

Bond Performance in Mergers and Acquisitions: The Impact and Spillover of Governance and Legal Standards

Finance Working Paper N° 125/2006

November 15, 2007

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1. Introduction

The global market for corporate control has evolved immensely over the past decade in terms of both size and diversity. One hotly debated aspect of this trend is the huge diversity of the very countries where mergers and acquisitions (M&As) take place. Countries differ considerably in their governance structures, accounting standards and disclosure practices, and protect investors to varying degrees. This has obvious economic implications in cross-border M&As in particular, where governance and legal spillovers have been shown to affect shareholder returns (Goergen and Renneboog, 2004; Kuipers, Miller and Patel, 2003), the takeover premium demanded by target shareholders (Starks and Wei, 2004), the choice of target firms (Rossi and Volpin, 2004), and even the valuation of entire industries (Bris and Cabolis, 2002).

If stock performance exhibits great cross-country variation around M&A announcements, so should the performance of corporate bonds. From the perspective of bondholders, two notable features set countries apart: the extent of creditor influence on corporate decision making and the quality of legal protection afforded creditors. Creditor influence is primarily a function of the corporate governance regime in place. In the Anglo-American market-oriented regimes, creditors are seen as independent parties contracting with the firm and maintaining a largely arm's-length relationship with it (Jensen and Meckling, 1976). In the stakeholder-oriented regimes of Continental Europe, the creditor-firm relationship is very different. Banks act as concentrated lenders and delegated monitors, and actively participate in corporate governance along with other risk-averse stakeholders (Diamond, 1991). This dictates that M&As should be more bondholder-friendly in stakeholder-oriented systems than in the Anglo-American world, and that the cross-border deals which combine the two regimes should induce considerable governance spillovers.

Another important aspect of cross-border M&As is that they combine firms from jurisdictions which protect creditors to varying degrees. La Porta et al. (2000) argue that there are limitations to the functional spillover of creditor rights, because corporate assets remain under the jurisdiction of the country where they are physically located. However, exposure to a more creditor-friendly jurisdiction should still prompt management to avoid excessive risk-

taking, by exacerbating the threat and implications of insolvency proceedings against the firm if it goes into financial distress. Creditors may further intensify this threat through *jurisdiction shopping*, whereby they race against management and each other to seek out a jurisdiction that best supports their legal position and ensures maximum satisfaction for their claims. Legal arbitrage by powerful secured creditors is not at all hypothetical, and is strongly encouraged by the recent wave of bankruptcy law reforms which enhance jurisdictional co-operation in cross-border insolvencies and largely defeat the territoriality principle referred to by La Porta et al. (2000). The ensuing reduction in the agency costs of debt should benefit all creditor classes in the firm, whether or not they have the ability or incentive to access other jurisdictions themselves.

Existing studies on bondholder wealth preclude the impact of such institutional factors by confining their focus to US domestic deals. Rather, they test three main hypotheses on the risk effects of M&As. Firstly, bondholders benefit at the expense of shareholders from reduced risk through a co-insurance of cash flows, which is likely to be greater in diversifying deals (Galai and Masulis, 1976). Secondly, shareholders may seek to reverse bondholder gains by increasing leverage at the event or thereafter (Dennis and McConnell, 1986). And thirdly, bondholder wealth is affected by the relative pre-merger riskiness of bidder and target (Shastri, 1990). Overall, there is little evidence of bondholders benefiting from M&As at all. Billett, King and Mauer (2004) report losses for bidder bondholders, while target bondholders gain in junk-grade but lose in investment-grade firms. Earlier, Eger (1983) reports significant gains, but she only considers stock-for-stock deals to omit wealth reversals through the payment method. Maquieira, Megginson and Nail (1998) confirm the same gains for non-diversifying deals only, where more wealth is created but the scope for co-insurance is limited. Kim and McConnell (1977), Asquith and Kim (1982), Walker (1994) and Dennis and McConnell (1986) find that bondholders are insignificantly affected by M&As.

This paper expands on these results by showing how cross-country differences in governance and legal standards affect bond performance in European bidding firms around M&A announcements. We use euro- and sterling-denominated Eurobonds to investigate bond price changes in both domestic and cross-border deals across Europe. These securities are highly standardized and very liquid, which permits the direct comparison of their returns

across multiple countries (Gabbi and Sironi, 2005). However, they also limit the scope of our analysis to investment-grade bidding firms, since junk-grade Eurobonds are rarely issued, and the large, creditworthy issuers are rarely targeted by takeover bids. It is also worth pointing out that Eurobonds holders are prevented from entering insolvency arbitrage, because Eurobond contracts always specify a governing law. Nonetheless, they should be highly sensitive to changes in the position and bargaining power of diligent secured creditors *vis-à-vis* the firm, because they hold unsecured claims ill-protected by covenants and have little credibility themselves in threatening with insolvency litigation.

The empirical results presented in this paper show that cross-country differences in governance and legal standards are indeed as strong predictors of bond performance in M&As as either deal or firm characteristics. Firstly, bidder bonds perform systematically better *ceteris paribus* in deals involving Continental European firms, and actually earn significantly positive abnormal returns. This finding is consistent with the strong representation of creditor interests in stakeholder-oriented governance regimes compared with the market-oriented systems of the Anglo-American world. Creditor participation in corporate governance may also explain why the bondholders of Continental European bidders are less sensitive than their UK peers to a deal's asset and financial risk implications, but respond strongly to any governance-related risks and uncertainties which may dilute the position of creditors *vis-à-vis* the firm..

Secondly, there is substantial variation in bond performance depending on whether the deal is domestic or cross-border. All else equal, bidder bonds underperform in cross-border M&As relative to domestic deals. This may reflect concerns over informational asymmetries, as well as the added legal uncertainties and inefficiencies associated with the default of internationally diversified firms. However, cross-border deals also induce highly significant governance and creditor protection spillovers, such that bonds perform better when their firm becomes exposed to a stakeholder-oriented governance regime or a jurisdiction with better creditor rights and debt enforcement. It is remarkable that Eurobond holders respond so strongly to such considerations, because not only are they prevented from insolvency arbitrage, but their firms tend to be large and internationally diversified already. What this

demonstrates is that creditor protection spillovers do lead to a general reduction in the agency costs of debt, thereby benefiting all creditor classes regardless of their seniority.

Our results also provide other interesting additions to the literature. We find that bidder bondholders benefit less from takeover bids made for public targets. Bonds perform better when the target is relatively small, and bondholders are generally perceptive of changes in both asset risk and financial risk. Finally, bidder bonds fare better when the target shareholders are approached directly with a tender offer, circumventing management.

The remainder of this paper is outlined as follows. Section 1 reviews the theoretical literature and makes prior conjectures on the drivers of bondholder wealth changes. Section 2 contains descriptive statistics on the sample and describes the methodology. Section 3 provides an extensive discussion of the empirical results, while Section 4 describes robustness checks and possible extensions. Finally, Section 5 allows for some concluding remarks.

2. Theoretical background and conjectures

2.1. The theory of bondholder wealth in M&As

Finance theory suggests that M&As can have many different effects on bondholders. Early studies postulate that bondholders benefit from a *co-insurance* of cash flows. If two firms with imperfectly correlated cash flow streams merge, their combined cash flow volatility becomes lower, reducing default risk and increasing debt capacity (Levy and Sarnat, 1970). The co-insurance effect is likely to be stronger in diversifying or conglomerate deals where there is little or no economic relationship between the merging parties. Thus, it is customarily conjectured that *bondholders gain more from diversifying than from non-diversifying M&As*. However, diversifying deals tend not to create new wealth because they neither provide operating efficiencies nor increase product or factor market power (Berger and Ofek, 1995). Then, any bondholder gains must come from mere redistributions of shareholder wealth, whereby an increase in bond prices coincides with an offsetting reduction in share prices (Higgins and Schall, 1975; Galai and Masulis, 1976).

Dennis and McConnell (1986) argue that bidding firms may seek to reverse such wealth redistributions by financing their acquisitions with leverage. A cash offer typically requires debt financing because most bidders have limited cash and liquid assets (Faccio and Masulis, 2005). Thus, it tends to increase default risk in the combined firm as well as reduce the collateral available to bondholders. If the bidder offers equity, no assets leave the firm and financial distress costs are reduced. Ultimately, this suggests that *bondholders benefit more from equity-financed acquisitions*. Still, we cannot discount the agency and signalling effects associated with equity financing. In the spirit of Myers and Majluf (1984), DeAngelo, DeAngelo and Rice (1984) point out that bidding firms prefer to make an equity offer if they believe that their stock is overvalued. If the market interprets such an offer as bad news on the firm's future expected cash flows, as Mitchell and Stafford (2000) indeed find, this may also deteriorate bondholder sentiment.

It is notable that the above conjectures intuitively separate *asset risk* effects associated with business operations and *financial risk* effects associated with financing operations. This distinction from the perspective of bondholders is formalized by Shastri (1990). The author derives predictions on the risk effects of M&As by comparing the relative pre-merger riskiness of bidder and target. Asset risk in the combined firm can differ from the asset risks of the merging firms because they have different levels of asset volatility to begin with and/or because their asset volatilities are imperfectly correlated. Overall, *a reduction in asset risk increases, while an increase in asset risk decreases bondholder wealth*. The impact of the risk change depends on its size but also on the pre-merger risk of debt, such that riskier bonds should benefit more from a risk reduction and safer bonds should lose more from a risk increase.

Shastri (1990) and subsequent empirical papers relate financial risk effects specifically to leverage. The default risk induced by financing operations may actually be better captured by alternative measures. For example, financial markets generally regard interest coverage as being a better proxy for financial risk, and Standard and Poor's and Moody's also use interest coverage for their ratings decisions. Whatever the measure used, financial risk in the combined firm will differ from the financial risks of the merging parties unless the two are identical pre-merger. Then, *a reduction in financial risk increases, while an increase in*

financial risk decreases bondholder wealth. Of course, the overall change in financial risk will be affected by the risk changes arising from post-merger financing operations or as a result of the payment method¹.

The risk implications of other firm and deal characteristics are not unambiguous. Nonetheless, they may still have an indirect impact on credit risk, if only through affecting projected efficiency gains which influence the combined firm's ability to service its fixed debt obligations. A critical problem relates to the *relative size of bidder and target*. On one hand, large targets create greater scope for co-insurance effects and contribute more assets to the combined firm, adding debt capacity (Hovakimian, Opler and Titman, 2001). On the other, there should be a limit to the absorption capacity of bidding firms. Large deals are harder to implement successfully and there are greater uncertainties around the realization of synergies. Thus, the efficiency gains associated with acquisitions of smaller targets should be relatively larger (Bhagat et al., 2005). It is also possible that larger acquisitions are more driven by managerial hubris or empire building aimed at creating large, diversified firms with low risk (Jensen, 1986; Wulf, 2004). In their empirical study, Billett, King and Mauer (2004) provide strong evidence that bidder bonds do in fact perform better when the target firm is relatively small.

