the improvement being 0.5% of the acquirer's value. When estimating the model with diversifying acquisitions only (which is subject to selection), the coefficient of *ΔCRIGHTS$_c$* is again slightly more negative, -0.008 ($t = 3.08$).

(v) *DepVar = Leverage*: $α = -0.061$ ($t = 2.05$). Weakening of creditor rights makes firms increase their leverage.

(vi) *DepVar = (AL∩TH|TH)* (the likelihood of a high-recovery target being acquired by a low-recovery firm): $α = 0.147$ ($t = 1.08$). Strengthening creditor rights increases the propensity of firms with low-recovery assets to seek and buy target firms with high-recovery assets. In this case, the coefficient is not statistically significant.

The results on the effects of *changes* in creditor rights are consistent with those obtained in the cross-section analysis and thus support our hypotheses on the effects of creditor rights.

4. Conclusion and Discussion

We find that stronger creditor rights in a country induce firms to reduce risk. This is achieved by doing diversifying acquisitions, which result in loss of value and operating performance, and by undertaking lower cash flow and financial risk. Thus, creditor rights have real effect on corporate decisions and firm value.

Stronger creditor rights are means to mitigate stockholders' expropriation or risk-shifting tendencies that benefit them at the expense of bondholders (and that may be costly to the firm), and thereby they facilitate raising external capital. Our findings could thus be construed as confirming that creditor rights do what they are expected to do: inhibit excessive risk taking by companies. However, stronger creditor rights induce managers to reduce risk and stifle even *non-opportunistic* risk taking that is beneficial to all claimholders. Thus, strong creditor rights have a "dark side" to them by reducing managerial incentives to undertake value-enhancing but risky projects. The question is how to strike a balance between these two effects of creditor rights, the first ex post and

the latter ex ante. In this paper, we highlight the ex-ante aspect, namely the inhibiting effect of creditor rights on risk taking by companies: corporate investments in countries with stronger creditor rights are more risk reducing, as reflected in diversifying acquisition and in lower volatility of operating cash flows. We also show that stronger creditor rights have negative effects on corporate profitability (return on assets) and company value in the case of diversifying acquisitions.

It is argued that lenient bankruptcy laws may inhibit the supply of lending and make it harder to raise capital. However, creditor rights that are too strong inhibits firms' demand for borrowing and on balance, corporate leverage is lower in countries with stronger creditor rights.

This tradeoff suggests that stronger creditor rights are not always optimal. The optimal level of creditor rights should balance their positive effect on the supply of debt against their negative effect on corporate risk taking and operating performance, as well as on the demand for debt. In future work, it would be interesting to assess directly this important tradeoff.

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Table 1. Variable Definitions

Main Variables		Source
Risk-reduction measures		
PROP	Logistic transformation of the share of same industry mergers, per country. We define it as follows: *PROP* = ln [*SAME*/(1-*SAME*)]. *SAME* is the proportion of same 2-digit SIC code industry mergers and acquisitions.	SDC Platinum Mergers & Acquisitions.
Firm risk (*RISK*)	$RISK_{j,c}$ is the standard deviation of firm j in country c of $ROA_{j,c,t}$, where $ROA_{j,c,t} = EBITDA_{j,c,t} / ASSETS_{j,c,t}$. t is the year, and we require at least 8 years of data. Data are for the period 1992-2005. The entire data of $ROA_{i,c,t}$ is winsorized at 0.5% in both tails to account for extreme observations. The entire firm sample of $RISK_{i,c}$ is then winsorized at 1% in both sides of the sample distribution. The measure is similar to the one used in John et al. (2008).	Compustat Global Industrial/ Commercial Annual Database.
Country risk (*RISK**)	The average of $RISK_{j,c}$ across firms in country *c*.	
Creditor- Rights Variables		
Creditor rights (*CRIGHTS*)	An index aggregating creditor rights, following La Porta et al. (1998). It is the sum of the four indexes that follow. *CRIGHTS* then ranges between 0 and 4.	La Porta *et al.* (1998), Djankov, McLeish, and Shleifer (2007)
No automatic stay (*AUTOSTAY*)	Equals one if the reorganization procedure does not impose an automatic stay on the assets of the firm upon filing the reorganization petition, creditors are able to seize their collateral after the reorganization petition is approved. It equals zero if such restriction does exist in the law.	La Porta *et al.* (1998)
Reorganization (*REORG*)	Equals one if the reorganization procedure imposes restrictions, such as creditors' consent or minimum dividend for a debtor to be able to file for reorganization. It equals zero for countries without such restriction.	La Porta *et al.* (1998)
Secured debt first (*SECURED*)	Equals one if secured creditors are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm, as opposed to other creditors such as employees or government. Equals zero if non-secured creditors, such as the government and workers, are given absolute priority.	La Porta *et al.* (1998)
No management stay (*MANAGES*)	Equals one if an official is appointed by the court, or by the creditors, is responsible for the operation of the business during reorganization, that is management does not retain administration of its property pending the resolution of the reorganization. Equivalently, this variable equals one if the debtor does not keep the administration of its property pending the resolution of the reorganization process, and zero otherwise.	La Porta *et al.* (1998)
Control Variables		
Log(*GDP-per-capita*)	Natural logarithm of the average real GDP per capita in US dollars, 1994-2000.	Penn World Tables, Version 6.1
Macroeconomic Risk (*MacroRisk*)	The standard deviation of the quarterly growth in real industrial production for each country in the period 1990-2004. For some countries, we use instead the index of manufacturing production: Argentina, Chile, Greece, Hong Kong, Indonesia, New Zealand, Peru, Philippines, Singapore and South Africa. For Argentina, Canada, Taiwan and Thailand, data are from the international database of Global Insight. The variable is measured in decimal points.	International Financial Statistics of IMF.
Rule of Law (*LAW*)	The assessment of the law and order tradition of the country. Calculated as "average of the months of April and October of the monthly index between 1982 and 1995. Scale from zero to 10, with lower scores for less tradition for law and order."	International Country Risk Guide; La Porta *et al.* (1998).
Legal Origins	A dummy variable that identifies the legal origin of the Company law or Commercial Code of each country. The detailed origins are French, German, Nordic (default is Common)	La Porta et al. (1998) and the CIA Factbook 2003.
Shareholder rights (*SHRIGHTS*)	An index that aggregates shareholder rights. "The index is formed by adding one when: (1) the country allows shareholders to mail their proxy vote to the firm, (2) shareholders are not required to deposit their shares prior to the general shareholders' meeting, (3) cumulative voting or proportional representation of minorities in the board of directors is allowed, (4) an oppressed minorities mechanism is in place, (5) the minimum percentage of share capital that entitles a shareholder to call for an extraordinary shareholders' meeting is less than or equal to 10 percent (the sample median), or (6) shareholders have preemptive rights that can be waived only by a shareholders' vote. The index ranges from zero to six."	Quotation is from La Porta et al. (1998).
Accounting Disclosure	An index created by the examination of the annual report in 1994 of companies across countries on their inclusion or omission of 90 line items.	International Accounting and Auditing Trends, Center for International Financial Analysis and Research

