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The Law and Finance of Corporate Takeovers in Europe

Cumulative Dissertation

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Submitted by
Paul Peyman Momtaz, MPhil. (Cambridge)
born in Gießen

Contact:
Juliusstraße 18
D-60487 Frankfurt/M.

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Chapter 1

Synopsis

1 The law and finance of corporate takeovers

The soaring of the scale of production during the 18th century rendered possible by the Industrial Revolution marked the departure from owner-managed businesses. Entrepreneurs, in order to finance increasingly capital-intensive production facilities, started to raise funds from investors (Smith, 1776). The beginning dichotomy of finance and management – or more commonly referred to as the separation of ownership and control –, however, raised the issue of how to ensure that investors get a fair return on their investment. This so-called *agency problem* of equity arises when investors and managers have a conflict of interest and asymmetric information (Berle and Means, 1932; Fama and Jensen, 1983; Jensen and Meckling, 1976). The quandary about the agency problem is that investors cannot directly ensure that managers act in their best interest. It is practically impossible for investors and managers to sign complete contracts, stipulating all potential managerial decision depending on future contingencies (Shleifer and Vishny, 1997).

Therefore, it is of great economic import to create corporate governance mechanisms that constrain agency conflicts and enhance economic welfare.[1] The takeover market can act as an important external corporate governance mechanism to mitigate the agency problem (Manne, 1965).[2] One reason is that the market for corporate control is a mechanism to reallocate managerial talent to its most valuable use. If outside managers can run a firm more profitably than incumbent managers, and share price reflects expected firm performance, it is profitable for outside managers to acquire the firm. This way, managers that are not competent enough or induce agency costs are replaced, resulting in higher ex post efficiency (Jensen and Ruback, 1983). On the other hand, the threat of getting acquired may discipline

[1] For example, without effective corporate governance mechanisms, investors may fear expropriation albeit managers have no such intentions; this way, wealth-increasing transaction may fail, leaving all parties worse off (Bebchuk and Fried, 2004).

[2] Other relevant corporate governance mechanisms to mitigate the agency problem are according to Becht et al. (2003): (i) A board of directors to which the CEO is accountable and which represents shareholder interests; (ii) shareholder monitoring by large investors; (iii) alignment of shareholder and managerial interests through equity compensation incentives; and (iv) threat of class-action suits to block corporate decisions or compensate shareholders for harmful decisions, and clearly defined managerial fiduciary duties.

managers to act in the interest of investors in the first place, hence forestalling a manifestation of agency problems ex ante (Grossman and Hart, 1980a; Holmström and Kaplan, 2001).

In fact, the market for corporate control may actually be the most important corporate governance mechanism because it is "the most direct way to achieve control contestability" (Burkart and Panunzi, 2006, p. 2). However, the market for corporate control does not function by default (Grossman and Hart, 1980b). It requires regulatory embeddedness that provides institutional features incentivizing firms to become active, wealth-increasing acquirers. The interdisciplinary field of *Law and Finance* is concerned with the interplay between financial markets and their regulatory embeddedness. It examines how the law and the quality of law enforcement affect financial market outcomes (La Porta et al., 1998). In the context of corporate takeovers, it is concerned with investigating the institutional features needed to promote the benefits of an active market for corporate control and whether those features are efficient. More specifically, it examines the institutional environment needed, first, to spur takeover activity, second, to prevent value-destructive transactions, and, third, to avoid anticompetitive effects. [3]

First, without effective regulation, the market for corporate control might be inactive (Grossman and Hart, 1980b; Lel and Miller, 2015). To illustrate how a lack of takeover law could prevent takeover activity, consider the consequences of *free-riding behaviour* among completely dispersed shareholders (Grossman and Hart, 1980b). In a simple takeover game, let $v_{pre\text{-}deal}$ be a target firm's per stock market value before a takeover bid and $v_{post\text{-}deal}$ the per

[3] This axiomatic view assumes that law can effectively and efficiently influence financial markets. In acknowledgement of the counterview, note that Coase (1960) argues, however, that private contracting between the parties will more efficiently resolve agency conflicts and hence there is no need for regulation. The rationale behind this notion is that firms will credibly commit themselves to these contracts and voluntarily disclose necessary information. Otherwise, investors would penalize firms, which potentially increases their cost of external financing. Yet, the Coasian perspective has been refuted oftentimes: The necessary level of legal enforcement to enforce claims arising from firm-level contracts is not prevalent in many countries (La Porta et al., 2000); credibly committing to good governance is simply too costly in the absence of laws (Ball, 2001; Doidge et al., 2007; La Porta et al., 1997); and, even if firms could fully commit themselves to good governance at affordable terms, risk-averse investors may still fear that firms will renege on their agreements, and thus provide funding only at a risk-adjusted rate. Overall, this would prevent the economy as a whole from being able to maximize possible wealth (Martynova and Renneboog, 2011b). Accordingly, effective laws and their enforcement are crucial for financial market efficiency.

stock market value of that firm after a takeover; and, assume that $v_{pre\text{-}deal} < v_{post\text{-}deal}$, i.e. the takeover would be value-increasing.[4] To succeed, the takeover requires that the acquirer gains control over the target by acquiring the majority of the shares. Therefore, the acquirer submits a bid for all shares, where a price p for each share is offered under the condition that the majority of the shares will be tendered. The acquirer incurs costs, $C_{deal} > 0$, for the bid and the takeover. If shareholders anticipate the bid to succeed and rightly assume that their individual tender decision will not affect the success of the bid, each shareholder faces the decision to accept price p or not to tender and realize $v_{post\text{-}deal}$. It follows that a tender offer can only succeed when $p > v_{post\text{-}deal}$. Because this does not leave any profit for the acquirer and in fact imposes costs C_{deal}, firms have no incentive to propose value-increasing deals and the takeover market will be inactive.

Although there is empirical support of the detrimental effect of free-riding behavior on the activity levels of M&A markets (e.g., Burkart, 1999), historical accounts of M&A document relatively active markets with a soaring hike in the late 1980s, as illustrated in Figure 1. One reason for why we can observe active M&A markets is that regulators in many jurisdictions have implemented squeeze-out rights for acquirers, entitling the acquiring firms upon successfully having gained the majority of shares to force remaining shareholders to sell at a price lower than the post-deal value, i.e $p < v_{post\text{-}deal}$. The squeeze-out right ensures that acquirers participate in takeover gains and therefore incentivize potential acquirers to propose bids, thus stimulating M&A activity.[5] While records of U.S. M&A activity go back to the 1890s, reported European M&A activity is constrained to the time since the 1980s.[6] Historical M&A activity is characterized by wave-like behavior, with economic, political, and

[4] For reasons of simplicity, we make an additional assumption to the original Grossman and Hart (1980b) model (see also Burkart and Panunzi (2006)): We assume that the current share price, $v_{pre\text{-}deal}$, does not incorporate information about the possible takeover.

[5] There are additional reasons for why M&A markets are active. For example, acquirers can dilute minority shareholder rights (Grossman and Hart, 1980b), and may negotiate deals with blockholders in concentrated ownership companies (Burkart and Panunzi, 2006).

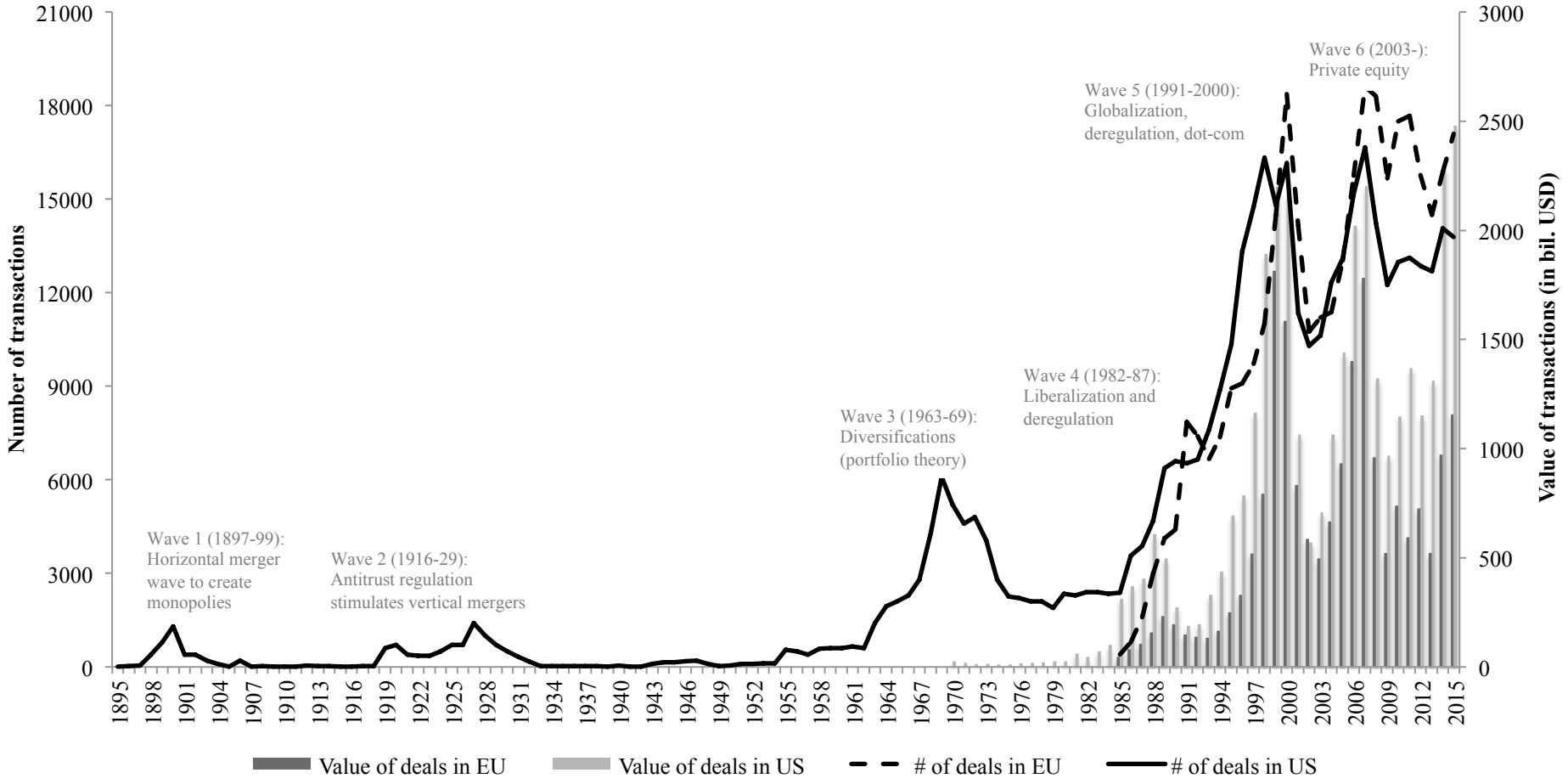
[6] With the exception of the U.K., for which some evidence of M&A activity exists since the 1960s (see Martynova and Renneboog, 2008).

regulatory stimuli triggering the beginning of waves (Martynova and Renneboog, 2008). European M&A activity is characterized by a steep increase during the fourth wave (1982-1987), hitting similar levels like their U.S. counterparts in the fifth takeover wave (1991-2000), and even exceeding them in terms of number of transactions since the sixth wave (2003-).

Second, without effective regulation, the takeover market equilibrium might degenerate into a value-destructive state (Bris and Cabolis, 2008). That is, an unregulated takeover market might effectuate exactly the opposite of its intended disciplining mechanism – it may aggravate agency conflicts under certain circumstances, leading to value-decreasing transactions. To illustrate, consider a deal that would be value-decreasing; i.e., $v_{pre\text{-}deal} > v_{post\text{-}deal}$. Such a bid could be launched by managers overestimating their own talents or motivated by self-interested agendas. If dispersed shareholders anticipate the bid to succeed because they cannot orchestrate a collective counteraction, they will accept any price p that is higher than the post-deal value, i.e. $p > v_{post\text{-}deal}$. It follows that $v_{pre\text{-}deal} > p > v_{post\text{-}deal}$ is also an equilibrium outcome of the takeover game, although it impedes the efficiency of the market for corporate control. This so-called *pressure-to-tender problem* illustrates how agency conflicts can be aggravated through active but unregulated M&A markets (Bebchuk, 1988). Empirical evidence of agency-motivated M&A transactions is rife. Masulis et al. (2007) show that entrenched managers destroy value in acquisitions. Sources of value-destruction by entrenched managers include selecting targets that do not constitute another large shareholder that could monitor managers afterwards, overpaying for targets, choosing low synergy targets (Harford et al., 2012), and pursuing defensive acquisition strategies (Gorton et al., 2009).

Third, without effective regulation, mergers and acquisitions (M&A) may impede effective competition and hence harm consumers (Duso et al., 2013; Stigler, 1950). Every horizontal merger eliminates industry competition and increases market power in the merged entity. If the increase in market power is sufficiently high, the new company may assert

FIGURE 1
Historical M&A Activity in Europe and the U.S.



Note: The data for the graphic come from Nelson (1959) for the years 1895 – 1920, Thorp and Crowder (1941) for the years 1921 – 1939, Müller-Stewens (2010) for the years 1940 – 1984, and the Institute for Mergers, Acquisitions, and Alliances (https://imaa-institute.org/statistics-mergers-acquisitions/) for the years 1985 – 2015.

higher product prices and hence harm consumers. To protect consumers, it is necessary to institutionalize an antitrust policy and enforce public merger control.