Wealth creation in M&As has also been linked to the *public status of the target firm* in recent empirical research. Deals involving unlisted targets have been shown to generate better returns for bidder shareholders, and existing studies have been unable to fully explain why. It is plausible that the higher gains are driven by limited competition, which may come from the bidder specificity of private acquisitions and increase the likelihood of underpayment for target firms (Chang, 1998). Otherwise, Faccio, McConnell and Stolin (2006) find that the gains persist over time and across countries, and are invariant to size, ownership structure,

¹ Shastri (1990) argues that wealth shifts may also occur between bidder and target bondholders based on seniority. Differences in debt maturity may induce a seniority effect, whereby shorter maturity debt becomes effectively senior to longer maturity debt. We do not test this prediction due to limited data availability.

industry focus, information leakages, and the payment method². It is unclear ex-ante whether bondholders should also be affected by such a listing effect.

The type of and attitude towards a takeover bid are also related to projected synergy levels and the disciplining of target management. *Negotiated deals* are typically friendly and prescribe the co-operation of the target firm's incumbent managers. Thus, they are more likely to be driven by hubris and empire building. Conversely, *tender offers* may be associated with greater wealth creation, as they bypass target management and indicate greater confidence in the bidder's ability to realize efficiency gains (Loughran and Vijh, 1997). In tender offers, the premium paid to the target shareholders is also higher, especially when *the hostility of the bid* leads to aggressive bargaining (Schwert, 2000). Nonetheless, Bhagat et al. (2005) find no evidence that tender offers would induce bidders to overpay for target firms.

2.2. The impact of cross-country differences in governance and legal standards

The comparative governance literature observes a great deal of variation in the extent that countries accommodate creditor versus shareholders interests. The two notable features which set countries apart from the perspective of creditors are (i) the level of influence creditors and other risk-averse stakeholders have over corporate decision making, and (ii) the quality of legal protection afforded creditors.

The extent of creditor influence in individual countries is largely attributable to the corporate governance regime in place. In the common law Anglo-American world, strong investor rights and stringent disclosure requirements encouraged the emergence of market-oriented governance systems. These regimes basically view creditors and other stakeholders as independent parties contracting with the firm and maintaining a largely arm's-length

² Chang (1998) compares equity-financed acquisitions of private firms to private equity placements, where monitoring is improved and informational asymmetries are reduced by the emergence of new blockholders (the concentrated target owners). Accordingly, the abnormal stock gains associated with the takeovers of private firms are highest when an equity offer is made (Fuller, Netter and Stegemoller, 2002); Moeller, Schlingemann and Stulz, 2004).

relationship with it (Jensen and Meckling, 1976). In the civil law-based stakeholder-oriented systems of Continental Europe and Japan, the dynamics of the creditor-firm relationship are very different. Banks act as concentrated lenders and delegated monitors, and may use a variety of mechanisms to support their participation in corporate governance, including the delegation of board members, share ownership, and proxy voting (Diamond, 1991; Goergen and Renneboog, 2003). Other risk-averse stakeholders may equally hold considerable power in the firm, most notably employees who also tend to have board representation. Overall, the greater influence of banks and other stakeholders dictates that *bondholders benefit more from M&As in stakeholder-oriented governance regimes*. One implication of this influence is that firms may be forced to compensate for any risk increases arising from M&As, or be blocked from proceeding with risk-increasing deals altogether. Of course, conflicts of interest cannot be ruled out between bondholders and the powerful banks that exert control, especially if the bondholder claims are unsecured (La Porta et al., 1998). Nonetheless, close bank monitoring should prevent managers from what is excessive risk-taking, and this should benefit all creditor classes through a reduction in the agency costs of debt.

The quality of legal protection afforded creditors shows some resemblance in countries with the same type of legal and governance regime. La Porta et al. (1998) make the notable observation that on average, common law countries offer stronger creditor protection than do civil law – especially French civil law – countries. Still, there is enormous variation even within particular families of legal regimes in the extent that creditors are protected. For example, creditor rights are very strong and strictly enforced under English insolvency law, but they are relatively weak and subject to judicial discretion under the softer US approach (Sussman, 2005). La Porta et al. (1998) report similar differences within the family of civil law regimes, such as between the pro-creditor Netherlands and the pro-debtor France.

These fundamental cross-country differences in legal standards should carry paramount importance in cross-border M&As in particular. From the perspective of bondholders, cross-border M&As already exhibit some distinct peculiarities relative to domestic deals. On one hand, cross-border diversification is comparable to industrial diversification in terms of its co-insurance benefits, and thus should induce a similar wealth transfer from shareholders to bondholders (Denis, Denis and Yost, 2002; Moeller and Schlingemann, 2005). On the other,

cross-border deals can have significant disadvantages relative to domestic ones. Firstly, even if the projected efficiency gains are considerable, estimating and capturing these is more complicated due to the greater informational asymmetries and potential clashes in corporate culture. Secondly, bondholders may suffer from the added legal uncertainty and inefficiency associated with the insolvency of internationally diversified firms. In cross-border insolvency cases, there have always been the problems of whether creditors could participate in foreign proceedings on an equal footing, and whether certain types of claims could be rejected or left without recognition (Omar, 2006). Arguably, creditors may even have difficulty informing foreign courts of the existence of their claims, either because the costs of doing so are prohibitive, or simply because they are given late notice of the insolvency proceedings. These drawbacks of cross-border diversification are substantial enough to conjecture that *bondholders benefit less from cross-border M&As than they do from domestic ones.*

One hotly debated aspect of cross-border M&As is the cross-border spillovers these deals induce in governance and legal standards. Existing studies show clear evidence that such spillovers occur and prompt strong reactions from shareholders. Goergen and Renneboog (2004) and Kuipers, Miller and Patel (2003) find that abnormal stock returns around M&A announcements are higher when the merging party's home country has a market-oriented governance regime, offers better shareholder protection, and has superior accounting standards. In a related paper, Starks and Wei (2004) show that the same factors reduce the takeover premium demanded by target shareholders in deals where they are offered stock in the surviving entity. Bris and Cabolis (2002) show that these spillovers have non-trivial economic implications, so much so that they can change the valuation of entire industries where the cross-border deals occur.

Governance spillovers should also affect bondholders, to the extent that they affect stakeholder participation in corporate governance and thus the agency costs of debt. We conjecture that *bondholders benefit more from cross-border M&As which involve firms from stakeholder-oriented governance regimes.* Such deals should ensure at least some degree of influence by creditors and other risk-averse stakeholders, irrespective of the type of governance regime in the surviving entity's home country. This is because cross-border targets are either maintained as a foreign subsidiary or merged into an existing subsidiary in

the same country. Regulatory requirements for stakeholder representation also apply to the subsidiaries of foreign firms, however diluted in countries such as France, Germany or the Netherlands.

The existing corporate governance literature attributes only limited relevance to cross-border spillovers in the legal protection of creditors. La Porta et al. (2000) argue that there are limitations to the functional spillover of creditor rights, because corporate assets remain under the jurisdiction of the country where they are physically located. This *territoriality principle* is often referred to as the “grab rule”; each local court takes the assets located in its geographic jurisdiction and distributes them only to those creditors who come to the court to present their claims (Felsenfeld, 2000).

However, bondholders can clearly benefit from cross-border M&As which expose their firm to a jurisdiction with better creditor protection. Firstly, exposure to a more creditor-friendly regime can exacerbate the threat and implications of insolvency proceedings against the firm if it goes into financial distress. This threat can still be increased even if the firm is already present in that regime, because the more assets are up for grabs, the greater the incentives of creditors to pursue them. The differences in creditor rights between France and the UK, discussed by Davydenko and Franks (2007), provide a useful illustration of this issue. In France, insolvency proceedings are court-administered and strive to maintain the firm as a going concern. Even secured creditors have little confidence in recovering their debts, because their claims are subordinated to government and employee claims, and they can neither seize the security nor control the timing and method of collateral realization. In contrast, creditors in the UK have extensive powers in realizing the collateral, and have strong incentives to race against management and each other to do so. In fact, a creditor with a floating charge can sell the entire firm and its assets without considering the interests of other claimants, and even unsecured creditors have some liquidation rights.

Secondly, it is not actually certain that a firm’s assets remain under the jurisdiction of the country where they are physically located. The complexities of administering cross-border insolvencies have inspired a worldwide wave of bankruptcy law reforms to enhance co-operation among the national authorities. A key template for these reforms has been the Model Law on Cross-Border Insolvency drafted by the United Nations Commission for

International Trade Law (UNCITRAL) in 1997. The Model Law puts a single jurisdiction in charge of insolvency proceedings on a worldwide basis, thereby seeking to reduce legal uncertainty, prevent firms from concealing assets or transferring them to foreign jurisdictions, and ensure the fair treatment of all creditors. The main proceeding is opened in the country where the firm's centre of main interests is, and any concurrent proceedings co-operate as secondary or non-main proceedings. The Model Law, which proposes what is a modified form of the *universality principle* rather than territoriality, has now been enacted in a range of countries, but it has often simply formalized, as was the case in the US, similar frameworks already in place³.

One critical aspect of such jurisdictional co-operation is that it may actually encourage creditors to arbitrage their firm's exposure to multiple jurisdictions. This phenomenon is known as *jurisdiction (or forum) shopping*; if the firm becomes distressed, creditors may race against management and each other to seek out a creditor-friendly jurisdiction to strengthen their legal position and obtain maximum satisfaction for their claims. Cross-border M&As can clearly increase the scope for jurisdiction shopping, thereby further enhancing creditor protection spillovers⁴.

How jurisdictional co-operation can encourage jurisdiction shopping is best demonstrated by the framework adopted by the European Union (EU). By implementing the European

³ The Model Law was drafted using previous international agreements on cross-border insolvency, including the Nordic Bankruptcy Convention of 1933, the Montevideo and Bustamante Conventions in force in much of South America, as well as the Convention on Insolvency Proceedings of the European Union, later enacted as the European Insolvency Regulation of 2000. The US did not have such a formal agreement in place until it introduced the Model Law into its bankruptcy code as Chapter 15 in 2005. However, the US system had already applied a modified form of universality, such that it claimed worldwide jurisdiction over firms incorporated in the US, but was also prepared to co-operate with and possibly recognize the rulings of concurrent proceedings abroad to prevent the unequal treatment of foreign creditors (Lechner, 2002).