Table 1 (continued)

Emerging Markets	Dummy variable equal to one if the country's GDP-per-capita (in US$, average over 1994-2000) is less than the median for the sample of countries.	Penn World Tables, Version 6.1
Flexibility to Fire	An index of the ease to fire workers based on a study of the employment laws. (divided by 100.)	Doing Business Report, 2004, The World Bank
Country corporate tax	The annual top corporate tax rate for 1992-2002, per country.	World Tax Database at the University of Michigan.
Log(Market Cap)	The logarithm of the stock market capitalization in U.S. dollars in 1994.	World Market Indicators database, The World Bank
ROA	*EBITDA/Assets*	Compustat Global Vantage and
Leverage	Ratio of total debt to total assets in book value. Debt is total liabilities minus equity and minus deferred taxes. Leverage data are winsorized in the entire population at 1% in each tail.	Compustat Global Vantage
Transaction Value	The amount paid in U.S. dollars.	SDC Platinum Mergers & Acquisitions.
Cumulative Abnormal Return (-3 to+3)	Cumulative abnormal return computed over the seven day window surrounding the event date. The estimation of equity betas uses 105 weeks but requires not less than 52 weeks of data, up to 9 weeks before the week of the acquisition announcement. We use as market indices the corresponding countries' main stock exchange indices. The resulting sample of firms' *CAR* is then winsorized at 1% at both tails.	Datastream
Tangibility	Net fixed (tangible) assets / Total Assets	Compustat Global Vantage

Table 2. Overall descriptive statistics

Table 2 describes the total number of domestic mergers in the sample countries for 1994-2004 that enter Table 3 regressions. The sample presented consists of the countries for which we have La Porta et al. (1998) data on creditor rights. We exclude countries that have less than 50 qualified transactions in the sample period. A transaction is qualified if the percentage of acquired shares is at least 20%. We exclude financial industry (SIC header 6) and regulated industry companies (SIC headers 48 and 49) from the country transaction count. The mergers and acquisition data is from SDC Platinum Mergers and Acquisitions database. The year of creditor rights change is the one from the Djankov et al. (2007) study. We also present data on the average country cash flow risk proxy, *RISK*[*].

Acquirer's Country	Year of creditor rights change	# Mergers	# Same Industry Mergers	Cash flow Risk Proxy	Shareholder Rights	Creditor Rights	Macroeconomic Volatility	$ GDP per capita
	LAW CHANGE	*COUNT*	*SAME*	*RISK*	*SHRIGHTS*	*CRIGHTS*	*MacroRisk*	*GDP*
Argentina	-	66	55.33%	0.058	4	1	0.07	$7,801
Australia	-	1,618	61.72%	0.121	4	1	0.04	$20,948
Austria	-	14	64.52%	0.036	2	3	0.09	$26,220
Belgium	-	49	57.54%	0.043	0	2	0.08	$24,649
Brazil	-	143	70.26%	0.07	3	1	0.03	$4,143
Canada	-	2,071	61.37%	0.094	5	1	0.01	$20,647
Chile	-	41	61.84%	0.033	5	2	0.04	$4,604
Denmark	-	80	56.47%	0.049	2	3	0.07	$32,434
Finland	-	154	54.60%	0.054	3	1	0.08	$23,856
France	-	434	59.79%	0.045	3	0	0.1	$24,033
Germany	-	201	55.31%	0.057	1	3	0.04	$26,443
Greece	-	70	47.22%	0.043	2	1	0.06	$11,219
Hong Kong	-	190	34.11%	0.064	5	4	0.13	$23,850
India	-	236	57.87%	0.051	5	4	0.07	$423
Indonesia	1998	39	60.53%	.	2	4	0.07	$868
Ireland	-	92	63.59%	.	4	1	0.08	$21,376
Israel	1995	73	45.45%	0.075	3	4	0.02	$16,391
Italy	-	333	53.31%	0.038	1	2	0.12	$19,814
Japan	2000 and 2002	1,771	46.80%	0.022	4	2	0.03	$36,616
Malaysia	-	369	25.27%	0.066	4	4	0.05	$3,982
Mexico	-	82	62.59%	0.049	1	0	0.03	$4,421
Netherlands	-	101	57.80%	0.059	2	2	0.11	$24,802
New Zealand	-	98	57.73%	0.073	4	3	0.06	$15,528
Norway	-	130	58.94%	0.079	4	2	0.07	$33,844
Peru	-	26	68.63%	0.058	3	0	0.07	$2,296
Philippines	-	42	56.00%	0.08	3	0	0.18	$1,041
Portugal	-	56	65.31%	0.036	3	1	0.06	$10,782
Singapore	-	243	32.19%	0.064	4	4	0.06	$22,916
South Africa	-	372	49.84%	0.061	5	3	0.02	$3,413
South Korea	-	198	32.48%	0.051	2	3	0.06	$9,545
Spain	-	338	64.08%	0.04	4	2	0.08	$14,535
Sweden	1995	186	58.53%	0.067	3	2	0.16	$26,812
Switzerland	-	38	57.67%	0.046	2	1	0.07	$37,908
Taiwan	-	52	44.90%	0.039	3	2	0.06	$12,580
Thailand	1999	83	43.95%	0.065	2	3	0.05	$2,396
Turkey	-	17	50.00%	0.097	2	2	0.07	$2,810
United Kingdom	-	5,624	58.61%	0.071	5	4	0.05	$21,767
United States	-	17,491	59.07%	0.088	5	1	0.01	$30,899