Overall, the market for corporate control can act as an important corporate governance mechanism to mitigate agency conflicts. A multifarious regulatory embeddedness is needed, however, to promote takeover activity, and to prevent value-destructive as well as anticompetitive transactions. While regulation aiming to spur takeover activity and promote value-increasing deals is traditionally combined into a composite *takeover law*, anti-competition law is devoted a separate *merger control regulation*. The U.S. enacted its first takeover law in 1933[7] and 1934[8], and its merger control regulation already in 1890[9]. In contrast, Europe's regulatory environment for takeovers is more recent. Europe promulgated its first takeover law, the *European Takeover Directive*[10], in 2004. Europe's merger control regulation, the *European Commission Merger Regulation*, was implemented in 1990 and substantially reformed in 2004.[11]

2 Objective and outline of dissertation projects

The purpose of this doctoral project is to illuminate how both the *European Takeover Directive* and the *European Commission Merger Regulation* affect the European M&A market, and to draw general inferences about how the law and the quality of law enforcement impact financial market outcomes. This cumulative dissertation consists of three papers, all of which examine how the regulatory environment affects corporate takeovers in Europe. The first paper studies how regulator- and market-driven corporate governance convergence

[7] The Securities Act (SA) of 1933 was enacted in the aftermath of the Black Friday in 1929.
[8] Securities Exchange Act (SEA) of 1934 complemented the SA of 1933 and established the Securities Exchange Commission (SEC).
[9] The Sherman Antitrust Act was enacted in 1890 to prevent colluding anticompetitive mergers.
[10] The European Takeover Directive (Directive 2004/25/EC of the European Parliament and of the Council of 21 April 2004 on takeover bids).
[11] Original European Commission Merger Regulation (ECMR): Council Regulation (EC) No 4064/89 of December 21, 1989 on the control of concentrations between undertakings (OJ 1989, L 395, p. 1). Reformed ECMR: Council Regulation (EC) No 139/2004 of Janu-ary 20, 2004 on the control of concentrations between undertakings (OJ 2004, L 24, p. 1).

impacts the European M&A market along various dimensions. The second paper investigates whether improving legal shareholder rights at the country level increases the efficiency of the market for corporate control, and how the costs of such a regulatory reform influence any identified effect. The third paper explores the role of antitrust law enforcement for the efficiency of the market for corporate control. In Table 1, we provide an overview of the three dissertation projects, describing our research objectives, sample, methodology, and main contributions.

2.1 Paper 1: Corporate Governance Convergence in the European M&A Market

The first paper of the dissertation provides an in-depth analysis of the European M&A market and examines whether European countries experience a process of corporate governance convergence. Corporate governance convergence refers to "an increasing isomorphism in the governance practices of public corporations from different countries" (Yoshikawa and Rasheed, 2009, p. 389). Conceptually, we distinguish between regulator- and market-driven corporate governance convergence.

Using a sample of 3,085 M&A transactions over the 2001 – 2011 period, we first look at the extent of regulator-driven convergence. Regulator-driven convergence describes centralized country-level changes in corporate governance. The focal change was the implementation of the European Takeover Directive (ETD) in the years 2004 – 2006, which aimed to spur M&A activity and improve legal shareholder rights. We first investigate whether there are pre-/post-ETD differences in market characteristics. While we find some converging trends among European countries – e.g., pertaining to the method of payment and target type –, we also document that the ETD entailed diverging effects – e.g., pertaining to cross-border deals. Further, an event study of bidder wealth effects around the acquisition announcement reveals that after the ETD-induced harmonization of takeover law, the quality of law enforcement and informal institutions (culture) rendered significant in its effects on

bidder wealth effects. This suggests that strong laws do not suffice per se, they require rigorous enforcement as well.

Next, the study focuses on market-driven convergence, which can be described as "decentralized, market-driven changes at the firm level" (La Porta et al., 2000, p. 20). First, we are interested in whether cross-border acquisitions lead to a convergence in corporate governance practices. For our analyses, we use the fact that the target becomes subject to the acquirer country's corporate governance system in cross-border acquisitions according to international private law. Hence, we use a subsample consisting of cross-border deals only, and address a potential sample selection bias by carrying out Heckman (1979) corrections for every sample transaction. Based on the corrected subsample, we find that cross-border deals contribute to an increase in shareholder rights and a growing dispersion in firms' ownership structures. Second, we examine whether differences in corporate governance systems are an economic motive to acquire abroad. Although acquirers have usually better shareholder rights than targets, there are no economic incentives for acquiring a weak governance target. Overall, we infer that the ongoing process of corporate governance convergence in the European M&A market tends to gravitate towards the Anglo-Saxon system.

2.2 Paper 2: Legal Shareholder Rights and Acquirer Returns

The second paper of the dissertation contributes to the debate about the relationship between corporate governance and acquirer returns. Prior work at the *firm level* has documented that good corporate governance firms are more likely to make value-increasing, efficient acquisitions (Harford et al., 2012; Masulis et al., 2007; Wang and Xie, 2009). This has raised the question whether *country-level* corporate governance also affects acquisition efficiency. However, endogeneity concerns in *Law and Finance* prevent robust empirical evidence. That is, it is not clear whether legal shareholder rights causally determine acquisition efficiency, or whether the causal link, if there is any, is reversed because

shareholder rights laws evolve in response to low acquisition efficiency. To overcome this problem, it needs exogenous variation in law (e.g., reforms). The *European Takeover Directive* (ETD) is identified as a potential natural experiment. The ETD has improved legal shareholder rights only in some countries, leaving the others as control group. This enables a pre-/post-ETD comparison of acquisition efficiency between the treatment and the control group, using a difference-in-differences approach. The results indicate that the ETD-induced improvement of legal shareholder rights led to an increase in acquirer returns of 3.10%, statistically significant at the 1% level. This is a nontrivial figure; the improvement of legal shareholder rights translates into additional acquisition gains to the amount of $11.72 million per deal.[12] Altogether, the evidence is consistent with the hypothesis that legal shareholder rights constrain the discretion of corporate insiders, leading to better acquisitions, and substantiate the claim about the causal link running from country-level corporate governance to acquirer returns.

The paper also contributes to the literature on the relative merits of corporate governance reforms (e.g., Larcker et al., 2011). Although the ETD's net effect is positive (3.10% increase in acquirer returns), the ETD may still have imposed substantial costs onto firms. In particularly, the ETD has disrupted the equilibrium of prevailing corporate governance practices in European countries and may thus have necessitated structural adaptations to the new standard. We therefore hypothesize that the marginal effect on the relationship between legal shareholder rights and acquirer returns is decreasing in the relative disruption of prevailing corporate governance practices. Using La Porta et al.'s (1998) anti-director rights index as a proxy for the initial corporate governance standard to construct a triple difference model, the results indicate the marginal effect of disrupting prevailing corporate governance practices is significantly negative (-4.62%; 1% significance level). Overall, the paper shows that the regulatory embeddedness of takeover markets is of

[12] The calculation is based on the median acquirer by market capitalization.

paramount importance for their efficiency; yet, initiation of reforms should be based on structural cost considerations as well.

2.3 Paper 3: Does Competition Policy Affect Acquisition Efficiency? Evidence from the Reform of European Merger Control

The third paper of the dissertation sheds light on the relationship between merger control and the profitability of corporate acquisitions. The institutionalization of merger control aims to prevent anticompetitive effects in order to protect consumers. However, European merger control has received criticism for creating substantial legal and commercial uncertainty for potential acquirers and, thus, deterring M&A activity (Clougherty et al., 2015). Because this reduces the threat of takeover and may have a detrimental impact on managerial discipline (entrenchment effect) (Lel and Miller, 2015), European merger control might enable entrenched managers to make agency-motivated, value-decreasing acquisitions.

Our research design exploits the 2004 reform of the *European Commission Merger Regulation* as a natural experiment. To mitigate endogeneity concerns, we use the exogenous variation in merger control quality to test whether merger control depresses acquisition efficiency. Combining propensity score matching and difference-in-differences technologies, we find that merger control significantly depresses acquisition efficiency in regulatory scrutinized takeovers compared to a matched control sample. Controlled deals result in 3.47% lower acquirer returns before the 2004 reform; a non-trivial figure given that the average acquirer return for the total sample is 1.29%. However, the reform-induced improvement of merger control quality in 2004 ameliorated this effect. The marginal effect of the reform on the relationship between merger control and acquisition efficiency is 3.07%, statistically significant at the 1% level. Furthermore, we show that the identified effects are more pronounced in concentrated industry where the threat of regulatory intervention is higher. Additionally, the identified effects are also more pronounced in countries where firms are

more intolerant to uncertainty, suggesting that uncertainty about merger control is amplified where cultural uncertainty avoidance is per default stronger. The results are in line with the overarching hypothesis that uncertainty and costs associate with merger control deter M&A activity, reduce the threat of takeover, and amplify managerial entrenchment; these effects, in turn, enable entrenched managers to make agency-motivated, value-decreasing acquisitions. In a battery of robustness tests, we show, inter alia, that the results on the *European Commission Merger Regulation* are robust to controlling for the concurrent *European Takeover Directive* (Paper 2), and vice versa.

Altogether, this paper contributes to research on the role of the regulatory environment for takeover efficiency. It is the first paper, to our knowledge, that relates European merger control to acquisition efficiency. This is not only important because substantial wealth is reallocated in the European M&A market and it is thus essential to identify potential frictions in that reallocation process, but also because it contributes to the ongoing debate about the relative role of the quality of law enforcement for financial market outcomes (e.g., Dubois et al., 2014). The results suggest that achieving legal certainty should be a paramount goal in regulatory initiatives.

3 Conclusion

This cumulative dissertation presents analyses of how the regulatory environment affects the European M&A market. While the first paper reveals regulator- and market-driven trends towards corporate governance convergence in and through the European M&A market, the second and third paper use the recent regulatory reforms as natural experiments to test how takeover law and merger control regulation, respectively, affect takeover market efficiency. The second paper contributes to the literature by extending results on the positive relationship between firm-level corporate governance and acquirer returns to the country level, and by showing that reforming country-level corporate governance imposes costs of

structural adaptations of the prevailing governance practices that may partly consume the reform's benefits. The third paper advances research in that it shows that merger control may depress acquisition efficiency; and that the effect is more pronounced in concentrated industries and in countries where firms are culturally more prone to avoid uncertainty.

Overall, the papers have far-ranging implications. For example, the evidence that Continental European corporate governance seems to gravitate towards the Anglo-Saxon system may evoke further regulatory reforms in Continental European countries to adapt idiosyncratic governance practices. Furthermore, the findings that improving legal shareholder rights causes efficiency gains in the takeover market may provide important lessons to financially less developed countries. Yet, the study of the *European Takeover Directive* serves also as a warning that comprehensive reforms of shareholder rights laws entails significant downside effects, too, as firms incur costs of adapting firm-level contracts to new standards. Moreover, an important implication from the study of the reform of *European Commission Merger Regulation* is that policymakers and legislators should attempt to create perfect legal clarity because uncertainty causes frictions that bear economic costs. In short, this dissertation presents ample evidence of how the regulatory embeddedness in Europe affects takeovers.

This dissertation raises further questions worthwhile to explore. While it extends several results of firm-level corporate governance studies to the country level, an examination of the interplay of firm- and country-level corporate governance is beyond its scope. For example, based on results that shareholder rights negotiated at the firm level determine acquirer returns, we show that *legal* shareholder rights affect acquirer returns, too. For further research, it could be interesting to investigate how firm-level shareholder rights can make up for poor country-level shareholder rights, and vice versa. Additionally, the three doctoral projects included in this cumulative dissertation are geographically bound to Europe. While Europe is an interesting context due to its institutional differences, European idiosyncrasies

may preclude the external generalization of the results to other contexts. Thus, similar studies of other jurisdictions appear promising for further research.

TABLE 1
Overview of dissertation projects

Paper 1

Title	Co-authors	Research objectives	Data	Methodology	Main contributions
Corporate Governance Convergence in the European M&A Market (see Chapter 2)	Wolfgang Drobetz	Conducting an in-depth analysis of the European M&A market after the fifth takeover wave. Examining whether the harmonization of European takeover law in 2004-2006 entailed a convergence of M&A market characteristics. Studying whether there is also a market-driven corporate governance convergence (i.e., spillover effects in cross-border deals) and whether differences in corporate governance are an economic motive to acquire abroad.	Sample from ThomsonOne's SDC M&A database complemented with data from Datastream, Bloomberg, annual reports, and press releases Sample period: 2001-2011 Number of observations: 3,085 Countries: EU15	Event study: Estimation of announcement-related acquirer cumulative abnormal returns (CARs) with mean-adjusted, market-adjusted, and OLS market models, using mainly S&P Europe 350 as a benchmark index with estimation window (-240, -6) and event window (-5, +5) relative to announcement date OLS regression and linear probability models, controlling for heteroskedasticity and fixed effects Heckman (1979) correction using inverse Mills' ratios	Our results reveal some substantial changes in the European M&A market compared to prior studies. While we find some converging trends (e.g., method of payment and target type), the harmonization of takeover law entailed also some different effects across legal families (e.g., cross-border deals). Differences in the effects of legal systems on acquisition efficiency are documented for the pre-harmonization period but not thereafter. Post-reform, however, the explanatory power of the quality of law enforcement and culture increased. There is an on-going market-driven corporate governance convergence through intra-European cross-border deals, likely gravitating towards the Anglo-Saxon system. Cross-border takeovers contribute to an increase in investor protection and growing ownership dispersion. Evidence that corporate governance differences in acquiring and target countries are an economic motive to acquire abroad, however, is not found

Paper 2					
Title	Co-authors	Research objectives	Data	Methodology	Main contributions
Legal Shareholder Rights and Acquirer Returns (see Chapter 3)	Gishan Dissanaike, Wolfgang Drobetz	Extending research on the relationship between firm-level corporate governance and stock returns to the country level. In particular, using the *European Takeover Directive* as a natural experiment to examine whether legal shareholder rights causally determine acquisition efficiency in the market for corporate control. Conducting a multi-country study to disentangle the costs and benefits of corporate governance reforms, that is, exploring the relationship between improving and disrupting prevailing corporate governance practices with respect to acquisition efficiency.	Sample from ThomsonOne's SDC M&A database complemented with data from Datastream, Bloomberg, annual reports, and press releases Sample period: 2001-2011 Number of observations: 3,085 Countries: EU15	Event study: Estimation of announcement-related acquirer cumulative abnormal returns (CARs) with mean-adjusted, market-adjusted, and OLS market models, using mainly S&P Europe 350 as a benchmark index with estimation window (-240, -6) and event window (-5, +5) relative to announcement date Difference-in-differences and triple difference models (OLS based), controlling for fixed effects, heteroske-dasticity, and two-way clustered standard errors Propensity score matching Linear probability models	Estimates from the difference-in-differences models suggest that there is a causal link running from country-level corporate governance to acquisition efficiency. Specifically, we find that countries that had to improve their legal shareholder rights because of the European Takeover Directive experience increased efficiency in the market for corporate control to the amount of 3.10%, which is of great economic importance given average efficiency of 1.23% in our sample. Estimates from the triple difference models suggest that the gains from improving legal shareholder rights are decreasing in the relative disruption of prevailing corporate governance practices, indicating that there are also substantial costs associated with corporate governance reforms.