⁴ Forum shopping by creditors is a well-known phenomenon even within the US, and explains the popularity of the specialized bankruptcy courts of Delaware and New York. While the US bankruptcy code is federal, state courts enjoy considerable judicial discretion and protect creditor interests to varying degrees. Firms sometimes file for Chapter 11 bankruptcy preemptively to give them leverage against creditors. When they do not, however, creditors can submit an insolvency filing against the firm in any state in which it has an insolvent affiliate (BIS, 2002).

Insolvency Regulation (EIR) in 2000⁵, the EU introduced what is the broadest and most effective international agreement on cross-border insolvency. The EIR identifies a main proceeding based on the insolvent firm's centre of main interests, but also allows creditors, wherever domiciled in the EU, to initiate non-main proceedings in any member state where the firm has an establishment. This rule clearly facilitates insolvency arbitrage. For example, it allows French creditors to enforce their claims in the UK, even if the firm's centre of main interests is in a third country. Remarkably, this right also extends to taxation and social security authorities, thereby eliminating the traditional rule against the enforcement of foreign revenue debts. The definition of an establishment is fairly lenient, such that it may even encompass a commercial agent of the firm (Freshfields Bruckhaus Deringer, 2004)⁶.

Insolvency arbitrage can also be encouraged by ambiguities as to where a firm's centre of main interests actually is (Franken 2005). A major source of legal conflicts is that the centre of main interests can be defined both as the firm's country of incorporation (*incorporation doctrine*) and the country where the firm's headquarters are (*real seat doctrine*), opening it up to many competing interpretations⁷. Under the EIR, this unanticipated race-to-court aspect has led to English administrators shifting a number of insolvency cases from Continental Europe to the UK, most famously ISA Daisytek, MG Rover and Enron Directo. That creditors can do the same to strengthen their legal position was recently demonstrated by the Bank of America, which preemptively got Eurofood, the Irish subsidiary of Parmalat, under Irish jurisdiction despite a later challenge by Italy before the European Court of Justice.

⁵ European Council Regulation No. 1346/2000 on insolvency proceedings.

⁶ Establishment is defined as meaning any 'place of operation where the debtor carries out a non-transitory activity with human means and goods'.

⁷ An important source of legal conflicts is that the centre of main interests can be defined both as the firm's country of incorporation (*incorporation doctrine*) and the country where the firm's headquarters are (*real seat doctrine*). The incorporation doctrine is typically followed by common law and the real seat doctrine by civil law regimes, but there are some exceptions e.g. Denmark and the Netherlands which have civil law systems but adhere to the incorporation doctrine. The EIR presumes that the place where the firm is incorporated constitutes the centre of main interests. However, a showing that the firm conducts the administration of its interests on a regular business in another member state and is recognized to do so by third parties can defeat this presumption.

To conclude, we strongly expect that *bondholders benefit more from those cross-border M&As which expose their firm to a jurisdiction with better creditor protection*. New or increased exposure to a more creditor-friendly jurisdiction should increase pressure on management to reduce the probability of financial distress by avoiding excessive risk-taking. This pressure can only be exacerbated if opportunities exist for insolvency arbitrage, because a diligent or astute creditor should always have the incentive to exploit disparate priority rules and other differences in creditor protection.

The ensuing reduction in the agency costs of debt should benefit all creditor classes, whether or not insolvency arbitrage is a feasible option to them. Some creditors may not want to access other jurisdictions because they have security rights (rights *in rem*) over assets in a particular country⁸. Eurobonds holders are prevented from insolvency arbitrage altogether, because Eurobonds are issued outside the issuer's domicile and thus always specify a governing law to prevent legal conflicts (Esho, Sharpe and Tchou, 2004). They should nonetheless be highly sensitive to improvements in the position and bargaining power of diligent creditors *vis-à-vis* the firm which deter management from excessive risk-taking. This is because the threat of insolvency litigation is generally less credible on their part, given that they hold unsecured claims ill-protected by covenants and have no incentive to liquidate distressed firms because of their minimal recovery percentages.

3. Data selection and descriptive statistics

3.1. Data selection

We compile a list of M&A announcements from the Mergers and Acquisitions Database of the Securities Data Corporation (SDC). Transactions classified as acquisitions of assets and minority interests are excluded. We require that the bidding firms (i) be domiciled in Europe, (ii) be publicly listed, and (iii) have fixed-rate euro- or sterling-denominated Eurobonds. We

⁸ Rights *in rem* remain subject to the jurisdiction of the country where the assets are located and are strongly protected by the EIR. This should guarantee a relatively high percentage recovery to the creditors that hold them.

exclude banks, insurance companies, and other financial firms (SIC codes 6000-6900). The sample period runs from 1995 to 2004; data requirements for the construction of pricing benchmarks, described below, prevent pre-1995 deals being included. We exclude all bonds with special features e.g. those that are callable, puttable, or perpetual. These features have strong pricing implications and their occurrence is otherwise rare among Eurobonds.

The use of Eurobonds confines the scope of our analysis to creditworthy investment-grade issuers, because the negligible size of the junk-grade Eurobond market prohibits reliable pricing in this segment entirely. A notable feature of these firms is that they tend to be large and internationally diversified already, which should in fact play down the relevance of cross-country variations in governance and legal standards for their bondholders. Ultimately, this dictates that whatever effects we may observe for Eurobond issuers are likely to be more pronounced for firms which do not share the same characteristics.

The use of Eurobonds rather than domestic bonds is necessary for two reasons (Gabbi and Sironi, 2005). Firstly, they are highly standardized, which makes them much better suited for the comparison of bond returns across multiple countries. Eurobonds are typically in bearer form, are mostly unsecured, and carry few covenants because investors find them too costly to enforce. That the junk-grade segment of the Eurobond market is so thin is exactly because investors are reluctant to accept such ill-protected securities from low quality borrowers. Another source of standardization is that Eurobonds tend to be governed by English common law⁹ and listed on the Luxembourg Stock Exchange¹⁰. Secondly, Eurobonds are issued in relatively large amounts and are normally exempt from withholding tax¹¹. This attracts huge demand for these securities by a very diverse set of (mostly institutional) investors, which in

⁹ The choice of governing law is typically negotiated between the underwriter and the issuer. UK law is generally preferred because it permits the inclusion of collective action clauses in the bond contract, thereby allowing for the timely and orderly renegotiation of the contract terms if the issuer defaults on the repayments. In addition, UK law allows greater scope for the bond trustee to negotiate with the issuer, which sits well with Eurobond investors who tend to prefer anonymity (Smith and Walter, 1997).

¹⁰ The Luxembourg Stock Exchange was among the first to relax Eurobond issuing procedures in 1990. It also has other advantages such as low fees, no withholding tax, and the quick approval of new listings.

¹¹ Eurobonds are usually exempted from withholding tax if they are exchange-listed and widely distributed. The latter condition requires the bonds to have a modest face value, usually a few thousand euro.

turn makes the Eurobond market highly competitive, efficient and liquid with a minimal risk of price anomalies¹². In fact, of the bonds issued by European firms only Eurobonds constitute a market that is sufficiently large and liquid to allow for the construction of robust pricing benchmarks.

We collect bond prices from the Reuters Fixed Income Database. All prices are dealer quotes, which can contain matrix prices that are not separated from actual trade data. Matrix prices are not driven by firm-specific information, which actually biases against finding significant results. Still, the high liquidity of Eurobonds should ensure that the data reflect actual trades. Bond ratings are obtained from Standard and Poor's or, when unavailable, Moody's Investors Service.

Abnormal bond returns are defined as the sum of the monthly abnormal returns in the two months surrounding the deal announcement (i.e. months -1 and 0). We select this time window to account for information leakages (Warga and Welch, 1993), and to ensure that our results are comparable to those reported in the seminal study by Billett, King and Mauer (2004). Consistent with the recent literature, we treat each issuer of multiple Eurobonds as a value-weighted portfolio of its bonds, where the weights are based on the market value of each bond two months before the announcement. When a firm has both euro- and sterling-denominated Eurobonds outstanding, the sterling market value is converted into euro. The abnormal monthly returns are computed using a matching portfolio method, described in Appendix 1.1. We construct 40 reference Eurobond portfolios segmented by currency (euro and sterling), credit rating (BBB, A, AA and AAA) and duration (1-3, 3-5, 5-7, 7-10 and 10+ years). Each portfolio must contain a minimum of 10 bonds; where this condition is not satisfied, we use one of 16 reserve portfolios created in two duration categories (1-5 and 5+ years). In the spirit of Kahle, Maxwell and Xu (2005), we use duration as an alternative criterion to time-to-maturity. Time-to-maturity is customarily used to construct pricing benchmarks, including by Lehman Brothers and iBoxx. However, it does not account for

¹² It is well-known that retail investors often acquire Eurobonds for tax minimization purposes. Still, in some countries they are forbidden from holding bearer securities altogether. We do not expect these peculiarities to materially influence our results, as retail investors account for a relatively modest share of Eurobond holdings.

coupon bias, in that it assumes that a bond's risk sensitivity is independent of its coupon payments (Duffee, 1998).

We compute both equal- and value-weighted returns on the matching portfolios, with the value-weighted approach using weights based on the bonds' market values two months before each deal announcement. Kahle, Maxwell and Xu (2005) make a strong argument for the use of the equal-weighted benchmarks rather than the customarily used value-weighted ones. The authors find that the value-weighted approach suffers more from positive skewness, leading to a lower rejection region for negative abnormal returns and a higher rejection region for positive abnormal returns. We also find support for this result, but the use of the value-weighted portfolios does not affect our empirical outcomes.

Finally, we also calculate abnormal stock returns in order to identify any wealth redistributions between shareholders and bondholders. Stock price data are collected from Datastream. To ensure the comparability of the bond and stock returns, the abnormal stock returns are also defined as the sum of the monthly abnormal returns in months -1 and 0. The monthly abnormal returns are computed as the monthly raw stock returns minus the returns on the benchmark equity index of the issuer's domicile.

Before proceeding to the empirical analysis, it is useful to determine what constitutes economically significant abnormal returns. Brown and Warner (1980) set the economic significance of abnormal stock returns at 1%, or about one-sixth of the historical yearly stock market risk premium. Kahle, Maxwell and Xu (2005) argue that the economic significance of abnormal bond returns should be lower given the lower market risk premium that bonds earn relative to shares. The authors infer that if the typical bond earns a risk premium of 1.75% per year, abnormal bond returns exceeding 0.25% should already be regarded as being economically significant. Given that the risk premium demanded on high quality Eurobonds is generally low, we can safely adopt the same threshold.