Table 3. Merger-level analysis: proportion of same-industry mergers

The table presents the coefficient estimates from probit regressions. The dependent variable equals 1 if both acquirer and target are in the same industry, using 2-digit SIC code. A country is included in our sample if it has at least 50 qualified transactions over the sample period. A transaction is included if the percentage of acquired shares is at least 20%. Excluded are transactions where the acquirer is from the financial industry (SIC header 6) or regulated industry (SIC headers 48 and 49). *CRIGHTS* are as of 1994. The control variables include shareholder rights, rule of law, macroeconomic risk, legal origins, the logarithm of the stock market capitalization, the index of flexibility to fire, the quality of accounting disclosure, an emerging market indicator, the logarithm of average real GDP-per-capita (1994-2000) in US$, the logarithm of transaction value, and the imputed leverage for the acquirer and the target (the predictors are the U.S. industry quartile rank of the median leverage and median tangibility, and all exogenous control variables). All variables are defined in Table 1. The regressions include year fixed effects (not reported). Models (1) through (5) include all countries. Model (6) excludes the U.S. Model (7) excludes both the U.S. and the U.K. The *t*-statistics in parentheses are based on robust estimation of standard errors with errors cluster-adjusted at the country level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively. Sample period is 1994-2004.

Variable	All countries					Exclude U.S.	Exclude U.S. and U.K.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CRIGHTS	-0.245***					-0.411***	-0.420***
	(6.33)					(3.66)	(3.56)
AUTOSTAY		-0.415***					
		(5.74)					
REORG			-0.524***				
			(5.18)				
SECURED				-0.318***			
				(3.78)			
MANAGES					-0.848***		
					(6.89)		
SHRIGHTS	0.022	-0.002	0.012	0.029	0.143***	0.218***	0.112***
	(0.91)	(0.08)	(0.46)	(1.16)	(5.38)	(4.00)	(2.88)
Log (Market cap)	0.293***	0.247***	0.266***	0.207***	0.225***	0.134***	-0.035
	(6.48)	(5.94)	(6.01)	(5.56)	(6.20)	(3.09)	(0.87)
Flexibility to fire	0.836**	1.077***	1.37***	0.993**	-0.262	0.503	-0.449
	(2.15)	(2.68)	(3.32)	(2.41)	(0.67)	(1.17)	(0.94)
Accounting disclosure	-0.026***	-0.033***	-0.030***	-0.047***	-0.011**	-0.024***	-0.035***
	(4.46)	(5.23)	(4.82)	(6.26)	(2.21)	(3.09)	(4.31)
Emerging Market	0.661***	0.421***	0.505***	0.303***	0.653***	1.932***	0.956**
	(5.99)	(4.75)	(5.27)	(4.25)	(6.08)	(3.42)	(2.58)
Rule of Law	0.375***	0.544***	0.362***	0.445***	0.026	0.952***	0.600***
	(5.79)	(7.85)	(5.66)	(6.87)	(0.34)	(4.13)	(4.33)
French Legal Origin	-0.388***	-0.189*	-0.305**	-0.224**	0.0004	0.213	0.009
	(2.87)	(1.71)	(2.52)	(2.10)	(0.01)	(1.61)	(0.07)
German Legal Origin	-0.613***	-0.86***	-0.950***	-0.968***	0.101	1.087**	0.673*
	(9.32)	(9.96)	(10.58)	(10.49)	(1.00)	(2.35)	(1.69)
Nordic Legal Origin	1.167***	0.903***	1.245***	1.097***	1.212***	2.458***	1.393**
	(5.3)	(4.49)	(5.33)	(5.10)	(5.70)	(3.33)	(2.58)
MacroRisk	-0.207	-2.945***	-1.841**	-6.312***	-0.803	4.755**	1.765
	(0.22)	(3.18)	(1.96)	(6.76)	(0.97)	(2.15)	(1.13)
Log(GDP perCapita)	-0.178***	-0.199***	-0.097**	-0.055	-0.152***	-0.423***	-0.354***
	(3.37)	(3.71)	(2.04)	(1.20)	(3.09)	(3.13)	(3.35)
Log(Transaction Value)	0.086***	0.090***	0.091***	0.096***	0.083***	0.083**	0.064***
	(5.41)	(5.47)	(5.47)	(5.52)	(5.30)	(2.29)	(2.85)

Table 3 (continued)

Acquirer's Leverage (imputed)	1.746[*]	1.755	1.734	1.737	1.754[*]	-0.486	-1.376[*]
	(1.69)	(1.68)	(1.64)	(1.64)	(1.70)	(0.35)	(1.75)
Target's Leverage (imputed)	-7.647[***]	-7.861[***]	-8.062[***]	-8.251[***]	-7.584[***]	-13.957[***]	-7.700[**]
	(6.13)	(6.14)	(6.17)	(6.17)	(6.09)	(3.51)	(2.57)
Number of countries	38	38	38	38	38	37	36
Observations	33,221	33,221	33,221	33,221	33,221	15,730	10,106
Chi-squared	4,449.7	4,279.3	1,696.8	1,375.8	5,870.4	1,838.4	2,079.4