Paper 3					
Title	Co-authors	Research objectives	Data	Methodology	Main contributions
The Impact of European Merger Control on Acquisition Efficiency (see Chapter 4)	Gishan Dissanaike, Wolfgang Drobetz	Contributing to the debate about the efficacy of antitrust law by examining the effect of merger control on the efficiency of the market for corporate control. Studying the sources of any such identified effect, using the 2004 reform of the *European Commission Merger Regulation* as a natural experiment. Testing treatment effect heterogeneity in regard to industry concentration and cultural uncertainty avoidance.	Hand-collected sample consisting of controlled and non-controlled mergers at equal parts Number of observations: 1,336 Countries: European member states	Event study: Estimation of announcement-related acquirer cumulative abnormal returns (CARs) with market-adjusted models, using mainly S&P Europe 350 as a benchmark index with and event window (-5, +5) relative to announcement date Difference-in-differences models (OLS based), controlling for fixed effects, heteroskedasticity, and two-way clustered standard errors Propensity score matching for control group identification Linear probability models as robustness tests	We find substantial differences in acquisition efficiency between firms that face merger control and uncontrolled but matching firms, suggesting that European competition policy is detrimental to value creation in the market for corporate control. The 2004 reform of the *European Commission Merger Regulation* that improved the quality of merger control has, however, mitigated the value-destroying effect. These effects are more pronounced in highly concentrated industries where regulatory intervention is more likely and in cultures where firms are more intolerant to uncertainty. The results suggest that regulators should aim to achieve legal certainty as obscurity creates economic frictions.

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Chapter 2

Corporate Governance Convergence in the European M&A Market

Corporate Governance Convergence in the European M&A Market

Wolfgang Drobetz[a] and Paul Peyman Momtaz[b,*]

Abstract

Regulatory reforms have initiated a process of corporate governance convergence in the European market for mergers and acquisitions (M&As) in the years 2004-2006. The European M&A market is an interesting venue to study the consequences of corporate governance convergence because all four legal families are simultaneously affected. For a comprehensive sample of European takeovers over the 2001-2011 period, we analyze changes in deal characteristics, the impact of the regulatory environment on acquisition efficiency, and corporate governance spillover effects through cross-border M&As. First, while we document some changes in deal characteristics that are similar across all legal families (e.g., pertaining to the method of payment and target type), we find also some dramatically different effects across legal families (e.g., pertaining to cross-border M&As). Second, our analysis of the determinants of acquisition efficiency reveals that differences in the effects of legal family on acquirer returns diminished after the harmonization of takeover law in 2006, while at the same time the importance of the quality of law enforcement and culture increased. Finally, next to the *regulator-driven* convergence, we also report an ongoing *market-driven* convergence through cross-border takeovers. Cross-border deals contribute to an increase in shareholder rights and a growing dispersion in firms' ownership structures. However, our findings do not support the hypothesis that different corporate governance standards are an economic motive for acquisitions abroad.

Keywords: Takeovers, mergers and acquisitions, corporate governance, investor protection, ownership structures, bidder wealth effects

JEL Classification Codes: G30, G34

[a] Faculty of Business Administration, Hamburg University, Von-Melle-Park 5, 20146 Hamburg, Germany. E-Mail: wolfgang.drobetz@uni-hamburg.de.

[b] Faculty of Business Administration, Hamburg University, Von-Melle-Park 5, 20146 Hamburg, Germany. E-Mail: momtaz@cantab.net.

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1. Introduction

European mergers and acquisitions (M&A) activity has soared over the last two decades. In 2006, it even exceeded U.S. market activity for the first time in history, with total European transactions volume of $1.59 trillion, compared to $1.54 trillion for the U.S. (Voss, 2007). Along with this dramatic growth came the implementation of the European Takeover Directive (ETD) in 2004-2006, which aimed to spur intra-European cross-border M&A activity by harmonizing European takeover law.[15] Efforts at harmonizing European takeover law already began in the 1970s, with the first White Paper on the topic presented in 1985. However, it took nearly twenty more years to get the final version approved. This long period of political debate underscores the importance of the central regulatory issue in Europe: finding a balance between diversity and harmonization (Clarke, 2009). It follows that the institutional environment is pivotal to our understanding of corporate takeovers in Europe.

Despite the substantial growth of the European M&A market and its unprecedented corporate governance convergence that radically changed M&A conditions in Europe, empirical research is restricted to the time until the end of the fifth takeover wave in the year 2000 (Martynova and Renneboog, 2011a; Martynova and Renneboog, 2008; Faccio et al., 2006; Faccio and Masulis, 2005; Campa and Hernando, 2004; Goergen and Renneboog, 2004). An even more important motivation to examine the European M&A market after 2000 is to fill the research gap of how the regulatory environment affects takeovers (Moschieri and Campa, 2009; Haleblian et al., 2009). Europe is an ideal venue to study how the corporate governance convergence influenced the takeover market because all legal families (Anglo-Saxon, French, German, and Scandinavian) have been simultaneously affected by the ETD.

The purpose of this paper is to conduct an in-depth analysis of how corporate governance convergence affects corporate takeovers in Europe. Corporate governance

[15] Directive 2004/25/EC of the European Parliament and of the Council of 21 April 2004 on takeover bids.

convergence refers to "[…] an increasing isomorphism in the governance practices of public corporations from different countries" (Yoshikawa and Rasheed, 2009, p. 389). Gilson (2004) makes the distinction between convergence *in form* vis-á-vis convergence *in function*. Convergence in form is regulator-driven and describes centralized country-level changes in corporate governance. The ETD is an ideal example of convergence in form. However, the European M&A market also offers a setting to study convergence in function, which can be characterized as "decentralized, market-driven changes at the firm level" (La Porta et al., 2000, p. 20). Each time a European firm acquires 100% of some foreign target's shares in a cross-border bid, the target becomes a national of the acquirer's country under international private law. By implication, the acquired firm becomes subject to different corporate governance practices. This mechanism leads to increasing isomorphism in European corporate governance and implies that the governance system with the most cross-border acquisitions will eventually prevail in Europe (Goergen et al., 2005). Using a comprehensive sample of 3,085 intra-European domestic and cross-border acquisitions announced between 2001 and 2011, we show how the ETD-induced convergence in form affects takeovers, and we document an ongoing process of convergence in function through cross-border M&A.

Our study contributes to the literature in three ways. First, we examine how the formal convergence through the ETD affected European M&A deal characteristics. Our results indicate several important developments compared to prior studies. For example, the number of cash-financed transactions and the proportion of acquisitions of public targets have increased, while we find a trend towards fewer hostile takeovers. Interestingly, there is no evidence in support of an increased number of cross-border deals despite the fact that the ETD's central purpose of harmonizing takeover laws was to spur intra-European cross-border takeovers. However, when we look at each legal family separately, we find that acquirers from the Anglo-Saxon legal system made fewer cross-border deals after the formal

convergence, whereas French legal origin firms acquired abroad with a higher frequency. This observation exemplifies how the same reform can have different effects, depending on the complementarities across the involved legal systems (Khanna et al., 2006).

Second, our study extends the extant literature by showing how the legal origin and other institutional variables affect bidder wealth effects. The classical law and finance view posits that the law and the quality of law enforcement positively affect financial market efficiency (La Porta et al., 1998). However, the latest reviews of the M&A literature attest to the dearth of knowledge on how the regulatory environment affects takeovers (Haleblian et al., 2009; Moschieri and Campa, 2009).[16] To shed some light on the impact of the regulatory environment on bidder wealth effects, we use the fact that the ETD harmonized takeover law but not the quality of law enforcement across European member states. We would expect that differences in the effects of the legal systems on bidder wealth effects vanished after the convergence, whereas the influence of the quality of law enforcement should have increased given a fixed quality of the investor protection across European member states. The results confirm our hypotheses. In addition, we find that bidder wealth effects are decreasing in the cultural dissonance between the acquirer and the target after the ETD, suggesting that informal institutions matter especially when formal ones are fixed (North, 1990).

Third, turning to convergence in function, we explore whether there are market dynamics in the European cross-border M&A market that lead to an increasing isomorphism in corporate governance practices, and whether differences in governance practices across countries are an economic motive for the decisions to acquirer abroad. On the one hand, we contribute to the current debate about whether strong or weak corporate governance firms acquirer more frequently abroad (Bris et al., 2008; Martynova and Renneboog, 2008). An

[16] We acknowledge, however, that several recent studies have shed some light on related questions. For example, Burkart et al. (2014) propose a theoretical model of how legal investor protection affects takeovers.

answer to this question is of great importance, as it indicates which governance system is expanding its influence over the others. Using the fact that the target becomes a national of the acquirer's country in full acquisitions and hence is subject to its governance system, we document an improvement in shareholder rights and more dispersed ownership structures subsequent to the change in the target's jurisdiction. Our findings are consistent with the proposition that the Anglo-Saxon governance system will eventually prevail (Goergen et al., 2005). On the other hand, we contribute to the debate on the governance motive hypothesis (Bris and Cabolis, 2008; Bris et al., 2008; Martynova and Renneboog, 2008; Rossi and Volpin, 2007). Prior work has created controversy over whether differences in corporate governance between the acquirer's and the target's countries entail different bidder wealth effects. Finding that differences in corporate governance motivate the decision to acquire abroad would further support the idea of functional convergence towards a particular corporate governance system. However, after controlling for a potential sample selection bias, we do not find support for the governance motive hypothesis. Instead, cultural differences better explain bidder wealth effects in cross-border acquisitions involving diverging governance systems.

The remainder is organized as follows: Section 2 contains a sample description and an analysis of the effects of formal corporate governance convergence on European M&A deal characteristics. Section 3 investigates how the institutional environment affects bidder wealth effects. Section 4 examines functional corporate governance convergence and tests the corporate governance motive hypothesis in cross-border acquisitions. Finally, section 5 concludes.

2. Sample description and the effect of the ETD on deal characteristics

We examine a sample of 3,085 intra-European takeovers from the Thomson Reuters Mergers & Acquisitions (formerly SDC Platinum) database that were announced between January 1, 2001 and December 31, 2011. All meet the following criteria: (i) both the acquirer and the target must be from EU15 countries,[17] (ii) acquisitions must be complete, (iii) the deals must involve a change of control,[18] and (iv) detailed documentation of both the acquirer's and target's key financial parameters must be available from Datastream and/or Bloomberg.[19]

The ETD strongly affected the European M&A market after the fifth takeover wave (after the year 2000). Prior work investigated the changes in wealth effects for European acquirers after the ETD implementation in 2006. Humphery-Jenner (2012) shows that European M&As after the ETD are associated with a decrease in bidder wealth effects compared to non-European deals, whilst Dissanaike et al. (2015) find that those countries that significantly improved legal shareholder rights in response to the ETD experienced a significant increase in bidder wealth effects. However, these studies do not indicate whether the changes in wealth effects came along with changes in market characteristics. In particular, we would expect that the ETD had an impact on the number of cross-border acquisitions since it created a level playing field for European M&A, that it increased cash payments due to the requirement to offer a cash consideration in certain deals, and that it increased acquisitions of public targets since the ETD harmonized rules that apply to public tender offers.

[17] The EU15 countries are Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, the Netherlands, Portugal, Spain, Sweden, and the U.K.

[18] We require bidders to acquire more than 75% of voting rights in order to capture economically as well as governance-relevant changes in control. Corporate charter amendments in Europe usually require more than 75% of votes. Nevertheless, 98.44% of the transactions involved ownership changes of more than 90%, 97.57% involved more than 95%, and 95.95% involved transactions in which 100% of the shares were acquired.

[19] The primary source of deal information is Thomson Reuters M&A Database. Stock prices are from Datastream. Missing deal information is completed by hand with data from Bloomberg, where available. Our final sample consists of all deals with complete information that fulfill the above requirements.

Table 1 illustrates the sample composition. All variables are explained in Table A1 in the appendix. Panel A of Table 1 presents the deal characteristics over the years 2001-2011, provides the pre-ETD (January 1, 2001 to April 20, 2004) and post-ETD (May 20, 2006 to December 31, 2011) averages (thus excluding the implementation period), and contains a test of difference in means. It shows that approximately one-fifth of the transactions involved an acquirer listed on more than one stock exchange, which was thus exposed to multiple regulations. This proportion remained stable over time. The amount of industry diversifications remained at the same level as in the 1990s. In line with Martynova and Renneboog's (2011a) result for the earlier period of 1993-2001, about one-third of all completed transactions were diversifying, and two-thirds focused on the same industry. This fraction is somewhat larger than that found in U.S. studies, where every fifth (Masulis et al., 2007) or fourth (Wang and Xie, 2009) deal was diversifying.

Note further that cross-border transactions comprise roughly 24% of all acquisitions in our sample. Given that the European Commission's main reform goal was to facilitate intra-European cross-border deals, we would expect to observe an increase after 2006.[20] However, a comparison of the sample averages for the pre- and post-ETD periods reveals no significant change. This finding is in line with Moschieri and Campa (2009), who document that cross-border deals contributed only 19% to all European takeovers during the 2001-2007 period.

We further distinguish between friendly and hostile bids. The frequency of hostile bids decreased to only 4.5% in our sample period, compared to 7% during the fifth takeover wave (Martynova and Renneboog, 2011a). It appears that the decrease occurred primarily in 2007 and continued in the years following, i.e., after the implementation of the ETD. The difference in means test confirms that the proportion of hostile takeovers decreased by 1.5% (significant at the 10% level) after the ETD implementation.

[20] See Directive 2004/25/EC on Takeover Bids of 21 April 2004, OJ L 142, pp. 12-23.