3.2. Descriptive statistics

Descriptive statistics on our sample firms are provided in Table 1. Accounting data are obtained from Worldscope and are measured at the fiscal year-end preceding the deal

announcement. Market capitalization and the book value of assets are expressed in 2004 prices using the appropriate consumer price indices and, where applicable, converted into euro. Return on assets (ROA), asset risk, leverage, and interest coverage are defined in Appendix 1.2. In the spirit of Billett, King and Mauer (2004), we compute each firm-level variable for bidding and target firms as well as their combinations (not shown in Table 1). For example, the combined asset risk is defined as the portfolio standard deviation of unlevered bidder and target stock returns, where the weights are based on each firm's market value of assets (the sum of the book value of assets and market capitalization).

(Insert Table 1 about here)

Panels A and B of Table 1 report descriptive statistics for the full sample of bidding firms and the largest balanced sample of bidding and target firms, respectively. Panel A shows that accounting and bond data are available for 225 bidders. In Panel B, we find accounting data for 75 pairs of bidders and targets, respectively. These numbers indicate that most targets are privately held.

The descriptive statistics show that bidding firms are much larger than their respective targets by both market capitalization and asset value. In the balanced sample of Panel B, the book value of assets is €15.7 billion for the typical bidder but only €1.5 billion for the typical target. Bidders also appear to be more mature, in that they are more profitable, are more levered, and have lower asset risk related to business operations. The interest coverage ratios of bidders and targets are not statistically different. Several firms appear to be financially distressed, but none of them are in bankruptcy at the time of the M&A announcements. Our Eurobond issuers are certainly not in distress, otherwise they would not be rated investment-grade.

Though not reported in Table 1, the majority of the M&A announcements occur towards the end of our sample period, corresponding to the recent rise in Eurobond issuance by European firms. Of the 225 deals, 38 were announced before 2001, 70 in 2001-2002, and 117 in 2003-2004. The distribution of the bidder and target countries by legal origin is provided in Appendix 2. Of the 225 bidders, 79 are from the UK and the rest are domiciled in Continental Europe. The panel suggests that the M&As undertaken by these firms offer considerable

scope for governance and legal spillovers; 145 deals are cross-border, and only in 52 cases are the bidder and target countries of the same legal origin.

4. Empirical results

4.1. Overview of abnormal security returns around M&A announcements

Table 2 provides a general overview of how the security holders of European bidding firms fare around M&A announcements. Panel A shows that bondholders earn economically significant abnormal gains in the two months surrounding deal announcements. These gains are fully robust across all specifications: the mean abnormal bond return is 0.56% (0.52%) over the equal- (value-) weighted benchmark, while the median return is 0.81% (0.71%). This is a striking departure from the existing US evidence, which typically documents no or negative changes in the wealth of bidder bondholders. Most recently, Billett, King and Mauer (2004) report significant losses for bidder bonds regardless of their credit rating. The fact that we only consider investment-grade bonds makes these results even more remarkable, given that the bondholders of creditworthy firms should benefit relatively less from a reduction in risk (Shastri, 1990). It is very well possible that in the junk-grade segment, the bondholders of European bidders earn even higher gains around M&A announcements than those reported here.

(Insert Table 2 about here)

How the shareholders of the sample firms respond to M&A announcements is very much in line with the findings of the existing literature. Shareholders do not incur statistically significant wealth benefits, though the mean and median abnormal stock returns are positive at 0.78% and 0.34%, respectively. Similar results are reported for Europe by Campa and Hernando (2004) and Goergen and Renneboog (2004), and for the US by Maquieira, Megginson and Nail (1998), Mulherin and Boone (2000) and Schwert (2000).

Henceforth for the sake of brevity, we only report the abnormal bond returns over the equal-weighted pricing benchmarks; the results using the value-weighted approach are

available on request and are practically identical. We also report the abnormal stock returns in some of the subsequent tables, but this is to identify wealth redistributions between bondholders and shareholders, therefore they are only discussed in this context.

4.2. The impact of deal characteristics on abnormal bond returns

Table 3 partitions the abnormal returns accrued to bidding firm security holders by the individual deal and firm characteristics. The impact of the deal characteristics, starting with the deal's geographical focus, is shown in Panel A.

(Insert Table 3 about here)

The results show that bondholders respond well to both domestic and cross-border M&As, but bond performance is indeed affected at least to some extent by the relative drawbacks of cross-border deals. The mean abnormal bond returns in domestic and cross-border deals are 0.84% and 0.41%, respectively, each significant statistically and economically. However, the difference between the two is also significant economically as well as statistically when using the Wilcoxon rank-sum test.

The remainder of Panel A examines the deal characteristics considered by Billett, King and Mauer (2004), and first shows whether bonds benefit from the greater co-insurance effects induced by diversifying M&As. We define deals as being diversifying or conglomerate when the two-digit SIC codes of bidder and target are different; this approach is used by Berger and Ofek (1995) and most of the subsequent literature. The results show no evidence that bidder bonds perform better in diversifying M&As. In both diversifying and non-diversifying deals, the abnormal bond returns are significant and comparable in size at 0.58% and 0.55%, respectively. There is also no evidence that bidder stocks underperform in diversifying deals. What this suggests is that diversifying M&As do not shift more wealth from shareholders to bondholders by default. Of course, Eurobond issuers tend to be large and diversified already, but this result is very much in line with what is reported by Maquieira, Megginson and Nail (1998) and Billett, King and Mauer (2004).

Panel A also refutes the conjecture that bonds perform worse in cash-financed M&As due to the capital structure implications of using leverage. In fact, cash offers are associated with a higher mean abnormal bond return than are equity or mixed offers, though the difference in the means is insignificant. This suggests that bondholders are sensitive to the agency and signalling implications of equity financing. Billett, King and Mauer (2004) report similar results, while Travlos (1987) finds that the negative effects of equity financing outright dominate. Stock performance is not expressly driven by the payment method either.

An important contribution of this paper is that it examines whether the performance of bidder bonds is affected by the public status of the target firm. If bidder stocks fare better around bids made for private targets, as Faccio, McConnell and Stolin (2006) find, bondholders may also benefit indirectly. Panel A shows only marginal evidence in this regard. When the target firm is privately held, the abnormal returns accrued to both bondholders and shareholders are significantly positive. When the target is publicly listed, the abnormal bond returns are lower but still significantly positive, while the abnormal stock returns are insignificantly negative. The differences in the means and medians are insignificant in both cases, however.

In the takeover bids made for publicly listed firms, the performance of bidder bonds is strongly affected by the way the target is approached. When a tender offer is made directly to the target shareholders, the mean abnormal bond return is highly significant at 0.75%. When the bidder negotiates with the target management instead, the return is significantly lower and statistically insignificant. To some extent, this may owe to the fact that tender offers are typically financed with cash and directed at smaller, less levered target firms. It is nonetheless surprising that for the US, Billett, King and Mauer (2004) find that bidder bonds perform worse rather than better when a tender offer is made. The authors also report a further reduction in abnormal bond returns when the bid is hostile. Panel A does not support this finding either, but we only have five hostile bids in the sample because they are quite rare in Continental Europe.

Panel A shows the impact of two more deal characteristics. Firstly, there is no evidence that the performance of bidder bonds varies over time. Abnormal bond returns are comparable before and after 2000, which marked the end of the European M&A wave and

the introduction of the EIR in the European Union. Though not reported in the table, partitioning the sample using alternative dates makes no difference either. Secondly, bond performance is largely unaffected by whether the deal is later completed. The reason for non-completion has no impact either; non-completion may arise when the offer is rejected or withdrawn, or when the bidder acquires a toehold but does not proceed to take full control.

4.3. The impact of firm characteristics on abnormal bond returns

Panel B illustrates how the relative characteristics of bidder and target affect bidder bond performance when the target firm is publicly listed. We first stratify the sample by whether the relative size of the target to the bidder, as measured by market capitalization, is greater than the sample median. The results lend strong statistical evidence to a negative size effect. When the target firm is relatively small, the mean abnormal bond return is 0.85%, but when the target is large, the mean return becomes both insignificant and negligible in size. Panel B suggests that bidder stocks also fare worse when the target is relatively large, but the mean difference in this case is statistically insignificant.

In the spirit of Shastri (1990), we next show whether bidder bond performance is affected by the relative pre-merger riskiness of the target. We first partition the abnormal bond returns by whether the two firms' combined portfolio has higher or lower asset volatility than the pre-merger bidder. The results show that bondholders are highly sensitive to asset risk changes. When asset risk is reduced, the mean abnormal bond return is significantly positive at 0.74%. When it is increased, the mean is insignificantly negative, and the difference in the two means is also significant at the 5% level. What is surprising is that shareholders also seem to respond negatively rather than positively to increased asset risk.

In Panel B, financial risk changes do not have a statistically significant impact on bond performance. Still, the mean abnormal bond return is consistently lower when financial risk is increased in the combined firm, i.e. leverage is increased or interest coverage reduced. Consistent with the conflict of interest between shareholders and bondholders with respect to risk taking, increased financial risk seems to have a positive rather than a negative effect on abnormal stock returns, but the mean differences are again insignificant. It is notable that

Billett, King and Mauer (2004) also fail to find a significant financial risk effect, although they only use leverage to measure financial risk. The authors point out that this type of analysis does not account for changes in financial risk after the deal or as a result of the deal itself. Indeed, we find that before the announcement date, the combined leverage of the merging firms is 0.28 on average, but this rises to 0.38 in the fiscal year after the deal's completion.

4.4. The impact of the governance regime on abnormal bond returns

Whether bidder bond performance around M&A announcements varies by the type of governance regime in place is examined in Table 4. The type of governance regime is proxied by each country's legal origin, given that the common law UK and Ireland have market-oriented, while the civil law countries of Continental Europe have more stakeholder-oriented systems. Incidentally, there are no Irish bidding firms in the sample, which reduces the investigation to UK versus Continental European bidders. Within the family of civil law countries with stakeholder-oriented regimes, a distinction of French, German, and Nordic civil law traditions makes no difference to the results.

(Insert Table 4 about here)

Table 4 first partitions the abnormal bond returns simply by the bidder country's legal origin. Surprisingly, the results show no evidence that the M&As undertaken by Continental European bidders are more bondholder-friendly. In fact, bidder bonds earn highly significant abnormal returns in both Continental Europe and the UK, and while the median returns are identical at 0.81%, the mean return is actually lower in Continental Europe, at 0.48% versus 0.71%.