Table 4. Effects of creditor rights on performance for focusing and diversifying mergers. The table includes two performance variables: (1) $dROA$(k) = ROA(t+k)-ROA(t-1), where ROA is Return on Assets = $EBITDA/ASSETS$, and t is the year of the merger. (2) Cumulative abnormal returns on the acquirer's stock, CAR, from 3 days before the merger announcement to 3 days after the merger announcement. Abnormal returns are calculated from a market model whose parameters are estimated from weekly returns and market model for each country using 105 weeks but not less than 52 weeks, up to 9 weeks before the week of the merger announcement. We include year and industry fixed effects (not reported). To account for the choice of type of acquisition, we add the inverse Mill's ratio, computed using probit model (1) in Table 3 for regressions that include all countries. The t-statistics (in parentheses) are based on robust standard errors cluster-adjusted at the country level. The ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	ROA(t+1) -ROA(t-1)		ROA(t+2) -ROA(t-1)		ROA(t+3) -ROA(t-1)		CAR (t-3 to t+3)	
	Focusing	Diversify	Focusing	Diversify	Focusing	Diversify	Focusing	Div.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
CRIGHTS	0.0003	-0.028***	0.026	-0.031***	-0.017	-0.030***	0.011	-0.013***
	(0.02)	(8.20)	(1.30)	(10.28)	(0.98)	(8.84)	(1.65)	(5.14)
SRIGHTS	0.004	0.009	-0.008	-0.007	0.012	-0.003	-0.008*	0.002
	(0.37)	(1.44)	(0.61)	(1.27)	(1.03)	(0.45)	(1.74)	(0.56)
Log(Market cap)	0.001	-0.007	-0.019	-0.003	0.030	-0.002	-0.017**	0.004
	(0.11)	(0.93)	(0.90)	(0.49)	(1.49)	(0.26)	(2.31)	(1.49)
Flexibility to fire	-0.124	0.041	-0.258	0.042	0.237	0.041	-0.173**	-0.033
	(0.77)	(0.76)	(1.03)	(0.79)	(1.11)	(0.79)	(2.41)	(1.13)
Accounting disclosure	0.001	0.0001	0.002	0.0003	-0.004*	-0.001	0.002	-0.0001
	(0.44)	(0.06)	(0.76)	(0.26)	(1.79)	(0.79)	(1.62)	(0.18)
Emerging markets	0.025	0.006	-0.078	0.008	0.103	0.002	-0.051**	0.022***
	(0.47)	(0.38)	(0.94)	(0.48)	(1.43)	(0.13)	(2.2)	(2.89)
Rule of Law	-0.021	-0.019	-0.079	0.019	0.062	0.016	-0.058	0.02*
	(0.44)	(0.69)	(1.06)	(0.92)	(1.02)	(0.82)	(1.53)	(1.87)
French Legal Origin	0.037	-0.026	-0.034	-0.021	0.065	-0.025	-0.032	0.019
	(0.86)	(1.34)	(0.50)	(1.34)	(1.35)	(1.39)	(1.28)	(1.66)
German Legal Origin	0.055	0.003	0.079	0.005	-0.062	-0.006	0.049*	0.013**
	(1.35)	(0.27)	(1.13)	(0.44)	(1.16)	(0.53)	(1.96)	(2.34)
Nordic Legal Origin	0.020	-0.024	-0.145*	-0.026	0.093	-0.021	-0.047**	0.047***
	(0.42)	(0.85)	(1.84)	(1.02)	(1.23)	(0.72)	(2.32)	(2.98)
MacroRisk	0.105	-0.169	0.780	-0.619***	-0.427	-0.161	0.279	-0.058
	(0.27)	(1.0)	(1.09)	(4.08)	(1.04)	(0.92)	(1.45)	(0.63)
Log GDP per capita	0.001	0.013	0.022	-0.012	-0.006	-0.009	0.015	-0.02**
	(0.13)	(0.85)	(1.06)	(0.95)	(0.4)	(0.73)	(1.10)	(2.22)
Log(Transaction Value)	-0.002	-0.003	-0.009	-0.003	0.009	-0.001	-0.005	0.002***
	(0.37)	(0.95)	(0.93)	(0.72)	(1.21)	(0.3)	(1.32)	(2.66)
Dummy: Target is public	0.004	-0.005	0.011	-0.001	0.006	-0.003	-0.016***	-0.017**
	(0.63)	(1.57)	(1.29)	(0.39)	(1.25)	(0.78)	(5.01)	(2.48)
Inverse Mill's Ratio	-0.082	0.040	-0.573	0.053	0.618	0.092*	-0.434**	0.014
	(0.21)	(1.08)	(0.9)	(1.08)	(1.25)	(1.96)	(2.01)	(0.65)
Observations	8,788	5,752	8,198	5,491	7,742	4,770	7,500	5,725
R-squared	8.8%	11.7%	8.5%	15.0%	4.2%	13.6%	1.6%	2.0%