Moreover, we document a change in acquisition patterns with respect to target types. We distinguish among public, private, and subsidiary targets, which account, on average, for 18%, 51%, and 31% of all deals, respectively. The acquisition of public targets almost quadrupled over 2009-2011 compared to 2002-2008, whereas private firms were less likely to be targeted during 2009-2011. We also note a decrease in subsidiary targets over the entire sample period.[21] When comparing pre-ETD and post-ETD means, the increase in acquisitions of public and private targets as well as the decrease in subsidiary targets is significant at the 1% level. We acknowledge that these changes cannot solely be attributed to the ETD, but are also likely influenced by low stock valuations during the financial crisis, which made public targets more cost-efficient. Nevertheless, these patterns exhibit a clear contrast with the types of firms targeted during the 1990s. Martynova and Renneboog (2011a) do not examine subsidiaries, but they report a constant proportion of one-third public and two-thirds private targets during the period 1993-2001.

In addition, we find changes with respect to the preferred method of payment. We distinguish between stock-only (sample average of 10%), cash-only (37%), and hybrid forms of payments (53%). We observe a gradual but pronounced increase in cash payments from 24% in 2001 to 48% in 2010 (with a slump in 2011). The increase in the use of cash considerations is likely attributable to Article 5 (5) of the ETD, which states: "In any event, the offeror shall offer a cash consideration at least as an alternative where he/she […] has purchased for cash securities carrying 5% or more of the voting rights in the offeree company." While we cannot rule out the alternative explanation that bidders preferred cash as a form of payment because stocks were at low values during the financial crisis, we note that the proportion of stock payments did not change significantly after the ETD implementation.

[21] We define subsidiary targets as firms owned 50% or more by a non-governmental parent (acquiring firm) and that is not publicly traded.

In fact, the increase in cash payments seems to be fully explained by a decrease in hybrid payments post-ETD. Both changes are significant at the 1% level.

Overall, we conclude that the European M&A market has primarily changed with respect to the number of hostile deals, the target type, and the method of payment. Furthermore, it seems likely that the ETD's effect on M&A deal characteristics differed across legal families. For example, UK acquirers may have benefitted from the fact that some countries did not have a mandatory bid rule before the ETD.[22] After the ETD, all countries had this rule in place, making cross-border acquisitions more expensive for UK acquirers. By implication, we would expect that UK acquirers made less cross-border bids post-ETD, whereas the number of domestic bids, for example, from French legal family firms should have decreased post-ETD since all had to adopt the mandatory bid rule. Therefore, we also test the difference in pre-ETD and post-ETD means for all legal families.

[Insert Table 1 here]

To that end, Panel B of Table 1 shows the sample composition by deal characteristics and legal families. We observe several notable differences across legal families. First, as hypothesized, UK firms made significantly less cross-border acquisitions after the ETD, whereas French legal family acquirers made significantly less domestic deals. Second, the decrease in hostile deals is mainly driven by French legal family acquirers, with a 5.4 percentage point decrease in hostile takeovers after the ETD. Third, both the increase in public targets and the decrease in subsidiary targets are consistent across all legal families. However, UK firms targeted private companies more frequently after the ETD, compared to fewer private targets sought by Scandinavian firms. Fourth, the results indicate that the increase in cash payments and the decrease in hybrid payments are consistent in all legal

[22] The mandatory bid rule obligates bidders to extend a binding bid to all shareholders at an equitable price after they have gained control.

families, but legal families differ widely in their relative use of a preferred method of payment. Finally, the percentages of cross-listed acquirers and that of diversifying as well as cross-border deals vary by legal family. Taken together, these differences suggest that it is worthwhile to examine the implications of the ETD for bidder wealth effects across legal families.

3. Bidder wealth effects in Europe

3.1 Determinants of bidder wealth effects by legal family

In this section, we analyze how the determinants of bidder wealth effects vary across legal families. For the purpose of estimating announcement-related abnormal bidder wealth effects, we revert to standard event-study methodology (Brown and Warner, 1985; MacKinlay, 1997). We estimate mean-adjusted, market-adjusted, and OLS market model returns to ensure the robustness of our results and find no inconsistencies (hence we only document the results from the latter method).[23]

In Figure 1, we graphically illustrate how the CARs of the four legal families develop over the eleven-day event window. Our full sample results indicate little pre-announcement information leakage, since abnormal returns start to increase at the announcement day. At day four after the announcement, returns normalize, and the bidder wealth effect is incorporated into share prices. This pattern for the full sample is consistent with that observed for Anglo-Saxon acquirers.

[Insert Figure 1 here]

[23] The estimation window (–240; –6) and the event window (–5; +5) are defined with respect to the acquisition announcement. We choose to focus on the (–5; +5) event window because our results indicate that European acquirer returns do not typically normalize prior to four or five trading days post-announcement (see Figure 1 below). The results presented below are based on an OLS market model that uses the S&P Europe 350 index. However, our results do not materially change if we replace this index with others (local or global).

The average announcement-related bidder wealth effect during the (-5; +5) event window is 1.23%, which is statistically significant at the 1% level. This number is above the bidder wealth effects reported for the 1990s by Campa and Hernando (2004) (0.44%), Goergen and Renneboog (2004) (0.70%), and Martynova and Renneboog (2011a) (0.79%). Given that the 5% confidence interval around our mean CAR is [0.79; 1.68], it suggests that the level of acquisition gains has increased significantly after the fifth takeover wave.

In unreported results, we find that average CARs on the event day are 0.12%, while in the (-1; +1) event window they are 0.44%. These results are statistically significant at the 5% and 1% levels, respectively. However, at 1.2% (significant at the 1% level), the (+1; +5) post-event window contributes the largest percent of the documented wealth effect.

Panel A of Table 2 shows a breakdown of the average CAR levels for the various legal families. We note that Anglo-Saxon (1.20%) and French (0.87%) legal family firms exhibit significant average CARs, whereas German legal family firms show insignificant average CARs (0.09%). Scandinavian acquirers exhibit the highest mean CAR at 2.87%, driven mainly by bidders from Denmark and Finland. Tests of differences in means in Panel B indicate that Scandinavian acquirers' average CARs are significantly different from the other legal families' average CARs.

[Insert Table 2 here]

In Panel B of Table 2, we analyze average CARs by legal families and deal characteristics. Acquirers listed on more than one stock exchange perform significantly worse across all legal families, lending support to the conjecture that transaction costs to comply with multiple regimes exceed the benefits from better corporate governance (Coffee, 1998, 2002). Cross-listed acquirers exhibit CARs of only 0.39%, compared to 1.44% in single-listed firms (the difference is statistically significant). Both industry diversifications (1.34%) and

concentrations (1.18%) result in significantly positive average CARs, with an insignificant difference of means. This finding is in contrast to earlier studies that argued in favor of a conglomerate discount (Morck et al., 1990; Rajan et al., 2000; Scharfstein and Stein, 2000; Shleifer and Vishny, 1989) as well as to European M&A evidence from the 1990s (Martynova and Renne-boog, 2011a). However, it concurs with other recent work that also did not find a significant valuation effect of diversification (Humphery-Jenner, 2012; Masulis et al., 2007).

In all subsamples, the difference between CARs in domestic and cross-border acquisitions is positive, albeit insignificant. This finding supports the notion that transaction costs due to institutional differences outweigh the potential benefits from arbitrage in cross-border transactions (Hernando et al., 2009; Moeller and Schlingemann, 2005; Seth et al., 2002). The insignificance of the difference may be partly attributable to Europe's advanced economic integration (Bagchi, 2005), which suggests that institutional differences and arbitrage opportunities within Europe are less common than they were during the 1990s.

In addition, we note that friendly takeovers, with significantly positive CARs (1.30%), outperform hostile takeovers, which exhibit negative and insignificant CARs (–0.17%). This result is in contrast to the view that hostile takeovers entail higher takeover gains due to their disciplining effect on the target firm's managers (Franks and Mayer, 1996). Our evidence thus provides support for Goergen and Renneboog (2004), who posit that hostile takeovers require higher takeover premiums to succeed, which in turn may eliminate takeover gains.

There are also significant differences among the CARs for the various target types. For example, public target takeovers lead, on average, to negative and insignificant CARs (except in Scandinavian countries), while takeovers of private and subsidiary targets result in positive and mostly significant CARs. Overall, the results are in line with the reasoning that private and subsidiary targets sell more cheaply due to an illiquidity discount for both private

and subsidiary targets (Faccio et al., 2006; Fuller et al., 2002; Moeller et al., 2004). Furthermore, subsidiary targets lead to higher bidder wealth effects than private targets, because acquirers tend to have more and better information about subsidiaries (Capron and Shen, 2007; Faccio et al., 2006). These results also indicate that the target type is most important for differences in valuation effects in Anglo-Saxon countries, whereas the other legal families generally exhibit fewer statistically significant differences.

Finally, the results by payment method for the entire sample are also in line with the theoretical predictions, at least in terms of tendency, since we find few statistically significant results. According to the literature, cash-only offers should result in the highest CARs because the acquiring firm's management signals its belief in the takeover gains compared to stock-financed offers, which may be indicative of overvalued stocks and the managements uncertainty about the takeover gains since it shares risk (Faccio and Masulis, 2005; Huang and Walking, 1987; Loughran and Vijh, 1997; Travlos, 1987). In line with this reasoning, we note for the full sample that average CARs are highest in cash-only transactions, followed closely by hybrid payment deals. Stock-only transactions exhibit the lowest CARs.

3.2 Institutional determinants of bidder wealth effects

In this section, we extend our analysis to specific institutional determinants of CARs, such as legal origin, law enforcement, culture, ownership concentration, and product market competition. The question of how the institutional environment affects European M&A deals is especially interesting against the background of the recent institutional convergence in Europe. Interestingly, although the ETD harmonized European takeover law, it left the enforcement of the law to the member states' discretion. By implication, the relevance of the legal origin for bidder wealth effects should have diminished post-ETD, while at the same time the importance of the quality of law enforcement should have increased.

Starting with the seminal work by La Porta et al. (1998), the legal origin has been used to explain differences in financial market efficiency across countries. The premise of the legal origin approach is that legal origins are strongly correlated with investor protection and thus provide a measure of agency costs. Prior work has shown that the legal origin matters in European M&A (Humphery-Jenner, 2012; Martynova and Renneboog, 2011; Faccio and Masulis, 2005). For example, Humphery-Jenner (2012) shows that English and Scandinavian legal origin acquirers outperform French and German legal origin bidders. One explanation is that French and German legal origin acquirers have stronger incentives to pay high takeover premiums to maintain strong voting control. A reason is that French and German legal systems discourage diffuse ownership due to relatively less strict disclosure requirements and insider trading rules, which encourage private rent extraction by blockholders (Barclay and Holderness, 1989; Dyck and Zingales, 2004). Nenova (2003) provides empirical evidence in support of the voting control premium. She documents that Scandinavian bidders pay the lowest control premiums. However, differences between legal origins pertaining to takeovers have been harmonized by the ETD. Therefore, we hypothesize that the differences in the effect of legal origins on bidder wealth effects that we expect to observe pre-ETD vanished after the ETD.

Although the ETD harmonized takeover law, it accepts heterogeneous enforcement of the law because Preamble 5 of the ETD only obligates member states to designate or create a supervisory authority without further specification. The quality of law enforcement is crucial for efficient financial markets (Djankov et al., 2008; La Porta et al., 1998). Humphery-Jenner (2013) finds, for instance, that strong securities laws are ineffective when enforcing institutions are weak (see also Bhattacharya and Daouk, 2009). Against the background of harmonized law but heterogeneous enforcement of European takeover governance, we would

expect that the importance of law enforcement has increased after the ETD.[24] In particular, we would expect that the quality of law enforcement is significantly positively related to bidder wealth effects in the post-ETD sample.

To test our hypothesis, we also need to control for other institutional determinants of bidder wealth effects such as culture, ownership concentration, and product market competition. Conn et al. (2005) show that differences between the acquirer's and target's national cultures can have a significantly negative impact on announcement-related bidder wealth effects, possibly because cultural differences make post-merger integration time-consuming and expensive. Therefore, we include culture-related variables in our analysis. Related research finds a positive relationship between cultural dissonance and the costs associated with the merger process prior to deal completion (Dikova et al., 2009), and a negative effect on post-merger operating performance (Hutzschenreuter et al., 2014).

Following Hofstede (1984), we use two culture-related variables:[25] "Culture 1" relates to the distribution of power within an organizational system, and is assumed to reflect the differences in hierarchy between the acquirer and target countries. Dissonance in the distribution of power should be positively correlated with acculturation costs. "Culture 2" is a measure of a country's intolerance of uncertainty. A high score indicates that acquirers of a given country are more careful in choosing their targets, and suggests that they close deals only when they are relatively certain of takeover gains. Both variables are constructed as the difference between acquirer and target countries' scores. We therefore expect "Culture 1" to be negatively correlated with bidder wealth effects, and "Culture 2" to be positive correlated.

[24] We use the rule of law country scores provided by the World Bank's "Worldwide Governance Indicators" project as a proxy for law enforcement.

[25] Our analysis refers to variables provided by the GLOBE project and is based on Hofstede's (1984) concepts of power distance ("Culture 1") and uncertainty avoidance ("Culture 2"). Both variables are constructed as the difference between the acquirer and target countries' scores.

We further control for ownership concentration. Ownership concentration in Europe ranges between dispersed (English legal system) and concentrated (French and German legal systems) (Faccio and Lang, 2002; La Porta et al., 1999). The advantage in concentrated ownership structures is that blockholders can monitor managers (Bolton and von Thadden, 1998), and they can even replace poor-performing agents (Franks et al., 2001). An agency conflict can arise between blockholders and minority shareholders under concentrated ownership structures, however, if blockholders engage in self-dealing, i.e., the expropriation of private benefits of control at the cost of minority shareholders (Djankov et al., 2008). In contrast, shareholders in dispersed ownership structures may face collective action problems in monitoring managers efficiently, thereby incurring agency costs due to managerial opportunism (Jensen and Meckling, 1976). Based on these opposing arguments, it is not ex ante clear which effect is most prevalent.