The further stratification of the sample nonetheless reveals considerable differences in the drivers of bond performance in Continental Europe and the UK. What is apparent from Table 4 is that Continental European bondholders are more sensitive to a deal's governance-related risks and uncertainties, while UK bondholders respond more to its actual asset and financial risk implications.

Panel A of Table 4 first shows that in Continental Europe, bidder bonds perform considerably worse in cross-border M&As than they do in domestic ones. There is evidence that the abnormal bond returns are significantly positive in both domestic and cross-border deals, but at 1.12% and 0.18%, respectively, the mean return in cross-border deals is substantially lower. This confirms that Continental European bondholders do not respond well to the drawbacks of cross-border M&As, with respect to the greater informational asymmetries and the legal uncertainties and inefficiencies induced. Another source of concern may be that cross-border deals are more likely to dilute stakeholder participation in the combined firm's governance, particularly when the target firm is from a market-oriented governance regime. Panel A shows some evidence in this regard. When the country of the foreign target has a stakeholder-oriented governance regime, bidder bonds fare quite well, earning a mean abnormal return of 0.31%. However, when the target country has a market-oriented regime, the mean abnormal return becomes insignificantly negative, and the difference between the two means falls just short of being significant.

Remarkably, the patterns observed for UK bidder bonds are very different. UK bonds seem to be unaffected by the relative disadvantages of cross-border M&As, earning a mean abnormal return of 0.89% from these deals. These gains are largely invariant to the target country's governance regime, playing down the scope and benefits of a stakeholder orientation spillover from the target firm. At the same time, however, UK bonds only earn a statistically insignificant 0.45% from domestic M&As. This corresponds well to the results reported for US domestic deals in the existing literature. However, it is surprising how well the performance of UK bonds holds up in cross-border deals.

Further analysis reveals that UK bondholders respond to the target firm's relative riskiness in particular. Panel B of Table 4 partitions the sample further by comparing asset and financial risks in the combined firm relative to the pre-merger bidder. We find that the performance of UK bonds is extremely sensitive to changes in asset risk. When asset risk is higher rather than lower in the combined firm, the mean abnormal bond return is lower by 3.00%, and the mean difference is significant at the 1% level. UK bondholders also respond to changes in financial risk, albeit to a lesser extent. When leverage is increased or interest coverage reduced, the abnormal bond returns are consistently lower, though the mean

difference is only significant for interest coverage at the 10% level. This latter result is not surprising, to the extent that financial markets use interest coverage rather than leverage to measure financial risk.

The bondholders of Continental European bidders are considerably less sensitive to the target's relative riskiness. Panel B of Table 4 shows some sensitivity to asset risk; when it is higher rather than lower in the combined firm, the mean abnormal bond return is lower by 0.97%, but the mean difference is only significant at the 10% level. Remarkably, Continental European bondholders seem not to respond to financial risk changes at all, whether measured by leverage or interest coverage. What this suggests is that creditor participation in corporate governance reduces bondholder concerns over the risk changes, and especially the capital structure changes induced by a deal. One implication of creditor influence is that Continental European bidders may be compelled to structure a deal in a way which mitigates its risk implications, or compensate for a risk increase post-merger.

4.5. Creditor protection spillovers in cross-border M&As

Whether the cross-border performance of bidder bonds responds to how the legal protection of creditors compares in the bidder and target countries is examined in Table 5. We use three country-level indicators to capture the quality of creditor protection in the national jurisdictions, each described in detail in Appendix 3. Firstly, we use a *creditor rights index* Martynova and Renneboog (2007) constructed for 31 European countries and the US, with the help of more than 150 academic and practicing corporate lawyers (the contributors are listed at the end of the appendix). This index is based on the creditor rights index developed by La Porta et al. (1998), but (i) it is available for every year since 1990, thereby capturing all the major regulatory changes across Europe over our sample period; and (ii) it is available for Central and Eastern European countries. Secondly, we measure the efficiency of claims enforcement using the *debt enforcement index* developed by Djankov, McLiesh and Shleifer (2007). This variable is defined as the number of days needed to enforce a contract of unpaid debt through courts, and is measured for 129 countries as at January 2003. And thirdly, we use the World Bank's *rule of law index* to see whether the general regulatory environment

matters beyond what is captured by the first two indices. This variable aggregates several indicators which measure the effectiveness and predictability of the judiciary, the enforceability of contracts as well as the control of corruption. It is available bi-yearly from 1996 for 209 countries.

(Insert Table 5 about here)

Table 5 partitions the cross-border abnormal returns by how the scores of the bidder and target countries compare in each index. We find that bidder bonds are extremely sensitive to the quality of creditor protection in the target country. When creditor rights are better in the target jurisdiction, the mean abnormal bond return is 0.88% and significant at the 1% level. When they are not, however, the mean return is both significantly lower at 0.12% and becomes statistically insignificant. Bond performance is equally affected by the efficiency of claims enforcement, though the mean difference between the two states is lower at 0.50% and is only significant using the non-parametric Wilcoxon rank-sum test.

What these results suggest is that cross-border M&As offer much greater scope for the functional spillover of creditor protection than is assumed by La Porta et al. (1998). That Eurobond holders respond so strongly to such spillover effects is critical, because it demonstrates a general reduction in the agency costs of debt, benefiting all creditors regardless of their seniority or ability to do insolvency arbitrage. This argument is also supported by the relative underperformance of bidder stocks when creditor protection is improved. We also report the abnormal stock returns in Table 5, and find that they are consistently lower when creditor rights and claims enforcement are better in the target jurisdiction. Interestingly, an improvement in the efficiency of claims enforcement induces a greater, 3.03% reduction in the mean abnormal stock return, and this is significant using both parametric and non-parametric tests.

We find no evidence that the general regulatory environment would matter to bondholders beyond the quality of creditor rights and claims enforcement. Table 5 shows that bond performance is largely invariant to how the rule of law compares in the bidder and target countries. There is some indication that bidder shareholders respond favourably to better rule

of law in the target jurisdiction, but the mean returns and their differences are always insignificant statistically.

4.6. Multivariate analysis

In order to substantiate our univariate findings, we now perform a multivariate analysis of the abnormal returns accrued to bidding firm security holders, using the cluster regression procedure. Table 6 shows three pairs of regressions, each using a different set of the independent variables to jointly test for the effects of country, deal, and firm-related characteristics. The independent variables are dummies which equal one if the variable description holds and zero otherwise. As before, the abnormal stock returns are included to help identify wealth redistributions between shareholders and bondholders. The coefficient estimates are compared in each pair of bond and stock regressions using a Wald test.

(Insert Table 6 about here)

The three pairs of regressions serve different objectives. Model (1) maximizes the number of observations by including only the variables available for all firms¹³. Model (2) uses the full set of variables previously identified, thereby eliminating the observations where the target firms are privately held. Finally, Model (3) draws on Model (2), but it excludes the variables which do not contribute to the joint significance of the bond regression.

In Table 6, we group the independent variables by whether they capture country, deal, or firm-related characteristics. The results confirm that cross-country variations in governance and legal standards are very strong predictors of bidder bond performance. Firstly, we find that the bondholders of UK bidders earn considerably lower abnormal returns than do their Continental European peers when the target firm is publicly listed. In Models (2) and (3), the coefficients on the common law dummy are significantly negative at the 1% level, predicting a difference in the abnormal bond returns of 1.90% and 2.09%, respectively. This indicates that the deals undertaken in the stakeholder-oriented governance regimes of Continental

¹³ Model (1) does not control for the relative characteristics of bidder and target because no accounting data are available for most private firms. The payment method is not controlled for either because it is often undisclosed.

Europe are indeed more creditor-friendly. Surprisingly, the same result does not seem to hold when the target firm is privately held. In Model (1) which simultaneously includes both public and private targets, the dummy coefficient remains negative but becomes insignificant. What may affect this result, however, is that the model does not control for the target's relative riskiness which UK bondholders are very sensitive to.

It is notable that each of the three models controls for the bidder country's legal origin only, because the simultaneous inclusion of the target country's legal origin generates considerable multicollinearity issues¹⁴. When we only control for the legal origin of the target country, we actually find very similar results; the coefficients on the common law dummy are uniformly negative and are significant in Models (2) and (3). What this confirms is that M&As induce considerable governance spillovers; the extent of stakeholder participation in the target firm's governance also affects governance in the surviving entity.

Secondly, we find strong evidence that bidder bondholders benefit significantly less from cross-border M&As than they do from domestic deals *ceteris paribus*. In all three models of Table 6, the coefficients on the cross-border dummy are significantly negative, varying between -1.12% in Model (1) and -2.10% in Model (3). This confirms that bondholders are wary of the added legal risks and uncertainties associated with cross-border deals. That the coefficient is the least negative in Model (1), albeit still significant at the 1% level, suggests that bond performance is affected to a lesser extent when the cross-border target is privately held. This may simply reflect the relatively smaller size of private firms which is not controlled for in the model otherwise; the informational asymmetries are greater with respect to private targets, but they also have fewer assets for creditors to pursue.

And thirdly, we confirm that bidder bondholders earn considerably higher abnormal returns from those cross-border M&As where the target country offers better creditor protection. Table 6 verifies that cross-border deals instigate strong spillovers in both creditor rights and the efficiency of debt enforcement. The coefficients on the creditor rights dummy, at 1.00% in Model (1) and 2.13% in Model (3), are significant in all three models at least at the 5% level. That the abnormal return is the lowest in Model (1) suggests that creditor rights

¹⁴ We test for multicollinearity using variance inflation factors (VIF), tolerance and condition indices. None of these diagnostic measures indicate problems in the models shown in Table 6.

spillovers also occur when the target firm is privately held, but the scope of these is again limited because private targets tend to be smaller. The results are largely analogous for the enforcement dummy; its coefficients range from 0.71% in Model (1) to 2.63% in Model (3), though the Model (1) coefficient is statistically insignificant. As before, we find no evidence that bond performance is sensitive to the general rule of law in the target country.

That creditor protection spillovers induce a reduction in the agency costs of debt is also supported by the stock regressions to some extent. In Table 6, the stock regression coefficients are uniformly negative on both the creditor rights and debt enforcement dummies, and while they are statistically insignificant, they are considerable in size on the creditor rights dummy. The Wald statistics comparing the coefficients in the bond and stock regressions are fairly weak, but for the creditor rights dummy they are significant in Model (3) and only marginally insignificant in Model (2).