Table 5. Cash flow risk and creditor rights: RISK at firm level

The dependent variable, industry-adjusted *RISK*, is the standard deviation of the firm's annual *ROA* defined as *EBITDA/ASSETS* (see definition in Table 1) minus that year's median industry *ROA* (2-digit SIC code). The sample period is 1992-2005. Included are companies from the manufacturing industry only (SIC 2000 – 3999). We present the second stage estimation from the 2SLS system where we treat firm leverage as endogenous. We instrument leverage with the quartile ranks of the U.S. industry median leverage and tangibility. The *t*-statistics (in parentheses) are based on robust standard errors cluster-adjusted at the country level. The ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variable	All countries					Exclude U.S.	Exclude U.S. and U.K.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CRIGHTS	-0.006***					-0.006***	-0.006***
	(2.75)					(2.67)	(2.69)
AUTOSTAY		-0.011					
		(1.52)					
REORG			-0.005				
			(0.84)				
SECURED				-0.006			
				(1.15)			
MANAGES					-0.022***		
					(3.74)		
SHRIGHTS	-0.005	-0.005*	-0.003	-0.003	-0.003	-0.004	-0.005*
	(1.61)	(1.80)	(1.16)	(1.29)	(1.22)	(1.62)	(1.89)
Log (Market cap)	0.006***	0.007***	0.006***	0.006***	0.006***	0.003	0.003
	(3.10)	(3.04)	(2.64)	(2.76)	(3.59)	(1.21)	(0.74)
Flexibility to fire	0.066***	0.075***	0.081***	0.077***	0.041*	0.06***	0.055***
	(3.22)	(3.73)	(3.69)	(3.75)	(1.93)	(3.03)	(2.69)
Accounting disclosure	-0.001	-0.001	-0.0005	-0.001	-0.0003	-0.0003	-0.0004
	(1.17)	(1.17)	(0.96)	(1.08)	(0.64)	(0.66)	(0.74)
Emerging Market	0.011	0.007	0.001	-0.001	0.014*	0.012	0.009
	(1.30)	(0.71)	(0.10)	(0.15)	(1.83)	(1.52)	(1.00)
Rule of Law	0.010	0.012	0.005	0.005	-0.001	0.012	0.013
	(0.98)	(0.91)	(0.47)	(0.43)	(0.13)	(1.35)	(1.26)
French Legal Origin	-0.036***	-0.034***	-0.032***	-0.033***	-0.03***	-0.037***	-0.037***
	(4.00)	(3.73)	(3.49)	(3.67)	(2.88)	(4.45)	(4.38)
German Legal Origin	-0.024***	-0.029***	-0.029***	-0.029***	-0.010	-0.025***	-0.022**
	(3.41)	(3.95)	(4.08)	(4.31)	(1.14)	(2.67)	(2.14)
Nordic Legal Origin	-0.016	-0.021*	-0.02*	-0.02*	-0.012	-0.021**	-0.021*
	(1.45)	(1.84)	(1.70)	(1.73)	(0.98)	(2.04)	(1.91)
MacroRisk	0.101	0.086	0.096	0.081	0.116	0.100*	0.109*
	(1.67)	(1.30)	(1.45)	(1.27)	(1.56)	(1.73)	(1.74)
Log GDP per capita	0.004	0.004	0.008	0.008	0.006	0.002	0.0004
	(0.68)	(0.61)	(1.26)	(1.26)	(0.87)	(0.53)	(0.09)
Leverage (Instrumented)	-0.145***	-0.151***	-0.153***	-0.157***	-0.150***	-0.125***	-0.149***
	(4.17)	(4.01)	(3.85)	(3.64)	(4.15)	(3.28)	(3.06)
Log(Initial total assets)	-0.010**	-0.01**	-0.01**	-0.010**	-0.01**	-0.006***	-0.004**
	(2.55)	(2.46)	(2.45)	(2.39)	(2.45)	(3.32)	(2.53)
Observations	5,394	5,394	5,394	5,394	5,394	3,812	3,385
Centered R-squared	49.7%	48.2%	47.9%	46.9%	48.7%	52.9%	49.8%
Number of countries	35	35	35	35	35	34	33

Table 6. Leverage and creditor rights: leverage at firm level

The dependent variable is industry-adjusted leverage, defined as leverage (defined in Table 1) minus that year's median industry leverage (2-digit SIC code). The sample period is 1992-2005. The estimation includes year fixed effects. Included are companies from the manufacturing industry only (SIC 2000 – 3999). Data requirements are as for Table 5, and there are 35 countries. The t-statistics (in parentheses) are based on robust standard errors cluster-adjusted at the country level. The ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variable	All countries					Exclude U.S.	Exclude U.S.
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
CRIGHTS	-0.022***					-0.017***	-0.018***
	(5.20)					(3.65)	(3.42)
AUTOSTAY		-0.037**					
		(2.45)					
REORG			-0.049***				
			(4.66)				
SECURED				-0.042**			
				(2.61)			
MANAGES					-0.041***		
					(3.10)		
SHRIGHTS	-0.011***	-0.014***	-0.005	-0.009*	-0.006	-0.009**	-0.009**
	(3.15)	(2.96)	(1.37)	(1.71)	(1.48)	(2.57)	(2.61)
Log (Market cap)	0.014***	0.017***	0.015***	0.021***	0.013**	0.003	0.002
	(2.96)	(3.22)	(3.52)	(3.44)	(2.31)	(0.43)	(0.34)
Flexibility to fire	-0.001*	-0.001	-0.001	-0.001	-0.001	-0.001*	-0.001*
	(1.88)	(0.75)	(0.99)	(0.64)	(1.22)	(1.76)	(1.71)
Accounting disclosure	-0.004***	-0.004***	-0.004***	-0.005***	-0.003***	-0.003**	-0.003***
	(3.89)	(4.43)	(4)	(4.32)	(3.24)	(2.57)	(2.72)
Emerging Market	0.058**	0.046	0.053*	0.052	0.029	0.032	0.035
	(2.14)	(1.4)	(1.76)	(1.48)	(0.95)	(1.61)	(1.57)
Rule of Law	0.062***	0.057**	0.066***	0.07**	0.013	0.047**	0.05**
	(2.76)	(2.08)	(2.9)	(2.04)	(0.39)	(1.98)	(2.12)
French Legal Origin	-0.039**	-0.035	-0.009	-0.020	-0.030	-0.032**	-0.032**
	(2.23)	(1.67)	(0.73)	(1.06)	(1.38)	(2.14)	(2.13)
German Legal Origin	-0.074***	-0.098***	-0.087***	-0.092***	-0.063***	-0.05**	-0.048**
	(9.02)	(9.46)	(8.93)	(9.18)	(4.01)	(2.37)	(2.24)
Nordic Legal Origin	0.030	0.024	0.052***	0.055*	0.027	0.014	0.016
	(1.42)	(0.98)	(2.82)	(1.92)	(0.97)	(0.74)	(0.85)
MacroRisk	-0.101	-0.177	-0.134	-0.35**	-0.145	-0.120	-0.116
	(0.78)	(1.08)	(1.11)	(2.3)	(1.05)	(1.02)	(0.95)
Log GDP per capita	-0.017	-0.011	-0.012	-0.010	-0.002	-0.023**	-0.024**
	(1.31)	(0.72)	(0.95)	(0.69)	(0.13)	(2.25)	(2.31)
Country Corporate Taxes	-0.001*	-0.001	-0.001**	-0.001	-0.001	-0.001	-0.001
	(1.75)	(1.29)	(2.07)	(0.97)	(1.13)	(1.04)	(1.08)
Tangibility (t-1)	0.188***	0.186***	0.184***	0.188***	0.189***	0.176***	0.186***
	(10.67)	(10.62)	(10.35)	(10.97)	(10.81)	(6.3)	(6.12)
Log(assets, in US$) (t-1)	0.024***	0.024***	0.024***	0.024***	0.024***	0.028***	0.028***
	(7.55)	(7.46)	(7.66)	(7.37)	(7.35)	(8.75)	(7.83)
EBITDA/ Assets (t-1)	-0.155***	-0.156***	-0.154***	-0.159***	-0.158***	-0.157***	-0.177***
	(9.20)	(9.26)	(9.26)	(9.71)	(9.27)	(3.36)	(3.40)
Observations	36,237	36,237	36,237	36,237	36,237	18,920	17,297
R-squared	17.4%	17.0%	17.4%	16.9%	17.1%	20.6%	20.2%