Finally, we control for product market competition. Recent research shows that firm-level corporate governance matters more in non-competitive industries (Giroud and Mueller, 2011; Johnson et al., 2009; Lehn et al., 2007). Giroud and Mueller (2011) find that the underperformance of firms in non-competitive industries stems from low labor productivity, high input costs, and poor acquisitions. However, Lewellen and Metrick (2010) find contrasting results that suggest an insignificant effect of product market competition. Therefore, we cannot be a priori sure about the influence of product market competition on bidder wealth effects. We use the Herfindahl-Hirschman Index (HHI) as a proxy for market concentration, i.e., the inverse of product market competition.[26]

[26] Following Bebchuk et al. (2013), we use Thomson Reuters' industry classification to compute the HHI, which is defined as the sum of the squares of market share $s_{i,t,j}$, based on firm i's sales in year t in industry j.

3.3 Regression results

In Table 3, we present the regression results for three models. Model 1 is based on the full sample, Model 2 and 3 are based only on transactions before and after the ETD, respectively. The dependent variable is the eleven-day OLS market model CAR. Standard errors are heteroskedasticity-adjusted and clustered by years and countries. In Model 1, legal origin and ETD coefficients are the only significant institutional variables. Because all the estimates for legal origin are negative, we infer that the Scandinavian institutional environment is the most effective at preventing managers from making poor acquisitions. Although the classic law and finance literature predicts that the Anglo-Saxon legal system is most efficient (La Porta et al., 1998), we note that our result that Scandinavian acquirers are most efficient is consistent with evidence in other recent studies (Humphery-Jenner, 2012; Nenova, 2003). Moreover, our results confirm that the average CARs significantly decreased after the ETD (Dissanaike et al., 2015; Humphery-Jenner, 2012).

We note further that the results are also economically significant. For example, the coefficient for acquirers from the German legal family in Model 1 is –2.61%, which is a non-trivial figure if we consider that German acquirers have an average CAR of 0.09% (see Table 2). Based on the acquirers' median market capitalizations in our sample, the Scandinavian jurisdiction exhibits a $9.1 million higher wealth effect per deal than that for the German legal origin. Relative to Scandinavian acquirers, wealth effects for acquisitions by firms from the English and French legal origins are $3.9 million and $6.5 million lower, respectively.

For the other control variables, we document consistent parameter estimates across the three model specifications. In line with recent research (Martynova and Renneboog, 2011a; Masulis et al., 2007; and Moeller et al., 2004), we find that (i) Tobin's Q is negatively related

to acquirer returns,[27] (ii) large firms are significantly more likely to implement value-destroying acquisitions, because their total assets are negatively correlated with acquirer returns,[28] (iii) leverage has a marginally positive and significant effect on CARs,[29] and (iv) there is a significantly positive correlation between deal size and acquirer returns.[30] We further observe that the pre-announcement share price run-up positively and significantly affects acquirer returns in European transactions (Martynova and Renneboog, 2011a). This finding is in contrast to U.S. deals (Masulis et al., 2007; Moeller et al., 2004). Also, we note that friendly takeovers are associated with higher bidder wealth effects than hostile deals. This is in line with the argument that hostile deals require higher premia to be paid, which elude takeover synergies for the acquirer (Goergen and Renneboog, 2004). Furthermore, we report significantly negative and positive parameter estimates for public and subsidiary targets, respectively. We therefore infer that subsidiary targets lead to the highest CARs, followed by private and public targets in decreasing order. This result corroborates the theoretical predictions that private and subsidiary targets sell cheaper due to an illiquidity discount, and acquirers of subsidiary targets benefit from an information advantage compared to non-subsidiary acquirers (Faccio et al., 2006; Campa and Hernando, 2004). The method of payment does not lead to significant results in Model 1, indicating that the relevance of the method of payment for CARs has diminished compared to earlier studies for the 1990s (Martynova and Renneboog, 2011; Campa and Hernando, 2004; Goergen and Renneboog, 2004).

[27] While earlier studies have concluded that synergistic gains increase in bidder's Q (Lang et al., 1991; Servaes, 1991), our result is in line with more recent work that has refuted this conclusion (Bhagat et al., 2005; Dong et al., 2006; Moeller et al., 2004).

[28] Firm size is used as a proxy for managerial hubris (Roll, 1986), and prior empirical work shows that CARs are decreasing in firm size (Harford et al., 2012; Martynova and Renneboog, 2011a; Masulis et al., 2007).

[29] Leverage is associated with investor monitoring and the amount of free cash flow. Both stronger investor monitoring and lower free cash flow decrease managerial discretion, which should lead to higher CARs.

[30] We use deal size as a control variable and expect a positive correlation with CARs if the benefits of economies of scale outweigh complexity costs in large deals (Asquith, 1983).

In Model 2, we use only transactions that had been announced prior to the ETD. We expect that the impact of the legal origin on bidder wealth effects is significant, since the legal investor protection differed substantially by legal systems before the ETD's implementation. In line with our hypothesis, we find that the French and German legal origin coefficients are significantly negative at the 1% level, whereas Anglo-Saxon legal origin acquirers have not performed significantly different from Scandinavian acquirers pre-ETD. The results are consistent with the law and finance view that the law in Anglo-Saxon and Scandinavian legal systems is most protective of investors (La Porta et al., 1998; Spamann, 2010), and that Scandinavian acquirers are very efficient since they pay the lowest voting control premiums (Nenova, 2003). In addition, we find that ownership concentration is significantly positively correlated with CARs, suggesting that blockholders efficiently monitor and discipline managers (Franks et al., 2001; Bolton and von Thadden, 1998).

In Model 3, we use only transactions that had been announced after the ETD. Because the ETD harmonized the quality of investor protection in European M&As, we expect that the significance of the legal origin coefficients diminishes. But since the ETD left the enforcement of the new takeover law to the discretion of the member states, we additionally expect that the quality of law enforcement becomes crucial for bidder wealth effects, since the ETD's effect can only unfold in countries where the ETD's enforcement can be guaranteed. In line with these predictions, we find that the estimates for the French and German legal systems are insignificant, while only the English legal system estimate is significantly negative at the 10% level. Moreover, the law enforcement coefficient now becomes significantly positive at the 1% level, indicating that the positive effect of a level playing field for European M&As depends on the quality of law enforcement. We further find a significantly negative estimate for "Culture 1", suggesting that acculturation costs are increasing in the dissonance between the acquirer's and target's countries (Conn et al., 2005),

and that the role of cultural dissonance increases in importance when formal institutions are homogeneous (North, 1990).

[Insert Table 3 here]

Overall, the results presented in this section document some significant differences across legal families pertaining to the method of payment, the target type, the deal attitude, and the geographic scope of transactions. Moreover, we find that the effect on CARs of legal origins vanished after the ETD since the quality of takeover law had been harmonized. At the same time, the quality of law enforcement gained importance after the ETD, since the ETD did not harmonize the enforcement of takeover law but left it to the member states' discretion. Interestingly, we also find that the effect of cultural dissonance on bidder wealth effects became significant post-ETD, suggesting that informal institutions matter especially when formal institutions are homogeneous (North, 1990). Therefore, our results indicate that corporate governance convergence in form has significant effects on acquisition efficiency and, more generally, on the functioning of financial markets.

4. Corporate governance and cross-border acquisitions

4.1 Background: related research and unresolved issues

In this section, we examine corporate governance convergence in function, specifically market-driven convergence through cross-border M&As in Europe. Because different corporate governance systems can collide in cross-border takeovers, these transactions may offer the most promising way to understand the consequences of governance regimes on shareholder value. In particular, full acquisitions, i.e., acquisitions of 100% of the outstanding shares, entail radical changes in corporate governance. Under international law,

the target's nationality changes, and it becomes subject to the acquirer's legal system (Bris and Cabolis, 2008).

Martynova and Renneboog (2008) explore how differences in corporate governance between acquirer and target countries determine the synergistic gains from cross-border takeovers. Using a sample of 737 European cross-border transactions over the 1993-2001 period, the authors find support for two different governance transfer effects. First, they observe that acquisitions of weak governance targets by strong governance acquirers lead to additional wealth effects, which stem from the acquirer's stronger governance practices spilling over to the target ("spillover effect"). This effect occurs primarily because international law obliges the target to adapt the national laws of the acquirer (in the case of a full acquisition), which may result in more efficient operations. Second, they find that acquisitions of strong governance targets by weak governance acquirers also lead to a significantly positive wealth effect. They posit that a weak governance acquirer may voluntarily bootstrap to the target's better governance, so that the merged entity ultimately operates under the superior governance regime ("bootstrap effect"). In summary, Martynova and Renneboog's (2008) study exemplifies that differences in corporate governance become evident in European cross-border deals in the form of additional sources of synergistic gains for the acquiring firm.

Kuipers et al. (2009) draw similar conclusions from their sample of 181 cross-border acquisitions of U.S. targets during 1982-1991. Bris et al. (2008) study industry wealth effects resulting from corporate governance transfers in cross-border acquisitions using a sample of acquisitions in forty-one countries during 1990-2001. They find that the industry's Tobin's Q (including unmerged firms) increases when one firm from the industry is acquired by a firm from a country with strong shareholder rights and accounting standards. The underlying idea is that firms will ultimately adopt the better corporate governance regime, and the market will

reward this. Finally, Bris and Cabolis (2008) use a sample of 506 cross-border acquisitions between 1989 and 2002. They find that shareholder protection and accounting standards in an acquirer's country are positively correlated with merger premiums paid in acquisitions abroad compared to matched domestic ones.

The extant research is ambiguous regarding (i) how corporate governance is related to the flow of cross-border acquisitions among different corporate governance regimes, and (ii) whether differences in corporate governance are a motive for acquisitions abroad. First, the evidence of whether weak or strong governance acquirers make more cross-border transactions is contradictory. Martynova and Renneboog (2008) report that 76% of intra-European cross-border takeovers involve a strong governance acquirer, suggesting that strong governance firms are responsible for most of the takeover activity. However, their results are in contrast to Bris and Cabolis (2008), who report that weak governance acquirers contribute to the majority of cross-border deals, while strong governance firms acquire less frequently.

The question which flow of cross-border acquisition between different corporate governance regimes outweighs the other is ultimately empirical. By all means, given the governance transfer in cross-border acquisitions, such deals will contribute materially to the convergence of competing governance systems in Europe. Any full acquisition abroad, in which the acquirer replaces the target's governance system, will ultimately expand the influence of the acquirer's governance system. Goergen et al. (2005) hypothesize that the Anglo-Saxon corporate governance system may eventually prevail because, inter alia, Anglo-Saxon firms acquire abroad more aggressively.

Second, the extant literature has presented opposing findings regarding the question of whether governance is a motive to make a cross-border acquisition. Bris et al. (2008, p. 239) conclude that "[…] our results do not suggest that corporate governance is a motive for cross-border acquisitions, and we have no evidence that acquirers necessarily target firms from

worse corporate governance countries. Quite the contrary, our study finds that acquiring firms do not gain or lose value by merging with firms that provide weaker protection to investors and poorer accounting standards." In contrast, Rossi and Volpin (2007) propose a model in which a governance motive may drive cross-border acquisitions. They argue that lower costs of external funding and lower risks of expropriation of private rents of control in good governance countries result in stronger corporate governance firms acquiring weaker ones. Their empirical findings support this prediction. Martynova and Renneboog's (2008) spillover and bootstrap effects also support the governance motive hypothesis.

4.2 Corporate governance convergence through cross-border acquisitions

In Table 4, we present domestic and cross-border takeover activity by weak and strong governance firms. We use Martynova and Renneboog's (2011b) corporate governance index and La Porta et al.'s (1998) corporate ownership data to classify firms along the following dimensions: shareholder rights, minority shareholder rights, creditor rights, and ownership structure. For example, if acquirer *i* has shareholder rights above (or equal to) the sample median, then it is considered a strong governance acquirer. Otherwise, acquirer *i* is a weak governance acquirer. The proportions of acquisitions according to these classifications are reported as percentages of the total domestic and cross-border M&A activity, respectively, while their counts are documented in parentheses below.

Examining only domestic takeover activity first, we find it is higher in countries with stronger legal investor protection and more dispersed ownership. According to the shareholder rights classification, takeover activity takes place in weak governance countries in only 25.8% of all domestic transactions, while acquirers from strong governance countries account for 74.2% of all domestic takeover activity. This pattern is similar for minority shareholder rights and creditor rights classifications. The results are in line with previous

research (Benos and Weisbach, 2004; Doidge et al., 2007) and support the argument that strong legal investor protection facilitates and reinforces capital market functioning (La Porta et al., 1998). We find that 74.2% of all domestic transactions are completed in dispersed ownership systems. Acquisitions in concentrated ownership systems are less often successful because they require negotiations with blockholders. However, blockholders may require comparatively higher bids in order to be compensated for their loss of private benefits of control (Bebchuk and Roe, 1999).

As already discussed, prior research has produced conflicting findings as to whether strong or weak governance firms make more foreign acquisitions. Following Martynova and Renneboog's (2008) methodology, we find that weak shareholder rights acquirers make more deals (63.4%) than strong shareholder rights acquirers (36.6%). This evidence is consistent with the results in Bris and Cabolis (2008). For minority shareholder rights, the proportions of weak versus strong governance acquirers are about equal. This observation is in contrast to the notion that strong minority shareholder rights in the target country deter foreign acquirers because of higher costs to gain full control (Goergen et al., 2005; Martynova and Renneboog, 2008). Furthermore, we find that strong creditor rights acquirers dominate weaker ones. This result may be attributed to a deterring effect of high voting control premia in strong creditor rights countries. In fact, La Porta et al. (1998) show that creditor rights are particularly strong in countries with concentrated ownership, suggesting that it is more expensive to acquire in strong creditor rights countries.[31]

[Insert Table 4 here]

[31] Nenova (2003) finds that acquirers need to offer higher control premia in concentrated ownership countries in order to compensate blockholders for their loss of private benefits of control. Accordingly, we interpret the fact that strong creditor rights acquirers make more acquisitions abroad to the effect that high control premia deter weak creditor rights acquirers from acquiring in strong creditor rights countries.

In addition, for the classification by ownership structure and shareholder rights, it is also worth exploring the target type. For the ownership structure classification, we find that dispersed ownership firms are the predominant targets in cross-border acquisitions (72.2%). Using the shareholder rights classification, weak governance targets are acquired more often (74.4%), and also by weaker governance acquirers (40.3%). Although our evidence appears to support Bris and Cabolis's (2008) assertion that weak shareholder rights acquirers dominate strong shareholder rights acquirers in the cross-border M&A market, we recognize an alternative explanation that has not been considered in the literature: Weak governance firms may be acquiring even weaker governance firms, which in turn would lead to an improvement in shareholder rights.