Of the deal characteristics, two stand out as being significant drivers of bidder bond performance. Firstly, Model (1) provides much stronger evidence of a negative listing effect than did the univariate results. The model shows that when the target firm is publicly listed rather than privately held, the abnormal bond return is lower by 1.18%. Surprisingly, we find no evidence of a listing effect on stock returns in the way that Chang (1998) and Faccio, McConnell and Stolin (2006) do. Secondly, all three models confirm that tender offers benefit bidder bondholders more than do deals negotiated with management. The coefficients on the tender offer dummy range between 1.30% and 1.50%, and each is significant at the 5% level. Otherwise, Table 6 shows no evidence that the other deal characteristics have an impact on bond performance. Consistent with Maqueira, Megginson and Nail (1998) and Billett, King and Mauer (2004), we find no support to the seminal hypotheses that bondholders fare better in diversifying M&As, and that they benefit more from equity-financed deals. Bond performance is also invariant to whether the deal is hostile in attitude, announced after 2000, or is later completed or not.

Finally, Table 6 confirms that the performance of bidder bonds is highly sensitive to the characteristics of the target firm. Firstly, bonds fare considerably better when the target firm is relatively small. When the target's size relative to the bidder is smaller than the sample median, the abnormal bond return is higher by 1.66% in both Models (2) and (3). Secondly,

bond performance shows a great deal of sensitivity to the target firm's relative riskiness. In both models, the abnormal bond return is lower by approximately 1.1% if asset risk is higher rather than lower in the combined firm relative to the pre-merger bidder. Of the financial risk proxies, only interest coverage affects bond performance. The coefficients on the respective dummy are significant at the 5% level in both models, with Model (3) showing that when interest coverage is reduced rather than increased, the abnormal return is lower by 1.51%. As before, bond performance is invariant to leverage whether or not we control for interest coverage in the regression.

5. Extensions and robustness checks

While this paper fully demonstrates that the performance of bidder bonds is very sensitive to cross-country variations in governance and legal standards, it is imperative that the same issues be also investigated for target firms. One limiting factor in this regard is that the large and creditworthy firms which issue Eurobonds are rarely targeted by takeover bids. Indeed, while we find 225 bidders with priceable Eurobonds, only 24 targets survive the same stringent selection criteria over our sample period.

Surprisingly, this limited target sample already provides ample evidence that the performance of target bonds is at least as affected by governance and legal considerations. Firstly, multivariate analysis reveals that the bonds of Continental European targets perform significantly better than those of their UK peers around M&A announcements. Target bonds also seem to fare generally worse in cross-border deals, but equally benefit when the bidder country offers superior creditor protection. The aspect of creditor protection which target bondholders respond to especially strongly is the quality of creditor rights; there is no clear indication that the efficiency of debt enforcement would matter. These results are not reported in the present paper but are readily available on request.

To verify our findings on bidder bond performance, which are summarized in Table 7, we perform a variety of robustness checks. We find no evidence that bond characteristics such as credit rating and duration (or maturity) would affect the abnormal bond returns, despite their influence on the bonds' risk sensitivity. When included in the regressions, the coefficients on

the respective variables have the expected signs but are statistically insignificant, and while the remaining results are unchanged the joint significance of the models is actually reduced. On a similar note, the regression results are invariant to the exclusion of the bonds which have relatively short durations of between one and three years, and are therefore less sensitive to risk changes.

(Insert Table 7 about here)

We employ a number of alternative measures to capture to quality of creditor protection. While Martynova and Renneboog's (2007) creditor rights index draws on the index developed by La Porta et al. (1998), it includes an additional regulatory provision on whether creditor approval is required to initiate a reorganization or liquidation procedure (see Appendix 1.3). The removal of this provision leaves the results effectively unchanged.

As alternatives to the rule of law index, we try each of the World Bank's five other indices: voice and accountability, political stability, government effectiveness, regulatory quality, and control of corruption. We find no material differences in the results, which is unsurprising because these indices are all correlated. Bond performance is also unrelated to the rule of law, accounting standards, and judicial efficiency indices constructed by La Porta et al. (1998). Of course, a problem with these indicators is that they neither capture regulatory changes over time nor are they available for Central and Eastern Europe.

We also experiment with variables which capture other aspects of the institutional environment. For example, it is reasonable to assume that the quality of corporate information available to creditors may affect bond performance. We investigate this issue by using a corporate transparency index which, along with the creditor rights index, is part of Martynova and Renneboog's (2007) corporate governance database. The results show no evidence that bondholders would respond to transparency. As an alternative, we introduce a firm-level dummy which captures whether a firm has issued American Depositary Receipts (ADR). ADRs prescribe compliance with US accounting standards and are typically associated with improved disclosure. We find that this variable has no effect on bond returns either.

Our findings are also robust to alternative specifications of the deal and firm-level variables. Beginning with the payment method, distinguishing pure stock-for-stock M&As rather than at least partially equity-financed deals does not change the empirical outcomes. Similarly, the size effects previously identified persist when the relative size of bidder and target is measured by the book value of assets rather than market capitalization. We also repeat the analysis using long leverage as an alternative to total leverage. Bondholders may be more sensitive to long leverage because their claims are not directly affected by the servicing of short-term liabilities. We define long leverage as the book value of long-term debt divided by the sum of the book value of long-term debt and market capitalization. Using this variable, we get practically the same results in both the univariate and multivariate frameworks. Replacing the firm-level dummies with the actual variables yields qualitatively the same results.

Finally, we perform multivariate cluster regressions which maximize the joint significance of the stock rather than the bond regressions. In these models, we also control for the quality of shareholder rights and the protection of minority shareholders using the respective indices also created by Martynova and Renneboog (2007). We find that the stock regressions are greatly improved, and that bidder stocks respond positively to an improvement in the protection of minority shareholders *vis-à-vis* the incumbent shareholders. Bond prices are unaffected by each of these variables across all specifications. The results are marginal to the focus of this paper and are not reported here.

6. Conclusion

This paper has demonstrated that the bondholder wealth effects of M&As are strongly affected by cross-country variations in governance and legal standards. Earlier studies have focused on US domestic deals, and made no attempt to examine how bond performance may differ in domestic versus cross-border M&As, across governance systems, or as a result of cross-border spillovers in creditor protection. Similar issues have been a hot topic in recent academic research, and investigated extensively with respect to shareholder wealth in particular.

We have examined deals involving European bidding firms with outstanding Eurobonds, and shown that the stakeholder orientation of corporate governance and the quality of legal protection afforded creditors are very strong predictors of bond performance. Firstly, the bonds of Continental European bidders fare systematically better in and are less sensitive to the asset and financial risk effects of M&As. This is consistent with the better representation of creditor interests in stakeholder-oriented governance regimes relative to the market-oriented Anglo-American world. Secondly, bonds underperform in cross-border M&As relative to domestic deals. However, they fare considerably better when the deal exposes their firm to a stakeholder-oriented governance regime or a jurisdiction with better creditor rights and claims enforcement. This latter result is imperative because it suggests that cross-border deals provide much greater scope for the functional spillover of creditor protection than is assumed by La Porta et al. (2000). Such spillovers are intensified by the ability of creditors to arbitrage across legal systems, and ultimately reduce what are the agency costs of debt. That Eurobond holders respond so strongly to such considerations is remarkable, because their firm is often large and internationally diversified already, and they are prevented from doing insolvency arbitrage because Eurobond contracts always specify a governing law. These findings constitute a major contribution to the comparative corporate governance literature, and expose further the powerful economic implications of cross-border M&As.

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Table 1. Descriptive statistics.

Panel A: Unbalanced sample						
<i>Bidding firms</i>	N	Mean	Median	Std. dev.	Min.	Max.
Market capitalization (millions of 2004 euro)	225	20,217	9,399	35,449	865	335,284
Assets (millions of 2004 euro)	225	27,949	12,407	39,950	953	246,959
Return on assets	225	7.6%	7.1%	6.5%	-22.2%	33.6%
Leverage	225	0.31	0.30	0.16	0.01	0.86
Interest coverage	225	5.9	4.0	15.2	-21.3	224.5
Asset risk (std. dev. of unlevered stock returns)	225	0.06	0.06	0.03	0.02	0.17
Number of bonds per firm	225	2.76	2	2.39	1	16
Bond maturity (years remaining)	225	6.60	5.88	3.42	1.48	21.38
Bond duration (years)	225	5.14	4.93	1.93	1.41	12.07
Bond rating	225	4.35	4	2.01	1	10
Panel B: Balanced sample						
<i>Bidding firms</i>	N	Mean	Median	Std. dev.	Min.	Max.
Market capitalization (millions of 2004 euro)	75	24,509	9,373	48,319	864,549	335,284
Assets (millions of 2004 euro)	75	24,351	15,689	33,086	1,572	230,385
Return on assets	75	7.9%	7.6%	7.4%	-22.2%	27.2%
Leverage	75	0.28	0.25	0.16	0.01	0.69
Interest coverage	75	8.2	4.1	25.9	-5.9	224.5
Asset risk (std. dev. of unlevered stock returns)	75	0.07	0.06	0.03	0.02	0.13
<i>Target firms</i>	N	Mean	Median	Std. dev.	Min.	Max.
Market capitalization (millions of 2004 euro)	75	5,301	964	15,117	13	118,343
Assets (millions of 2004 euro)	75	4,475	1,480	7,405	16	36,768
Return on assets	75	4.5%	8.3%	17.5%	-75.7%	35.0%
Leverage	75	0.23	0.21	0.18	0.00	0.65
Interest cover	75	36.3	4.3	366.4	-805.6	3,054.0
Asset risk (std. dev. of unlevered stock returns)	75	0.10	0.08	0.08	0.02	0.51

Note to Table 1. The variables are described in Appendix 1. Bond ratings are cardinalized i.e. BBB- =1, BBB=2, ..., AAA=10.

Table 2. Bidder abnormal security returns around M&A announcements.

	Weighting of pricing benchmark	N	Mean	Median	Std. dev.	Positive: negative	T-test	Signed-ranks test
Abnormal bond return	Equal	225	0.56	0.81	1.99	166:59	4.21***	5.93***
	Value	225	0.52	0.71	1.98	158:67	3.91***	5.34***
Abnormal stock return		225	0.73	0.20	10.01	113:112	1.09	1.07

Note to Table 2. The abnormal returns are expressed in percent and described in Appendix 1. *, ** and *** denote significance at the 10, 5 and 1% level, respectively.

Table 3. Bidder abnormal security returns around M&A announcements.