Table 7. Recovery rates and mergers and acquisitions

The table presents coefficient estimates of probit models. The dependent variable equals 1 if Prob(TH∩AL|TH) = 1, i.e., if the target is in a high-recovery industry and the acquirer is in a low-recovery industry. The universe is all target firms in high recovery industry. Included are all transactions where the percentage of acquired shares is at least 20%. Excluded are transactions involving acquirers that are financial industry (SIC header 6) or regulated industry companies (SIC headers 48 and 49). The following industries are classified as low recovery (2-SIC code headers): transportation (37, 40, 41, 42, 44, 45, 46, 47), high technology and office equipment (35, 36, 38), consumer/ service sector (52, 53, 54, 55, 56, 57, 58, 59, 72, 73, 75, 76, 78, 79), or leisure time/ media (27, 48, 70). The following industries are classified as high recovery (2-SIC code headers): energy and natural resources (10, 12, 13, 14, 24), building products/ homebuilders (8, 15, 17, 24, 28, 29, 32, 34), or healthcare/ chemicals (28, 80). This classification follows Acharya, Bharath and Srinivasan (2007). All variables are defined in Table 1. The leverage of acquirer and target are calculated as in Table 3. The sample period is 1994-2004. The absolute values of the t-statistics are shown in parentheses below the coefficients and are based on robust standard errors that are cluster-adjusted at the country level. We include a year fixed effect (not reported). ***, **, and * indicate significance at the 1%, 5%, and 10% levels, correspondingly.