To investigate this alternative hypothesis, we report in panel B of Table 4 a test for the difference in means for cross-border acquisitions by each classification. Our analysis is again based on Martynova and Renneboog's (2011b) corporate governance index scores. There are two significant results. First, the difference between bidder and target shareholder rights is significantly positive, suggesting that the shareholder rights of the target are lower than those of the bidder. This result potentially mitigates the conflict between Bris and Cabolis's (2008) and Martynova and Renneboog's (2008) findings. Although weak governance firms tend to make more acquisitions abroad, acquirers on average have better shareholder rights than targets. Therefore, cross-border takeovers may still lead to improved shareholder rights across European member states. Second, the difference between bidder and target ownership structures is significantly negative, indicating that a cross-border takeover leads to less concentrated ownership in the merged firm. Taken together, these findings may indicate, as per Goergen et al.'s (2005) proposition, that there is evidence for a market-driven, functional corporate governance convergence in Europe towards the Anglo-Saxon system.

4.3 Is corporate governance a motive for cross-border acquisitions?

Given the results of our analysis of cross-border acquisition flows, it seems likely that shareholder rights are a motive for the decision to acquire abroad. However, this assumes that comparatively better shareholder rights in the acquirer's country lead to additional takeover gains such as more cost-efficient external finance (La Porta et al., 1997) and reduced cost of equity (Chen et al., 2011). If this hypothesis holds, we would expect to find that the difference in shareholder rights between acquirer and target countries is positively correlated with bidder wealth effects.

To test this hypothesis, we use a subsample consisting only of cross-border acquisitions. However, the decision to acquire abroad may be endogenously determined, thus a sample selection bias may exist. In particular, section 4.2 reports that good governance firms are more prone to acquire domestically. By implication, good governance acquirers will target firms abroad only if the expected takeover gains are sufficiently high, suggesting higher bidder wealth effects in such transactions. We address this potential sample selection problem by implementing a Heckman (1979) correction for every transaction in our sample.[32] This two-step approach first requires estimating a Probit regression for the probability that a given firm will acquire abroad, rather than in its home country. Second, we convert the individual probabilities into inverse Mill's ratios and add them as control variables to the baseline regressions with bidder wealth effects as the dependent variable. The sample selection equations are displayed in Table 5. We use the legal family approach and the corporate governance indices in the subsequent models and conduct Heckman (1979) corrections for both.

[Insert Table 5 here]

[32] See Faccio and Masulis (2005) and Martynova and Renneboog (2008) for similar approaches in M&A studies.

Model 1 shows that, relative to Scandinavian firms, Anglo-Saxon firms are more likely and French and German legal family firms are less likely, to make cross-border acquisitions. This finding further supports our proposition that dispersed ownership systems gradually break up concentrated ownership by means of cross-border deals (Goergen et al., 2005). Anglo-Saxon and French legal family firms are significantly less likely targets than Scandinavian firms, while German firms are prominent cross-border investments. We find no significant difference of the likelihood of being targeted between French and Scandinavian legal family firms. Model 2 indicates that acquirer shareholder rights are negatively correlated with the decision to acquire abroad. This result supports the argument that firms with strong shareholder rights acquire abroad only when they are certain that the takeover costs will compensate for the additional costs of integrating a foreign business. This costs effect should lead to lower cross-border activity for such firms (Benos and Weisbach, 2004; Doidge et al., 2007; Martynova and Renneboog, 2008, 2011b).[33]

Creditor rights have a positive effect on cross-border activity. Cross-border deals are financed more frequently with debt in Europe (Martynova and Renneboog, 2009). We infer from the positive coefficient on acquirer creditor rights that better conditions for debt financing, and especially stronger protection of creditors by law, tend to promote cross-border deals. This conclusion is in line with La Porta et al. (1997). We further find that the other acquirer-related institutional controls are not helpful in predicting whether a firm is likely to make foreign acquisitions, since they are either inconsistent between Models 1 and 2, or statistically insignificant.[34]

[33] The negative and insignificant coefficient on minority shareholder rights is in contrast to findings of Martynova and Renneboog (2008). Martynova and Renneboog (2008) and Goergen et al. (2005) argue that acquirers in countries with strong minority shareholder rights acquire preferably abroad where the law is less protective of minority shareholders, because stronger minority shareholder rights make domestic acquisitions more costly. However, our results for the 2001-2011 period do not support this argument.

[34] All other determinants are consistent and in line with other Probit analyses for the decision to acquire abroad (Martynova and Renneboog, 2008). The decision to make cross-border acquisitions is positively correlated with

Table 6 reports the main regression results for the hypothesis that investor protection is a motive in cross-border acquisitions. If this hypothesis is true, we would expect significant coefficients on the dummy variables that indicate an acquirer to target a firm from another legal family. Bris and Cabolis (2008) use the fact that, as per international law, the target's nationality changes only in the case of a full acquisition (i.e., when bidders acquire 100% of shares outstanding). We would expect that, if investor protection matters, the effect will be more pronounced in full acquisitions. In robustness tests, we thus limit our sample to full acquisitions. Model 1 uses the legal family variables, and Model 2 also includes the other institutional control variables for all acquisitions. Models 3 and 4 test the same regression specifications, respectively, for the subsample of full acquisitions.

Most importantly, the results do not provide compelling evidence that investor protection motivates the choice to acquire abroad. We find no significant relationships among Anglo-Saxon, French, or German legal origin bidders that acquire in other legal systems. There are some marginally significant effects for Scandinavian acquirers. Only models 1, 2, and 4 indicate that Scandinavian bidders acquiring French legal family targets perform significantly better than the reference group, i.e., Scandinavian bidders/Anglo-Saxon targets. This result moderately supports the investor protection motive hypothesis, as the French legal system is less protective of investors than the Anglo-Saxon system (La Porta et al., 1998), and thus the difference in shareholder rights between acquirer and target countries is positively correlated with bidder wealth effects. Overall, we conclude that investor protection may be a motive for countries that exhibit large differences in investor protection. However, the motive is not strongly evident in our intra-European sample□perhaps because the reforms of the last fifteen years have effectively harmonized investor protection in European member states.

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firm size, Tobin's Q, cross-listing, deal size, and friendly deal attitude. It is negatively correlated with leverage, stock price run-ups, public and subsidiary targets, diversification, and stock and hybrid payment forms.

[Insert Table 6 here]

To assure the robustness of our results to alternative measures of investor protection, we re-estimate the regressions in Table 7 using Martynova and Renneboog's (2011b) corporate governance indices. Panels A and B report the regression results for the acquirer's investor protection and the difference between the acquirer's and the target's investor protection, respectively. Neither model leads to significant coefficients on the governance variables, which is in line with Martynova and Renneboog (2008), who also document that shareholder rights are insignificantly positively correlated with bidder wealth effects (panel A). Analyzing the difference between shareholder rights in the acquirer's and target's countries (panel B), the estimates' sign turns negative but remains insignificant, suggesting that firms with strong investor protection are not able to fully realize the potential takeover gains when acquiring firms with weak investor protection. Overall, the evidence seems to be against investor protection as a takeover motive.

[Insert Table 7 here]

However, following Martynova and Renneboog's (2008) arguments, the insignificant coefficients on the acquirer's investor protection (panel A) and on the difference between the acquirer's and target's investor protection (panel B) may be attributable to a possible "bootstrap" effect if weak governance firms acquiring strong governance targets also leads to positive marginal wealth effects. To rule out this possibility, we next construct binary variables for investor protection (based on Martynova and Renneboog's (2011b) corporate governance indices) and directly test the spillover and bootstrap effects. For the spillover effect, we assign a value of 1 if an acquirer has an above-median governance index score and the target's score is below median (and 0 otherwise). If governance is a motive for strong governance bidders to acquire weaker governance targets, we would expect these binary

variables to be significantly positive in panel C. For the bootstrap effect, we assign a value of 1 if an acquirer has a below-median governance index score and the target's is above median (and 0 otherwise). If bidders adapt to the better governance of the target, the coefficients should be positive in panel D.

Panel C of Table 7 shows the evidence for the spillover effect. Models 1-4 exhibit significantly positive and negative coefficients on shareholder rights and minority shareholder rights, respectively. We interpret these findings to imply (i) that the marginal effect on bidder wealth is positively correlated with the shareholder rights improvement in the target, which supports the proposition in Martynova and Renneboog (2008), and (ii) that there is a negative marginal effect on bidder wealth when minority shareholder rights increase. The latter effect is consistent with Goergen et al. (2005), who argue that higher target minority shareholder rights make acquisitions more costly. The coefficient on creditor rights is insignificantly positive. The results remain robust to the inclusion of other institutional controls in Models 2-4.

Panel D of Table 7 shows the regression results for the bootstrap effect. If the weak governance bidder voluntarily adapts to the standards of the stronger governance target, we would expect a significantly positive shareholder rights coefficient. However, our results indicate a significantly negative coefficient, which is in contrast to Martynova and Renneboog (2008). The alternative explanation that is in line with our finding is that strong governance targets adapt to the lower standards of weak governance acquirers, which is de facto the mechanism that is triggered in full acquisitions by international law. When a weak governance firm acquires a strong governance target, the target becomes a citizen of the acquiring firm's country, which lowers the target's legal investor protection. We suggest that this mechanism, in turn, leads to a less efficient allocation of the target's assets post-transaction, which is why we observe a detrimental impact on bidder wealth effects. The

coefficients on minority shareholder rights and creditor rights are insignificantly positive and negative, respectively.

So far, the results in panels C and D seem diametrically opposed. When a strong governance firm acquires a weak governance target in cross-border acquisitions, the bidder wealth effect is positively affected; when a weak governance acquirer targets a strong governance firm, the bidder wealth effect is negatively affected. This latter finding casts doubt on the conjecture that corporate governance is a motive for cross-border acquisitions. If it were, we should not observe weak governance firms acquiring strong governance targets, because they are evidently value-destroying.

We thus next investigate another possible explanation for our findings, which pertains to culture-related differences. As Conn et al. (2005) show, culture can impact bidder wealth effects. Therefore, we also include the culture-related variables in the last two columns of all four panels. In panels C and D of Table 7, we observe that the coefficients on the investor protection variables turn insignificant in both panels, and remain so when we further add the ETD dummy variable. In panel D, we even notice that the signs of the governance variables change. These results suggest that the relationship between corporate governance and bidder wealth effects is not robust to cultural dissonance. In fact, the negative coefficients on "Culture 1" in panels A, B, and D suggest a positive correlation between the level of cultural dissonance between the target and acquirer countries and acculturation costs. This observation is in line with previous research that found additional culture-related transaction costs in closing a deal (Dikova et al., 2009). Moreover, a more expensive and time-consuming post-merger integration (Hutzschenreuter et al., 2014) may depress M&A performance.

Overall, our results stand in contrast to the corporate governance motive hypothesis in cross-border M&As (Rossi and Volpin, 2007; Martynova and Renneboog, 2008). In particular, we find that Martynova and Renneboog's (2008) result of governance transfers

effect in cross-border M&A deals for the 1993-2001 period vanish when we include culture-related variables during the more recent 2001-2011 period. Our results are more in line with the evidence in Bris et al. (2008) that country-level corporate governance is not an important motive in intra-European cross-border takeovers.

5. Conclusions

This paper examines the consequences of corporate governance convergence in the European M&A market over the 2001-2011 sample period. We examine (i) the effect of harmonizing European takeover law through the European Takeover Directive (ETD) on European M&A deal characteristics across the four legal families (Anglo-Saxon, French, German, and Scandinavian), (ii) the relationship between the regulatory environment and bidder wealth effects, (iii) whether cross-border takeovers contribute to corporate governance convergence in Europe, and (iv) whether differences in corporate governance are an economic motive in cross-border acquisitions.

Using a comprehensive sample of 3,085 domestic and cross-border intra-European acquisitions, our study provides an extensive number of findings. We first document corporate governance convergence *in form* (regulator-driven convergence through the ETD) that affected several deal characteristics. For example, the fraction of hostile takeovers decreased slightly (pre-ETD: 4.0%, post-ETD: 2.5%), whereas we also find a trend towards more takeovers of public targets (+19.4%) and a higher use of cash-only payments (+10.2%) after the implementation of the ETD in 2006. However, the consequences of the harmonization of the takeover law vary by legal system. For example, we find that Anglo-Saxon firms acquire less frequently abroad after the ETD (pre-ETD: 15.8%, post-ETD: 9.2%), whereas the portion of cross-border bids by French legal origin firms increased (pre-ETD: 32.7%, post-ETD: 44.3%). This observation nicely exemplifies how the same reform

can have different effects, depending on the complementarities across the involved legal systems (Khanna et al., 2006). In addition, we find that differences in the effects of legal systems on bidder wealth effects vanished after the law had been harmonized.

Next, we use the fact that the ETD harmonized European takeover law but left its enforcement to the member states' discretion to analyze the effect of legal enforcement on bidder wealth effects when the quality of the law is fixed. We show that the quality of law enforcement has had a significant impact on acquirer returns after the introduction of the ETD, suggesting that managers make better acquisitions if they fear to be sanctioned for opportunistic self-dealing (Djankov et al., 2008). At the same time, we find that the effect of cultural differences between the acquirer's and the target's country have become significant after formal institutions converged.

Our results also provide evidence of corporate governance convergence *in function* through cross-border takeovers, because foreign acquisitions lead to significant improvements in shareholder rights and more dispersed ownership structures. We infer from this observation that international corporate governance regimes will gradually gravitate toward the Anglo-Saxon system (Goergen et al., 2005). Note further that, for domestic markets, strong governance firms acquire four times more firms than weak governance firms. This finding provides support for the assertion that strong investor protection facilitates proper capital market functioning (La Porta et al., 1998).

Finally, with regard to the governance motive hypothesis in cross-border acquisitions (Bris and Cabolis, 2008; Martynova and Renneboog, 2008; Rossi and Volpin, 2007), we find no robust support for it. Although we show that acquirers have significantly better shareholder rights than their targets, there are no robust significant marginal bidder wealth effects for firms that acquire either weaker or stronger governance targets. Instead, it appears

that bidder wealth effects in cross-border acquisitions are better explained by the variations in culture.