Panel A: Deal characteristics						
Grouping criteria		Bonds		Stocks		N
		Mean	Median	Mean	Median	
Geographical focus	Domestic	0.84 ^{***}	0.91 ^{***}	0.48	-0.51	79
	Cross-border	0.41 ^{**}	0.77 ^{***}	0.86	1.02	146
	<i>Difference</i>	-0.43	-0.13 [*]	0.38	1.53	
Industry focus	Same two-digit SIC code	0.55 ^{***}	0.80 ^{***}	0.49	-0.23	152
	Different two-digit SIC code	0.58 ^{**}	0.82 ^{***}	1.39	0.78	73
	<i>Difference</i>	0.04	0.02	0.90	1.01	
Payment method	Cash only	0.61 ^{***}	0.85 ^{***}	0.79	0.92	142
	Equity or mix	0.34	0.16	-1.86	-2.55	23
	<i>Difference</i>	-0.28	-0.69	-2.65	-3.47	
Target firm's public status	Unlisted	0.65 ^{***}	0.85 ^{***}	1.43 ^{**}	0.77 [*]	149
	Listed	0.39 [*]	0.66 ^{***}	-0.49	-2.08	76
	<i>Difference</i>	-0.26	-0.20	-1.92	-2.85	
Deal type in acquisitions of listed firms	Negotiated deal	-0.06	0.39	0.86	0.12	34
	Tender offer	0.75 ^{**}	0.99 ^{***}	-1.58	-3.19	42
	<i>Difference</i>	0.81 [*]	0.60	-2.43	-3.31	
Deal attitude in acquisitions of listed firms	Friendly	0.36	0.64 ^{**}	0.47	-1.80	71
	Hostile	0.73	1.78	-14.14 [*]	-6.38 [*]	5
	<i>Difference</i>	0.37	1.14	-14.61 ^{**}	-4.58 ^{**}	
Date of announcement	1995-2000	0.58	0.34 [*]	-2.41	-2.89	38
	2001-2004	0.55 ^{***}	0.85 ^{***}	1.43 ^{**}	0.78 ^{**}	187
	<i>Difference</i>	-0.03	0.51	3.84 ^{**}	3.68 [*]	
Deal status	Not completed	0.61 ^{***}	0.85 ^{***}	0.73	-0.09	68
	Completed	0.53 ^{***}	0.77 ^{***}	0.81	0.62	157
	<i>Difference</i>	-0.08	-0.09	0.07	0.71	

Panel B: Firm characteristics						
Grouping criteria		Bonds		Stocks		N
		Mean	Median	Mean	Median	
Relative size of target to bidder	Smaller or equal to sample median	0.85 ^{**}	0.99 ^{***}	0.18	0.06	36
	Larger than sample median	-0.07	0.15	-1.26	-3.63	35
	<i>Difference</i>	-0.93 ^{**}	-0.84 [*]	-1.43	-3.69	
Asset risk	Lower in combined firm than in bidder	0.74 ^{***}	0.76 ^{***}	0.99	1.91	51
	Higher in combined firm than in bidder	-0.71	0.02	-4.14	-3.63	17
	<i>Difference</i>	-1.45 ^{**}	-0.74 [*]	-5.13	-5.54	
Leverage	Lower in combined firm than in bidder	0.59 ^{**}	0.68 ^{***}	-2.17	-3.58	44
	Higher in combined firm than in bidder	0.07	0.56	2.14	1.91	27
	<i>Difference</i>	-0.51	-0.12	4.31	5.49	
Interest cover	Higher in combined firm than in bidder	0.66 ^{**}	0.67 ^{**}	-0.60	-2.55	37
	Lower in combined firm than in bidder	0.11	0.58	-0.45	-0.03	34
	<i>Difference</i>	-0.54	-0.08	0.15	2.52	

Note to Table 3. The abnormal returns are expressed in percent. The abnormal bond returns are computed using equal-weighted pricing benchmarks. The variables are described in Appendix 1. The difference in means t-test assumes unequal variances across groups when test of equal variances is rejected at the 10% level. The significance of medians and differences in medians based on Wilcoxon signed-ranks and rank-sum tests, respectively. *, ** and *** denote significance at the 10, 5 and 1% level, respectively.

Table 4. The Impact of the governance regime on bidder abnormal bond returns around M&A announcements.

Grouping criteria		Bidder is civil law			Bidder is common law			<i>Difference</i>	
		Mean	Median	N	Mean	Median	N	<i>Mean</i>	<i>Median</i>
Abnormal bond returns		0.48***	0.81***	146	0.71***	0.81***	79	0.23	0.00
Panel A: Country characteristics									
Geographical focus	Domestic	1.12***	1.12***	46	0.45	0.61	33	-0.68	-0.81
	Cross-border	0.18	0.69**	100	0.89***	1.05***	46	0.71**	0.36**
	<i>Difference</i>	-0.94***	-0.43***		0.45	0.44			
Regime of target country in cross-border deals	Civil law	0.31	0.69***	83	0.92**	1.05***	32	0.61	0.36
	Common law	-0.45	0.47	17	0.84	1.05*	14	1.29	0.58
	<i>Difference</i>	-0.76	-0.22		-0.08	0.00			
Panel B: Firm characteristics									
Asset risk	Smaller in combined firm than in bidder	0.98***	1.02***	23	0.54	0.43	28	-0.45	-0.59
	Greater in combined firm than in bidder	0.02	0.39	12	-2.46**	-1.61*	5	-2.48*	-2.00*
	<i>Difference</i>	-0.97*	-0.63		-3.00***	-2.04**			
Leverage	Smaller in combined firm than in bidder	0.64	1.02**	21	0.55	0.25	23	-0.09	-0.77
	Greater in combined firm than in bidder	0.68*	0.71*	15	-0.68	0.01	12	-1.35	-0.70
	<i>Difference</i>	0.04	-0.31		-1.23	-0.24			
Interest cover	Greater in combined firm than in bidder	0.53	1.01	16	0.75	0.30	21	0.21	-0.71
	Smaller in combined firm than in bidder	0.75**	0.79***	20	-0.79	-0.05	14	-1.54**	-0.84
	<i>Difference</i>	-0.22	0.22		1.54*	0.35			

Note to Table 4. The abnormal bond returns are expressed in percent and computed using equal-weighted pricing benchmarks. The variables are described in Appendix 1. The difference in means t-test assumes unequal variances across groups when test of equal variances is rejected at the 10% level. The significance of medians and differences in medians are based on Wilcoxon signed-ranks and rank-sum tests, respectively. *, ** and *** denote significance at the 10, 5 and 1% level, respectively.

Table 5. The impact of legal standards on bidder abnormal security returns around cross-border M&A announcements.

Grouping criteria		Bonds		Stocks		N
		Mean	Median	Mean	Median	
Target country scores better than bidder country in:						
Creditor rights	No	0.12	0.60	0.55	0.56	70
	Yes	0.88***	1.08***	-0.02	-0.72	37
	Difference	0.77*	0.48*	-0.58	-1.28	
Debt enforcement	No	0.22	0.66**	2.20**	2.35**	89
	Yes	0.72**	0.86***	-0.82	-1.43	53
	Difference	0.50	0.20*	-3.03*	-3.78*	
Rule of law	No	0.42**	0.75***	0.65	0.96	114
	Yes	0.36	0.79**	1.78	3.97	32
	Difference	-0.06	0.04	1.13	2.81	

Note to Table 5. The abnormal bond returns are expressed in percent and computed using equal-weighted pricing benchmarks. The variables are described in Appendix 1. The difference in means t-test assumes unequal variances across groups when test of equal variances is rejected at the 10% level. The significance of medians and differences in medians based on Wilcoxon signed-ranks and rank-sum tests, respectively. *, ** and *** denote significance at the 10, 5 and 1% level, respectively.

Table 6. Multivariate regressions explaining bidder abnormal security returns.

Independent dummy variables		(1)			(2)			(3)		
		Bonds	Stocks	F-test	Bonds	Stocks	F-test	Bonds	Stocks	F-test
Country characteristics Dummy = 1 if	Bidder is common law	-0.31 (-0.75)	-2.56 (-1.25)	(1.03)	-1.90 (-3.03)***	-6.55 (-1.13)	(0.61)	-2.09 (-3.58)***	-5.27 (-0.88)	(0.32)
	Cross-border deal	-1.12 (-2.90)***	-0.76 (-0.38)	(0.03)	-1.62 (-1.83)*	4.19 (0.51)	(0.48)	-2.10 (-3.06)***	7.95 (1.16)	(2.18)
	Creditor rights better in target country	1.00 (2.38)**	-1.32 (-0.58)	(1.05)	2.28 (2.62)**	-10.99 (-1.40)	(2.41)	2.13 (2.78)***	-10.90 (-1.34)	(3.05)*
	Debt enforcement better in target country	0.71 (1.32)	-0.21 (-0.08)	(0.15)	2.02 (2.11)**	-1.61 (-0.16)	(0.15)	2.63 (3.06)***	-5.84 (-0.62)	(1.11)
	Rule of law better in target country	-0.26 (-0.61)	1.89 (0.66)	(0.77)	-0.53 (-0.57)	3.78 (0.55)	(0.30)			
	Diversifying deal	-0.21 (-0.63)	-0.93 (-0.51)	(0.16)	0.94 (0.86)	-0.53 (-0.07)	(0.05)			
	Equity/mixed financing				0.42 (0.59)	-3.78 (-0.67)	(0.45)	0.36 (0.56)	-4.30 (-0.85)	-0.68
	Target is publicly listed	-1.18 (-2.80)***	0.94 (0.40)	(0.92)						
Deal characteristics Dummy = 1 if	Tender offer	1.30 (2.51)**	-2.53 (-0.82)	(2.12)	1.50 (2.12)**	-2.99 (-0.63)	(0.60)	1.36 (2.63)**	-6.45 (-1.41)	(2.83)*
	Hostile bid	-0.02 (-0.02)	-13.33 (-1.79)*	(7.17***)	0.97 (1.08)	-14.41 (-1.44)	(3.20)*			
	Announced after 2000	-0.09 (-0.21)	2.02 (0.80)	(1.03)	0.32 (0.45)	3.32 (0.70)	(0.28)			
	Completed deal	0.08 (0.30)	0.51 (0.33)	(0.06)	-0.11 (-0.19)	-1.97 (-0.46)	(0.12)			
	Relative size _{target/bidder} > > sample median				-1.67 (-1.89)*	3.21 (0.58)	(0.70)	-1.66 (-2.38)**	0.70 (0.14)	(0.22)
Firm characteristics Dummy = 1 if	Asset risk _{combined} > > asset risk _{bidder}				-1.07 (-1.65*)	-8.32 (-1.46)	(1.60)	-1.14 (-2.03)*	-10.62 (-1.85)*	(3.20)*
	Leverage _{combined} > > leverage _{bidder}				0.23 (0.37)	3.85 (0.80)	(0.43)			
	Interest cover _{combined} > > interest cover _{bidder}				1.78 (2.46)**	-1.47 (-0.27)	(0.34)	1.51 (2.59)**	-2.90 (-0.61)	(0.84)
	Intercept	1.25 (2.26)**	0.62 (0.21)		0.08 (0.06)	5.37 (0.67)		0.95 (1.39)	10.41 (1.53)	
	Adjusted R ²	0.04	0.03		0.27	-0.04		0.33	-0.01	
F-test		2.02**	0.96		2.43**	0.73		3.85***	0.90	
No. of observations		185			53			53		
No. of clusters		116			49			49		
Mean VIF		1.47			1.96			1.68		
Maximum VIF		1.91			3.90			2.62		
Minimum tolerance		0.53			0.26			0.38		
Condition index		9.98			16.16			7.86		

Note to Table 6. This table shows cluster regressions where the dependent variable is the abnormal bond or stock return expressed in percent. The abnormal bond returns are computed using equal-weighted pricing benchmarks. The independent variables are dummies equal to one if the variable description holds and zero otherwise. The variables described in Appendix 1. T-statistics in parentheses use standard errors with White (1980) correction for heteroskedasticity and adjusted for clustering of observations on each bidding firm. The beta coefficients are compared in each pair of bond and stock regressions using a Wald F-test. *, ** and *** denote significance at the 10, 5 and 1% level, respectively.