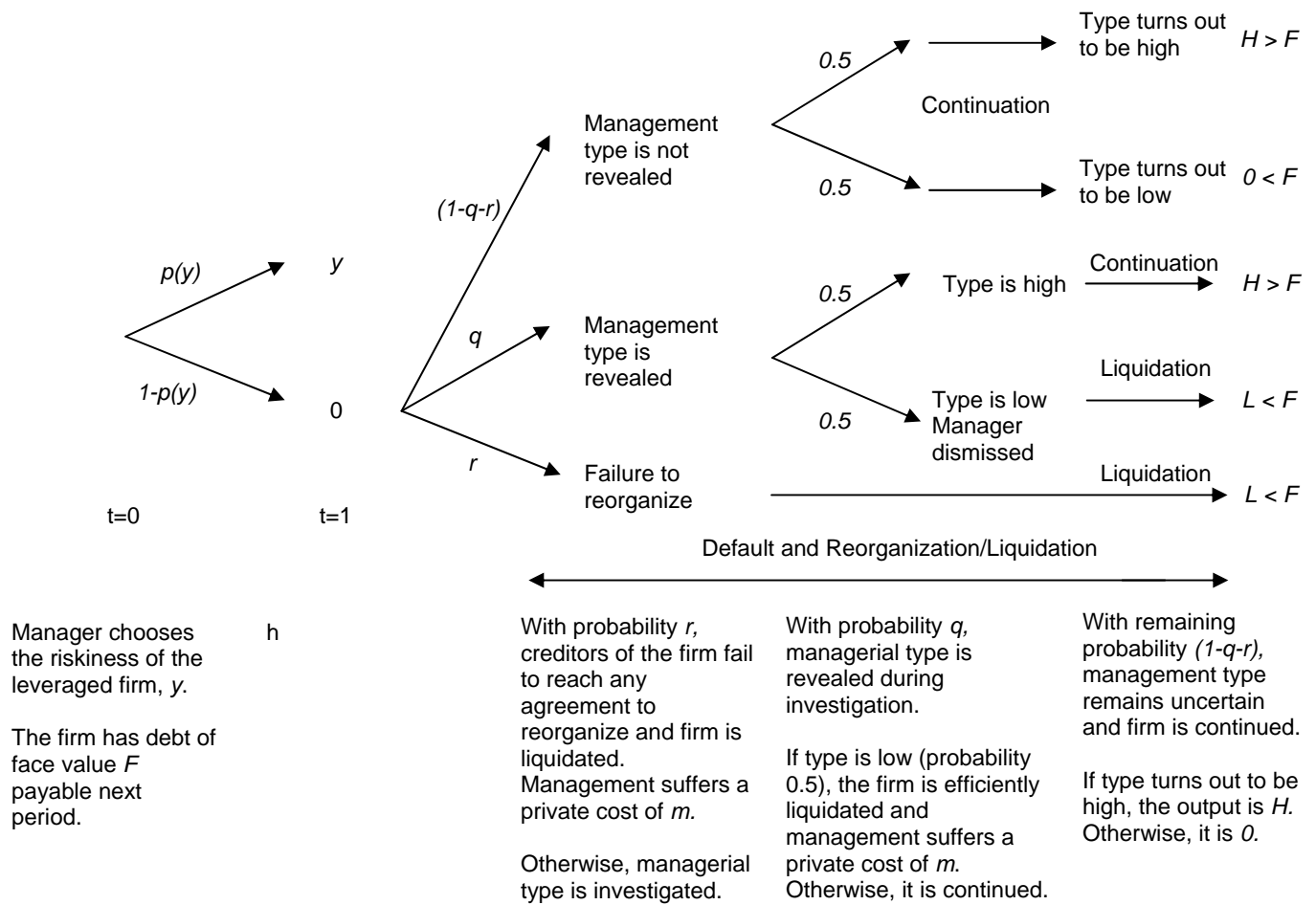| Variables	All countries					Excluding the U.S. & U.K.				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
CRIGHTS	0.128**					0.354***				
	(2.45)					(4.56)				
AUTOSTAY		0.915***					0.425**			
		(6.30)					(2.38)			
REORG			0.277*					0.492***		
			(1.93)					(2.64)		
SECURED				0.124					0.51**	
				(0.60)					(2.33)	
MANAGES					0.619***					1.466***
					(3.50)					(5.25)
SHRIGHTS	-0.107*	0.016	-0.114*	-0.118	-0.22***	-0.18***	-0.191***	-0.165**	-0.211***	-0.357***
	(1.65)	(0.22)	(1.71)	(1.54)	(2.71)	(3.32)	(2.81)	(2.33)	(3.35)	(5.81)
Log (Market cap)	0.083	-0.615***	0.12*	0.165**	0.116*	0.283***	0.25**	0.205**	0.081	0.416***
	(1.17)	(6.49)	(1.86)	(2.27)	(1.90)	(2.94)	(2.13)	(2.05)	(0.66)	(3.47)
Flexibility to fire	-1.250	-2.379**	-1.716	-1.305	-0.274	-0.497	-1.108	-1.496	-1.456	1.86**
	(1.34)	(2.32)	(1.52)	(0.99)	(0.33)	(0.67)	(1.12)	(1.67)	(1.21)	(2.16)
Accounting disclosure	-0.05***	0.018	-0.045***	-0.034***	-0.056***	-0.035***	-0.039***	-0.039***	-0.036***	-0.048***
	(3.73)	(1.15)	(3.38)	(3.05)	(4.51)	(3.23)	(3.12)	(3.6)	(3.45)	(5.23)
Emerging Markets	-0.162	-1.138***	-0.059	0.027	-0.259	-0.453	-0.492	-0.345	-0.84**	-0.157
	(1.02)	(5.69)	(0.49)	(0.21)	(1.68)	(1.47)	(1.44)	(0.99)	(2.31)	(0.49)
Rule of Law	0.190	-0.56**	0.225	0.161	0.424**	0.186	-0.209	0.107	-0.145	0.909***
	(1.01)	(2.33)	(1.18)	(0.76)	(2.05)	(0.81)	(0.8)	(0.44)	(0.55)	(3.15)
French Legal Origin	-0.405	0.317	-0.418	-0.538	-0.72***	-0.330	-0.849**	-0.579	-0.707**	-0.774**
	(1.44)	(1.04)	(1.52)	(1.59)	(2.69)	(1.09)	(2.49)	(1.63)	(2.14)	(2.57)
German Legal Origin	-0.257**	1.483***	-0.099	-0.084	-0.871***	-1.118***	-1.017***	-0.578	-0.868*	-2.025***
	(2.08)	(9.38)	(0.94)	(0.62)	(3.57)	(3.65)	(2.70)	(1.32)	(1.90)	(6.15)
Nordic Legal Origin	0.733**	-2.317***	0.817**	0.982**	0.670*	0.156	0.289	0.112	-0.218	0.279
	(2.00)	(4.46)	(2.26)	(2.08)	(1.79)	(0.35)	(0.58)	(0.25)	(0.48)	(0.57)
MacroRisk	5.734*	9.374***	6.488**	9.048***	4.761	3.149	5.129*	5.223**	5.228*	4.462
	(1.94)	(3.01)	(2.42)	(3.92)	(1.68)	(1.15)	(1.7)	(1.99)	(1.79)	(1.6)
Log GDP per capita	0.249*	0.600***	0.173	0.156	0.272**	0.3**	0.363**	0.211	0.222	0.249**
	(1.75)	(3.47)	(1.29)	(0.99)	(1.98)	(2.32)	(2.09)	(1.57)	(1.25)	(2.05)
Log (Transaction Value)	0.015	-0.136***	0.017*	0.019*	0.017*	0.073***	0.076***	0.077***	0.074***	0.085***
	(1.49)	(6.45)	(1.70)	(1.95)	(1.7)	(3.11)	(3.23)	(3.22)	(3.14)	(3.65)
Acquirer's Leverage (imputed)	-12.99***	-26.83***	-12.88***	-12.71***	-12.96***	-15.25***	-14.80***	-14.84***	-14.72***	-15.17***
	(9.47)	(7.03)	(9.25)	(9.08)	(9.4)	(12.8)	(12.65)	(12.04)	(11.71)	(12.37)
Target's Leverage (imputed)	5.838***	32.688***	5.658***	5.342***	5.762***	10.807***	10.217***	10.046***	9.833***	10.133***
	(9.03)	(14.58)	(8.66)	(7.66)	(8.83)	(7.75)	(7.22)	(6.62)	(6.93)	(7.45)
# of countries	38	38	38	38	38	36	36	36	36	36
Observations	6,495	6,495	6,495	6,495	6,495	2,599	2,599	2,599	2,599	2,599
Chi-squared	28,376.0	6,360.2	43,325.1	13,403.8	12,529.0	27,974.7	6,449.9	15,708.8	9,494.0	13,115.9