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Figure 1

Cumulative Abnormal Returns (CARs) by Legal Origin in the 11-day Event Window

This figure depicts the development of CARs in the event window [-5; +5] for the different legal families (English, French, German, and Scandinavian) and the full sample. The sample is comprised of 3,085 transactions completed between 1 January 2001 and 31 December 2011 in the EU15 countries.

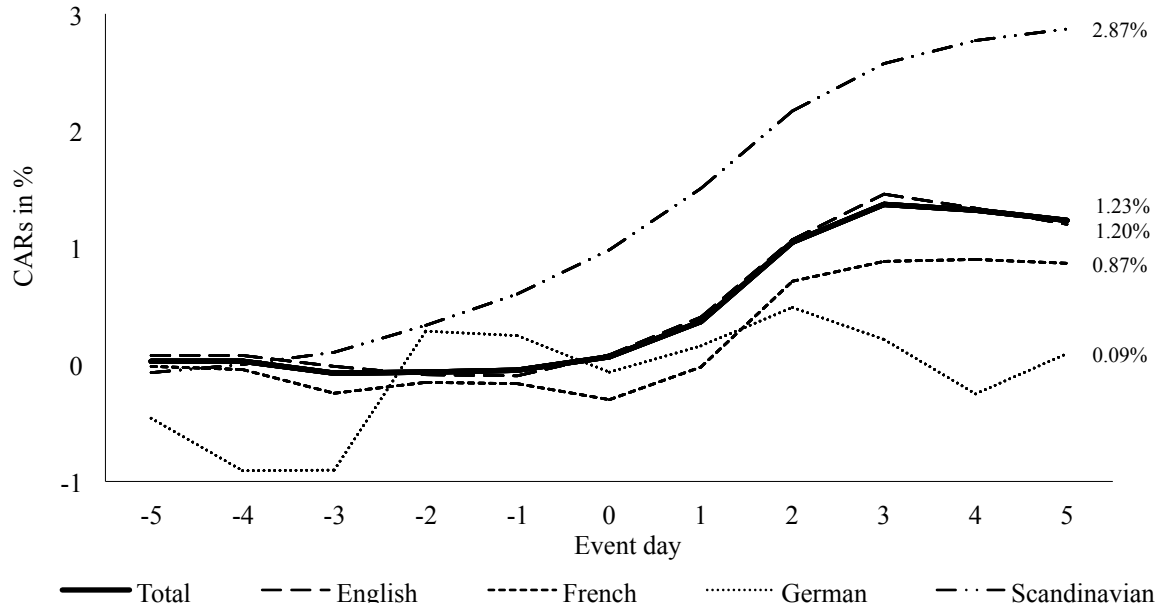

TABLE 1

Sample Description

The sample consists of 3,085 transactions announced between 1 January 2001 and 31 December 2011 in the EU15 countries. Variable definitions are as provided in the appendices. The pre-ETD period is from 1 January 2001 to 20 April 2004 and the post-ETD period is from 20 May 2006 to 31 December 2011. The implementation period is omitted. *** , ** , and * denote significance at the 1%, 5%, and 10% levels, respectively, based on two-sided tests.

Panel A: Sample Composition by Deal Characteristic and Year in %

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Pre-ETD	Post-ETD	Δ	Total	Total
												(without implementation period)			%	#
Cross-listing	33.3	15.3	21.7	20.6	20.1	28.0	15.6	16.3	22.4	16.1	25.4	20.3	17.4	-2.9	20.6	634
Single listing	66.7	84.7	78.3	79.4	79.9	72.0	84.4	83.7	77.6	83.9	74.6	79.7	82.6	2.9	79.4	2451
Diversification	81.5	33.3	30.9	37.4	34.2	40.7	32.4	38.8	27.1	40.2	33.3	32.0	35.4	3.4	35.4	1093
Concentration	18.5	66.7	69.1	62.6	65.8	59.3	67.6	61.2	72.9	59.8	66.7	68.0	64.6	-3.4	64.6	1992
Domestic deal	77.8	83.1	71.7	77.3	71.1	78.8	77.5	79.2	81.2	82.8	81.0	76.2	78.8	2.6	76.2	2351
Cross-border deal	22.2	16.9	28.3	22.7	28.9	21.2	22.5	20.8	18.8	17.2	19.0	23.8	21.2	-2.6	23.8	734
Friendly takeover	92.6	97.3	96.3	93	93.9	95.9	97.8	97.8	98.8	97.7	98.4	96.0	97.5	1.5*	95.5	2947
Hostile takeover	7.4	2.7	3.7	7	6.1	4.1	2.2	2.2	1.2	2.3	1.6	4.0	2.5	-1.5*	4.5	138
Public target	44.4	12.5	13.1	11.7	12.1	17.6	24.7	24.2	43.5	46	60.3	12.2	31.6	19.4***	17.8	548
Private target	14.8	54	41.4	51	55.5	54.4	60.7	61.8	38.8	35.6	23.8	44.7	51.8	7.1***	50.8	1565
Subsidiary target	40.7	33.5	45.5	37.2	32.3	28	14.5	14	17.6	18.4	15.9	43.1	16.6	-26.5***	31.4	965
Stock-only payment	28	15.3	10.2	6.7	7.3	8.8	6.2	12.4	23.5	34.5	17.5	11.8	12.4	0.6	10.3	317
Cash-only payment	24	29	34.6	32.9	37.8	40.4	40.7	46.1	44.7	48.3	36.5	31.7	41.9	10.2***	37.0	1140
Hybrid payment	48	55.7	55.3	60.4	54.9	50.8	53.1	41.6	31.8	17.2	46.0	56.5	45.7	-10.8***	52.7	1626
Total %	0.9	8.3	16.6	19.3	20.8	11.8	8.9	5.8	2.8	2.8	2.0	31.7	26.1		100	
Total #	27	255	512	596	643	364	275	178	85	87	63	977	805			3085

Panel B: Sample Composition by Deal Characteristics and Legal Origins (LO) in %

	English LO				French LO				German LO				Scandinavian LO			
	Total	Pre-ETD	Post-ETD	Δ	Total	Pre-ETD	Post-ETD	Δ	Total	Pre-ETD	Post-ETD	Δ	Total	Pre-ETD	Post-ETD	Δ
		(w/o implementation period)				(w/o implementation period)				(w/o implementation period)				(w/o implementation period)		
Cross-listing	10.2	11.2	9.8	-1.4	37.2	37.3	34.1	-3.2	54.7	64.6	44.2	-20.4*	16.3	16.7	12.7	-4.0
Single listing	89.8	88.8	90.2	1.4	62.8	63.7	65.9	2.2	45.3	35.4	55.8	20.4*	83.7	83.3	87.3	4.0
Diversification	37.8	33.4	39.5	6.1	28.3	27.3	28.6	1.3	30.8	25.0	20.9	-4.1	34.0	37.3	30.9	-6.4
Concentration	62.2	66.6	60.5	-6.1	71.7	72.7	71.4	-1.3	69.2	75.0	79.1	4.1	66.0	62.7	69.1	6.4
Domestic	85.9	84.2	90.8	6.6***	62.0	67.3	55.7	-11.6**	55.3	47.9	58.1	10.2	59.9	60.8	58.2	-2.6
Cross-border	14.1	15.8	9.2	-6.6***	38.0	32.7	44.3	11.6**	44.7	52.1	41.9	-10.2	40.1	39.2	41.8	2.6
Friendly	97.4	97.9	98.5	0.6	92.2	91.4	96.8	5.4**	93.7	97.9	93.0	-4.9	92.6	94.1	94.5	0.4
Hostile	2.6	2.1	1.5	-0.6	7.8	8.6	3.2	-5.4**	6.3	2.1	7.0	4.9	7.4	5.9	5.5	-0.4
Public	10.5	6.4	17.2	10.8***	31.5	23.2	56.2	33.0***	45.3	41.7	67.4	25.7**	18.6	8.8	56.4	47.6***
Private	63.9	57.0	67.3	10.3***	27.0	20.0	24.3	4.3	17.6	10.4	16.3	5.9	41.7	41.2	25.4	-15.8**
Subsidiary	25.6	36.6	15.5	-21.1***	41.4	56.8	19.5	-37.3***	37.1	47.9	16.3	-31.6***	39.7	50.0	18.2	-31.8***
Stock-only	7.4	8.9	8.4	-0.5	13.6	15.0	18.4	3.4	15.7	20.8	23.3	2.5	17.3	17.7	21.8	4.1
Cash-only	45.6	41.0	48.1	7.1***	22.1	16.4	29.7	13.3***	30.2	22.9	30.2	7.3	21.5	13.7	32.7	19.0**
Hybrid	47.0	50.1	43.5	-6.6***	64.2	68.6	51.9	-16.7***	54.1	56.3	46.5	-9.8	60.9	68.6	45.5	-23.1***
# of obs.	1.907	607	522	1129	707	220	185	405	159	48	43	91	312	102	55	157
% of obs.	62%	19.7%	16.9%	36.6%	23%	7.1%	6.0%	13.1%	5%	1.6%	1.4%	2.9%	10%	3.3%	1.8%	5.1%

TABLE 2

Bidder Wealth Effects by Countries / Legal Origins (LOs)

This table provides a univariate analysis for average CARs in the event window [-5; +5] by country/legal origin (LO) in panel A, and a test for differences in means in panel B. Panel C provides a univariate analysis for average CARs and a test for differences in means by deal characteristics and country/legal origin. Variable definitions are provided in the appendices. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively, based on two-sided tests.

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	CARs 2001-2011
Panel A: Average CARs by Countries / Legal Origins and Years												
Ireland	-	6.50%*	1.44%	1.43%	-1.92%	2.29%	-5.75%	-6.40%	-	-7.00%	2.50%	-0.07%
UK	1.69%	0.96%	4.15%***	-0.64%	2.26%***	2.84%***	-0.44%	-1.75%	3.72%*	-3.13%	-3.20%	1.24%***
English LO	1.69%	1.15%	4.07%***	-0.60%	2.11%***	2.83%***	-0.55%	-1.94%	3.72%*	-3.19%	-2.78%	1.20%***
Belgium	-4.75%	2.00%	-7.40%	-0.21%	-0.20%	4.71%**	9.00%	3.80%	18.00%	3.00%	7.00%	0.91%
France	3.00%	-6.44%	2.32%	-1.00%	2.96%**	0.59%	-2.46%	3.00%	9.00%	-1.25%	2.92%	0.42%
Greece	-	-0.20%	4.67%	15.00%	3.60%	3.00%	-2.00%	-13.00%	-	15.50%	0.00%	1.86%
Italy	16.00%	-0.56%	2.47%**	0.71%	-0.87%	0.54%	-3.46%	4.50%	-0.20%	-4.00%	12.00%	0.73%
Luxembourg	-	-	2.00%	3.50%	-7.50%	7.00%	-	-8.00%	-	-	-	-0.63%
Netherlands	-3.00%	-8.400%**	3.09%	-1.05%	0.44%	6.09%*	-3.50%	-3.80%	12.33%	-3.00%	4.50%*	0.33%
Portugal	-	2.00%	4.33%	4.33%	-15.50%	3.25%	-	-	-	-	-	1.50%
Spain	-	2.71%	3.30%	1.14%	1.96%	3.16%	-2.00%	4.40%	1.00%	-	0.50%	2.14%**
French LO	0.33%	-1.67%	2.41%**	-0.17%	1.01%	2.35%***	-2.35%**	2.00%	5.69%*	1.08%	1.36%	0.87%**
Austria	-	-0.34	2.00%	-0.25%	5.00%	-9.00%	6.00%	-12.00%	-	-4.00%	-	-1.85%
Germany	2.25%	1.73%	5.06%	-4.10%**	0.88%	-2.83%	4.00%	-0.38%	-3.60%	-3.67%	9.00%	0.37%
German LO	2.25%	-0.50%	4.48%	-3.46%***	1.16%	-3.31%*	4.46%*	-1.67%	-3.60%	-3.80%	9.00%	0.09%
Denmark	-	-0.05	11.00%**	1.90%	10.60%	6.50%	11.00%	-7.00%	14.00%	-	-	5.97%***
Finland	-	-2.67%	8.33%**	1.00%	5.58%**	4.50%	9.33%**	8.00%	11.67%	-	-11.00%	4.56%***
Sweden	6.00%	-1.62%	5.51%	1.14%	2.77%	-0.09%	-7.20%	-2.71%	-1.17%	0.21%	0.67%	1.72%
Scandinavian LO	-	-2.00%	6.88%***	1.33%	4.06%***	1.42%	0.33%	-1.55%	4.20%	2.13%	-0.50%	2.87%***
Total	1.48%	0.29%***	4.01%***	-0.39%	2.05%***	2.36%***	-0.70%	-1.08%	3.65%**	-2.18%	-0.59%	1.23%***

Panel B: Differences in Means of Average CARs between Legal Origins						
Δ French LO – English LO	-0.33%					
Δ German LO – English LO	-1.10%	Δ German LO – French LO	-0.77%			
Δ Scandinavian LO – English LO	1.67%*	Δ Scandinavian LO – French LO	2.86%**	Δ Scandinavian LO – German LO	2.78%**	