Table 7. Economic effects of country, deal and firm characteristics on abnormal bond returns.

	Bidding firms	
	Expected sign	Economic effect
<i>Ref: Mean abnormal bond return</i>		0.56%
Panel A: Country characteristics		
Cross-border deal	-	-2.10%***
Bidder is common law	-	-2.09%***
Creditor rights better in target country	+	2.13%***
Debt enforcement better in target country	+	2.63%***
Rule of law better in target country	+	nss
Panel B: Deal characteristics		
Diversifying deal	+	nss
Equity or mixed financing	+	nss
Target is publicly listed		-1.18%***
Tender offer		1.36%***
Hostile bid		nss
Announced after 2000		nss
Completed deal		nss
Panel C: Firm characteristics		
Relative size of target to bidder greater than sample median		-1.66%**
Asset risk greater in combined firm	-	-1.14%*
Leverage greater in combined firm	-	nss
Interest coverage lower in combined firm	-	-1.51%**

Note to Table 7. This table summarizes the economic effects of country, deal and firm characteristics on abnormal bond returns, as shown in Tables 2 and 6. The abnormal bond returns are computed using equal-weighted pricing benchmarks. The variables are dummies equal to one if the variable description holds and zero otherwise, and are described in Appendix 1. *, ** and *** denote significance at the 10, 5 and 1% level, respectively.

Appendix 1. Variable descriptions.

1.1. Abnormal bond and stock returns

Abnormal bond returns are the sum of the monthly abnormal returns in the two months [-1,0] surrounding the M&A announcement. Monthly abnormal returns are computed as the bond's return minus the return on a matched equal- (value-) weighted benchmark. Each of the 40 equal- (value-) weighted benchmarks is segmented by currency (euro or sterling), bond rating (BBB, A, AA or AAA) and duration (1-3, 3-5, 5-7 and 10+ years). Bond ratings are from Standard and Poor's or, when unavailable, Moody's Investor Service. Where the benchmark contains less than 10 bonds, we use one of 20 reserve benchmarks constructed in two duration categories (1-5 and 5+ years). Value-weighted benchmarks are constructed using weights based on bond market values. Firms with multiple bonds are treated as value-weighted portfolios, where the weights are the market value of each outstanding bond issue two months before the deal announcement. Source: *Reuters Fixed Income Database*.

Abnormal stock returns are the sum of the monthly abnormal returns in the two months [-1,0] surrounding the M&A announcement. Monthly abnormal returns are computed as the raw stock return corrected for return on the benchmark equity index of the issuer's domicile. Source: *Datastream*.

1.2. Firm-level variables

Asset risk is the standard deviation of unlevered stock returns. Unlevered stock returns are defined as the product of stock returns and $(1 - \text{leverage})$. The standard deviation of unlevered stock returns is computed over months -25 to -2 (and a minimum of 10 months of return data need to be available). In the combined firm, it is defined as the portfolio standard deviation of unlevered bidder and target stock returns. In each portfolio, the weights are the market value of assets, measured at the fiscal year-end preceding the deal announcement and converted into euro where applicable. Source: *Datastream* and *Worldscope*.

Interest coverage is earnings before interest and tax (EBIT) divided by interest expense on debt less interest capitalized. In the combined firm, it is calculated using weights based on the book value of debt, which is converted into euro where applicable. It is measured at the fiscal year-end preceding the deal announcement. Source: *Worldscope*.

Leverage is the book value of total debt divided by the market value of assets (the sum of the book value of total debt and market capitalization). Leverage in the combined firm is calculated using weights based on the market value of assets, converted into euro where applicable. It is measured at the fiscal year-end preceding the deal announcement. Source: *Worldscope*.

The *relative size of target to bidder* is the market capitalization of the target firm divided by the market capitalization of the bidding firm. It is measured at the fiscal year-end preceding the deal announcement and converted into euro where applicable. Source: *Worldscope*.

Return on assets (ROA) is earnings before interest and tax divided by the book value of assets. ROA in the combined firm is calculated using weights based on the book value of assets, converted into euro where applicable. It is measured at the fiscal year-end preceding the deal announcement. Source: *Worldscope*.

1.3. Country-level variables

The *creditor rights index* (max=5) captures regulatory provisions that allow creditors to force repayment more easily, take possession of collateral or gain control in financial distress. It is part of a database Martynova and Renneboog (2007) constructed with the help of more than 150 academic and practicing corporate lawyers. The authors tracked down all changes in creditor rights regulation which have taken place over the past 15 years such that the index is available yearly between 1990-2005 for 31 European countries and the US. The regulatory provisions are quantified as follows:

- Debtor-oriented versus creditor-oriented code: 1 if no reorganization option (liquidation only), 0 if reorganization + liquidation option;
- Automatic stay on the assets: 1 if no automatic stay is obliged in reorganization (if debtor-oriented code) or in the liquidation procedure (if liquidation code), 0 if automatic stay;
- Ranking of secured creditors: 1 if secured creditors are ranked first in the reorganization procedure (if debtor-oriented code) or liquidation procedure (if liquidation code), 0 if government and employees are ranked first;
- Creditor approval of bankruptcy: 1 if creditor approval is required to initiate a reorganization procedure (if debtor-oriented code) or liquidation procedure (if liquidation code), 0 otherwise;
- Appointment of official to manage reorganization/liquidation procedure: 1 if it is required by law in a reorganization procedure (if debtor-oriented code) or a liquidation procedure (if liquidation code), 0 otherwise.

The *debt enforcement index* captures the efficiency of claims disputes resolution through courts, and is obtained from Djankov, McLiesh and Shleifer (2007). It is the number of calendar days needed to enforce a contract of unpaid debt worth 50% of a country's GDP per capita, and is measured in 129 countries as of January 2003.

Legal origin is a dummy variable which identifies the legal origin of each country. The five origins are English, French, German, Nordic and Socialist (see Appendix B). Source: Djankov, McLiesh and Shleifer (2007).

The *rule of law index* (max=5) aggregates several indicators that measure how well agents abide by the rules of society. These include perceptions of the incidence of crime, the effectiveness and predictability of the judiciary and the enforceability of contracts. It is published by the World Bank, and is available bi-yearly from 1996 onwards for 209 countries.

Appendix 2. Legal origin of bidding and target firms.

	<i>Legal Origin of Bidder Country</i>				Total
	Common Law	French	German	Nordic	
Total	79	64	57	25	225
Domestic deals	33	27	14	6	80
Cross-border deals, of which:	46	37	43	19	145
<i>Legal origin of target country</i>					
Common law	14	5	10	2	31
Civil law	19	13	8	2	42
French	11	12	19	7	49
German	2	2	2	6	12
Nordic	-	5	4	2	11
Socialist					

Note to Appendix 2. The legal origin of each country is obtained from Djankov, McLiesh and Shleifer (2007).

Appendix 3. Sources of the creditor rights index.

Austria: Prof. Dr. Susanne Kalls (University of Klagenfurt), Prof. Dr. Christian Nowotny and Mr. Stefan Fida (Vienna University of Economics and Business Administration); **Belgium:** Prof. Dr. Eddy Wymeersch (University of Ghent, Chairman of the Commission for Finance, Banking and Assurance), Prof. Dr. Christoph Van der Elst (University of Ghent); **Bulgaria:** Dr. Plamen Tchipev (*Institute of Economics, Bulgarian Academy of Sciences*), Ms. Tania Bouzeva (*ALIENA Consult Ltd., Sofia*), Dr. Ivaylo Nikolov (*Centre for Economic Development, Sofia*); **Croatia:** Dr. Domagoj Racic and Mr. Josip Stajfer (*The Institute of Economics, Zagreb*), Mr. Andrej Galogaža (*Zagreb Stock Exchange*), Prof. Dr. Drago Čengić (*IVO PILAR Institute of Social Sciences*), Prof. Dr. Edita Culinovic-Herc (*University of Rijeka*); **Cyprus:** Mr. Marios Clerides (Chairman) and Ms. Christiana Vovidou (*Cyprus Securities and Exchange Commission*); **Czech Republic:** Prof. Dr. Lubos Tichy, Mr. Martin Abraham, and Mr. Rostislav Pekar (*Squire, Sanders & Dempsey, Counsellors at Law*), Dr. Petr Kotáb and Prof. Dr. Milan Bakes (*Charles University of Prague*), Dr. Stanislav Myslík (*Čermák Hořejš Myslík a spol., Lawyers and Patent Attorneys*), Dr. Jan Bárta (*Institute of State and Law, The Academy of Science of Czech Republic*), Ms. Jana Klířová (*Corporate Governance Consulting, Prague*); **Denmark:** Prof. Dr. Jesper Lau Hansen and Prof. Dr. Ulrik Rammeskov Bang-Pedersen (*University of Copenhagen*); **Estonia:** Prof. Dr. Andres Vutt (*University of Tartu*), Mr. Toomas Luhaäär, Mr. Peeter Lepik, and Ms. Katri Paas (*Law Office of Lepik & Luhaäär*); **Finland:** Prof. Dr. Matti J. 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