Table 8. The effect of changes in Creditor rights

The creditor rights change dummy, *ΔCRIGHTS*, equals one after the year of change from a period of stronger creditor rights and zero otherwise, and it equals zero after the year of change from a period of weaker creditor rights, and one otherwise. It equals zero for the control sample of no change in creditor rights. Included are all merger and acquisitions where the acquired percentage shares is at least 20%, the transaction has a disclosed value, and the time changes in creditor rights are available in Djankov et al. (2007). We exclude transactions where the acquirer is in the financial industry (SIC header 6) or regulated industry (SIC headers 48 and 49). The sample period is 1994-2004. Models (1), (2) and (8) are estimated by the probit method and the rest are estimated by OLS. The dummy variable to measure the probability of same-industry acquisition, *Pr(SAME)*, equals 1 when bidder and target are in the same industry. The dummy variable to measure the probability of an acquisition of high-recovery target by a low-recover acquirer, *Pr(AL∩TH|TH)*, equals 1 when, among all acquisitions of target firms whose assets have high recovery value, the bidder firm's assets have low recovery value. For regression (2) only, we include all cross-country and within-country mergers that meet the requirements above. The post-acquisition change in return on assets is $dROA(k) = ROA(t+k) – ROA(t-1)$, where k = 1, 2, or 3, calculated for each merger with available data, where t is the effective year of the merger. *CAR* is the cumulative abnormal returns on the acquirer stock from 3 days before the acquisition announcement to 3 days after it. *Leverage* is the ratio of total debt to total assets in book value. The t-statistics are in parentheses. The standard errors are cluster-adjusted at the country level. Included (but not reported for brevity) are fixed effects for country, year and industry (2-digit SIC code – acquirer's industry for models (1) through (6)), following the difference-in-differences methodology of Bertrand, Duflo, and Mullainathan (2004). Model (8) does not include industry fixed effects, in line with Table 7. [***], [**], and [*] indicate significance at the 1%, 5%, and 10% levels, respectively.

Part I. Mutivariate Analysis

Variable	Pr(Same-Industry)	Pr(Same-Country)	dROA(1)	dROA(2)	dROA(3)	CAR (t-3 to t+3)	Leverage	Prob(TH ∩ AL|TH)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
$\Delta CRIGHTS_{c,t}$	-0.145[***]	-0.213[***]	-0.042[***]	-0.051[***]	-0.023[***]	-0.005[**]	-0.035[**]	0.147
	(6.19)	(2.83)	(5.78)	(9.22)	(4.93)	(3.31)	(2.53)	(1.08)
Log (Transaction Value)	0.028[*]	-0.07[**]	-0.002[*]	-0.002	-0.001[*]	-0.001	-	-0.057
	(2.52)	(2.22)	(1.75)	(1.03)	(1.73)	(1.07)		(7.73)
$Tangibility_{t-1}$	-	-	-	-	-	-	0.174[***]	-
							(9.83)	
$Log(assets, in US\$_{t-1}$	-	-	-	-	-	-	0.019[***]	-
							(7.11)	
$EBITDA/ Assets_{t-1}$	-	-	-	-	-	-	-0.163[***]	-
							(10.16)	
Fixed Effects	Country, year, industry	Country, year, industry	Country, year, industry	Country, year, industry	Country, year, industry	Country, year, industry	Country, year, industry	Country, year
Observations	33,221	52,756	14,540	13,689	12,512	13,225	36,237	6,495

Figure 1. Timeline of the model.

0.5 — Type turns out to be high — $H > F$

Continuation

Management type is not revealed

$(1-q-r)$

0.5 — Type turns out to be low — $0 < F$

$p(y)$ — y

Continuation

0.5 — Type is high — $H > F$

q — Management type is revealed

Liquidation

$1-p(y)$ — 0

0.5 — Type is low Manager dismissed — $L < F$

r — Failure to reorganize

Liquidation — $L < F$

h

t=0   t=1

Default and Reorganization/Liquidation

Manager chooses the riskiness of the leveraged firm, *y*.

The firm has debt of face value *F* payable next period.

With probability *r*, creditors of the firm fail to reach any agreement to reorganize and firm is liquidated. Management suffers a private cost of *m.*

Otherwise, managerial type is investigated.

With probability *q*, managerial type is revealed during investigation.

If type is low (probability 0.5), the firm is efficiently liquidated and management suffers a private cost of *m.* Otherwise, it is continued.

With remaining probability *(1-q-r)*, management type remains uncertain and firm is continued.

If type turns out to be high, the output is *H.* Otherwise, it is *0.*

Figure 2. The share of same-industry mergers in a country, *SAME*, and creditor rights, *CRIGHTS*.
The fitted line represents the slope from a Tobit regression of the fraction of same industry mergers in a country on aconstant and the creditor rights index. The slope coefficient is -0.043 with *t* = 3.94.