Panel B: Bidder Wealth Effects by Deal Characteristics and Legal Origins					
	English legal origin	French legal origin	German legal origin	Scandinavian legal origin	Total
Full sample	1.20%***	0.87%**	0.09%	2.87%***	1.23%***
Cross-listing	0.18%	0.62%	-0.03%	1.20%	0.39%*
Single listing	1.31%***	1.01%**	0.53%	3.20%***	1.44%***
Δ *Cross-listing - Single*	*-1.04%*	*-0.40%*	*-0.55%*	*-2.00%*	*-1.04%***
Diversification	1.23%**	0.44%	0.59%	4.09%**	1.34%***
Concentration	1.18%***	1.03%**	-0.13%	2.24%**	1.18%***
Δ *Diversification - Concentr.*	*0.05%*	*-0.59%*	*0.72%*	*1.85%*	*0.15%*
Domestic deal	1.26%***	0.91%*	0.24%	3.75%***	1.35%***
Cross-border deal	0.84%	0.80%	-0.09%	1.56%	0.86%**
Δ *Domestic - Cross-border*	*0.41%*	*0.11%*	*0.32%*	*1.72%*	*0.49%*
Friendly takeover	1.26%***	0.92%**	0.09%	3.02%***	1.30%***
Hostile takeover	-1.22%	0.22%	0.20%	1.04%	-0.17%
Δ *Friendly - Hostile*	*2.48%*	*0.70%*	*-0.11%*	*1.97%*	*1.47%*
Public target	-1.26%	-0.22%	-0.43%	0.39%	-0.54%
Private target	1.33%***	1.95%**	1.52%	2.40%	1.50%***
Subsidiary target	1.74%***	0.93%*	0.02%	4.47%***	1.73%***
Δ *Public - Private*	*-2.58%***	*-2.16%***	*-1.95%*	*-2.01%*	*-2.04%***
Δ *Public - Subsidiary*	*-2.99%***	*-1.14%*	*-0.45%*	*-4.08%**	*-2.27%***
Δ *Private - Subsidiary*	*-0.41%*	*1.02%*	*1.50%*	*-2.07%*	*-0.23%*
Cash-only payment	1.41%***	0.14%	-0.98%	0.73%	1.08%***
Stock-only payment	0.06%	0.06%	1.13%	3.06%	0.66%
Hybrid payment	1.12%	1.84%	-1.00%	-0.31%	1.05%
Δ *Cash - Stock*	*1.35%*	*0.08%*	*-2.12%*	*-2.33%*	*0.42%*
Δ *Cash - Hybrid*	*0.27%*	*-1.70%*	*0.02%*	*1.04%*	*0.03%*
Δ *Stock - Hybrid*	*-1.06%*	*-1.78%*	*2.13%*	*3.36%*	*-0.39%*
# of obs.	1907	707	159	312	3085
% of all obs.	62%	23%	5%	10%	100%

TABLE 3

Regression Analysis of the Institutional Determinants of Bidder Wealth Effects

This table provides the regression results testing the institutional determinants of announcement-related bidder wealth effects. The sample consists of 3,085 European mergers and acquisitions completed between 2001 and 2011. The dependent variables in each model are 11-day OLS market model CARs. Variable definitions are as provided in the appendices. Model 1 is based on all sample transactions, Model 2 is based on a pre-ETD subsample, and Model 3 is based on a post-ETD subsample including the implementation period. All models control for year-fixed effects. Standard errors (s.e.) are heteroskedasticity-adjusted. Standard errors (s.e.) are also clustered by year and country. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: 11-day OLS market model CARs					
	Model 1		Model 2		Model 3	
	All transactions		**Pre-ETD**		**Post-ETD**	
	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Institutional variables						
English legal origin	-0.0105*	(0.0059)	0.0020	(0.0045)	-0.0173*	(0.0096)
French legal origin	-0.0173***	(0.0047)	-0.0338***	(0.0136)	-0.0117	(0.0076)
German legal origin	-0.0261**	(0.0118)	-0.0361***	(0.0107)	-0.0185	(0.0156)
Ownership concentration	0.0611	(0.0338)	0.1261***	(0.0189)	0.0273	(0.0430)
Market concentration	0.0029	(0.0259)	-0.0225	(0.0711)	-0.0009	(0.0246)
Law enforcement	-0.0204	(0.0190)	0.0264	(0.0174)	0.0104***	(0.0029)
Culture 1	-0.0200	(0.0142)	-0.0023	(0.0080)	-0.0303**	(0.0120)
Culture 2	0.0057	(0.0147)	-0.0062	(0.0110)	0.0137	(0.0142)
European Takeover Directive	-0.0203***	(0.0058)				
Acquirer characteristics						
Tobin's Q	-0.0001***	(0.0000)	-0.0004***	(0.0000)	-0.0001	(0.0001)
Assets (ln)	-0.0062***	(0.0010)	-0.0101***	(0.0013)	-0.0048***	(0.0013)
Leverage	0.0000**	(0.0000)	0.0225**	(0.0106)	0.0001**	(0.0002)
Cross-listing	-0.0009	(0.0069)	-0.0026	(0.0150)	-0.0002	(0.0070)
Market run-up	0.0924***	(0.0201)	0.0917	(0.1250)	0.0998***	(0.0310)
Deal characteristics						
Deal Size (ln)	0.0044***	(0.0014)	0.0065***	(0.0015)	0.0039***	(0.0015)
Diversification	0.0007	(0.0018)	0.0025	(0.0076)	0.0003	(0.0043)
Domestic	0.0032	(0.0039)	0.0077**	(0.0037)	0.0012	(0.0042)
Friendly	0.0138***	(0.0018)	0.0070	(0.0113)	0.0129***	(0.0044)
Target type						
Public	-0.0128***	(0.0001)	-0.0174*	(0.0091)	-0.0125***	(0.0046)
Subsidiary	0.0039***	(0.0003)	0.0070	(0.0057)	0.0045	(0.0044)
Method of payment						
Stock-only	-0.0093	(0.0069)	-0.0031	(0.0133)	-0.0128*	(0.0077)
Hybrid	-0.0005	(0.0058)	0.0111	(0.0118)	-0.0056	(0.0042)
(Intercept)	0.0877	(0.0697)	0.087*	(0.05)	0.0013	(0.0909)
Year-fixed effects	yes		yes		yes	
# of obs.	3085		977		2108	
Adj. R^2	0.04		0.0393		0.04	
F-statistic	3.04		1.77		2.00	
p-value	0.00		0.00		0.00	

TABLE 4

Cross-border Takeover Activity by Investor Protection

This table presents the cross-border takeover activity by investor protection in panel A, and the differences in means between the investor protection of the bidder and the target in panel B. The sample comprises a total of 734 cross-border transactions completed between 1 January 2001 and 31 December 2011. The scores are taken from Martynova and Renneboog (2011b) and provided as an extract in the appendices, except for the ownership data that is taken from La Porta et al. (1998). We classify firms as either strong or weak governance firms. For example, when a firm has shareholder rights ≥ median, we consider it a strong governance firm, and weak otherwise. We report the number of transactions for each category in parentheses.

Panel A: Percentage (number) of acquisitions between different governance regimes

	Target					
	Domestic deals			Cross-border deals		
Bidder	Weak gov. (or concentrated ownership)	Strong gov. (or dispersed ownership)	Total	Weak gov. (or concentrated ownership)	Strong gov. (or dispersed ownership)	Total
Shareholder rights						
Weak governance	25.8%	-	25.8%	40.3%	23.0%	63.4%
	(606)	-	(606)	(296)	(169)	(465)
Strong governance	-	74.2%	74.2%	34.1%	2.6%	36.6%
	-	(1745)	(1745)	(250)	(19)	(269)
Total	25.8%	74.2%	100.0%	74.4%	25.6%	100.0 %
	(606)	(1745)	(2351)	(546)	(188)	(734)
Minority shareholder rights						
Weak governance	21.5%	-	21.5%	25.9%	22.2%	48.1%
	(505)	-	(505)	(190)	(163)	(353)
Strong governance	-	78.5%	78.5%	28.3%	23.6%	51.9%
	-	(1846)	(1846)	(208)	(173)	(381)
Total	21.5%	78.5%	100.0%	54.2%	45.8%	100.0 %
	(505)	(1846)	(2351)	(398)	(336)	(734)
Creditor rights						
Weak governance	19.8%	-	19.8%	9.8%	23.0%	32.8%
	(465)	-	(465)	(72)	(169)	(241)
Strong governance	-	80.2%	80.2%	26.3%	40.9%	67.2%
	-	(1886)	(1886)	(193)	(300)	(493)
Total	19.8%	80.2%	100.0%	36.1%	63.9%	100.0 %
	(465)	(1886)	(2351)	(265)	(469)	(734)
Ownership concentration						
Dispersed ownership	-	74.2%	74.2%	5.9%	36.1%	42.0%
	-	(1745)	(1745)	(43)	(265)	(308)
Concentrated ownership	25.8%	-	25.8%	21.9%	36.1%	58.0%
	(606)	-	(606)	(161)	(265)	(426)
Total	25.8%	74.2%	100.0%	27.8%	72.2%	100.0 %
	(606)	(1745)	(2351)	(204)	(530)	(734)

Panel B: Analysis of differences in means for investor protection index scores in cross-border takeovers

	Shareholder rights	Minority shareholder rights	Creditor rights	Ownership concentration
Bidder	19.6	14.3	1.9	35.10%
Target	18.7	14.3	1.9	39.60%
D Bidder - Target	0.9***	0.0	0.0	-4.5%***

TABLE 5

Heckman Sample Selection Equations for Cross-border Acquisitions

This table presents the Heckman sample selection equations for a firms' choice of whether to make a cross-border acquisition. The sample consists of 3,085 European mergers and acquisitions completed between 2001 and 2011. The dependent variable is a binary variable that equals 1 if the acquisition is cross-border, and 0 if it is domestic. The independent variables are as defined in the appendix. In Model 1, we use the legal origins of the bidder and the target. In Model 2, we use Martynova and Renneboog's (2011b) corporate governance indices. All models control for year- and country-fixed effects. Standard errors (s.e.) are heteroskedasticity-adjusted. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. The probabilities of making a cross-border acquisition are then used to calculate the inverse Mill's ratio for every sample acquisition in order to control for potential sample selection bias.

	Dependent Variable: d(Cross-border=1; 0 for domestic acquisitions)			
	Model 1 Legal families		**Model 2** Corporate governance indices	
Institutional environment				
Acquirer				
English	0.048	(0.149)		
French	-0.378**	(0.159)		
German	-1.098***	(0.247)		
Scandinavian	-	-		
Target				
English	-1.042***	(0.133)		
French	-0.059	(0.152)		
German	0.861***	(0.208)		
Scandinavian	-	-		
Acquirer's shareholder rights			-0.055***	(0.013)
Acquirer's minority shareholder rights			-0.032	(0.021)
Acquirer's creditor rights			0.165***	(0.046)
Ownership concentration	0.428	(0.483)	0.772**	(0.316)
Market concentration	-0.260	(0.275)	-0.260	(0.263)
Law enforcement	-0.073	(0.186)	0.382**	(0.150)
Culture 1	0.448**	(0.183)	0.145	(0.127)
Culture 2	-0.820***	(0.181)	0.367***	(0.116)
European Takeover Directive	0.058	(0.080)	0.018	(0.077)
Acquirer characteristics				
Total assets (ln)	0.0832	(0.017)	0.107***	(0.016)
Tobin's Q	0.0034	(0.001)	0.004***	(0.001)
Leverage	-2.223***	(0.336)	-2.461***	(0.327)
Cross-listing	0.476***	(0.07)	0.468***	(0.072)
Stock price run-up	-1.157	(0.893)	-0.925	(0.866)
Target characteristics				
Public firm	-0.491***	(0.101)	-0.485***	(0.097)
Subsidiary	-0.204***	(0.071)	-0.118*	(0.067)
Deal characteristics				
Deal size (ln)	0.054***	(0.018)	0.044**	(0.017)
Diversification	-0.185***	(0.062)	-0.214***	(0.060)
Friendly	0.235*	(0.132)	0.186	(0.129)
Method of payment				
Stock-only	-0.618***	(0.115)	-0.561***	(0.113)
Hybrid	-0.317***	(0.094)	-0.272***	(0.089)
(Intercept)	0.627	(0.712)	1.020	(0.703)
Year-fixed effects	Yes		Yes	
Country-fixed effects	Yes		Yes	
# of obs.	3085		3085	
Log Likelihood	-1273		-1361	
McFadden Pseudo-R^2	0.25		0.20	

TABLE 6
Investor Protection as a Determinant of Bidder Wealth Effects in Cross-border Acquisitions

This table provides the regression results testing whether corporate governance differences motivate cross-border acquisitions. The sample consists of 3,085 European mergers and acquisitions completed between 2001 and 2011. The dependent variables in each model are 11-day OLS market model CARs. The control variables are the same as in Table 8 and suppressed for better readability. In addition, we include the inverse Mill's ratio as an independent variable, addressing a potential sample selection bias. In Models 1 and 2, we base our estimations on all sample acquisitions that are cross-border. In Models 3 and 4, we focus only on such cross-border deals in which the acquirer holds 100% of the target's shares. All models control for year-fixed effects. Standard errors (s.e.) are heteroskedasticity-adjusted. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	Dependent Variable: 11-day OLS market model CARs							
	All acquisitions				**Full acquisitions**			
	Model 1 Only legal origin		**Model 2** All institutional controls		**Model 3** Only legal origin		**Model 4** All institutional controls	
Institutional variables								
English acquirer								
French target	0.014	(0.016)	0.020	(0.019)	0.016	(0.017)	0.020	(0.020)
German target	-0.006	(0.019)	-0.019	(0.023)	-0.011	(0.020)	-0.030	(0.024)
Scandinavian target	-0.001	(0.023)	0.009	(0.028)	-0.007	(0.024)	0.001	(0.029)
French acquirer								
English target	0.014	(0.015)	0.003	(0.016)	0.010	(0.016)	-0.001	(0.017)
German target	0.023	(0.015)	-0.001	(0.021)	0.024	(0.016)	-0.003	(0.023)
Scandinavian target	-0.018	(0.018)	-0.021	(0.019)	-0.021	(0.018)	-0.025	(0.019)
German acquirer								
English target	-0.006	(0.016)	0.004	(0.021)	-0.009	(0.017)	0.008	(0.022)
French target	0.005	(0.026)	0.022	(0.030)	0.013	(0.026)	0.036	(0.031)
Scandinavian target	0.027	(0.030)	0.028	(0.032)	0.034	(0.032)	0.037	(0.035)
Scandinavian acquirer								
French target	0.032*	(0.020)	0.040**	(0.020)	0.031	(0.021)	0.038*	(0.022)
German target	0.057*	(0.033)	0.044	(0.034)	0.056	(0.040)	0.041	(0.042)
Ownership concentration			-0.007	(0.056)			-0.024	(0.060)
Market concentration			0.064*	(0.050)			0.071	(0.055)
Law enforcement			-0.012*	(0.011)			-0.022*	(0.012)
Culture 1			-0.030	(0.018)			-0.034*	(0.019)
Culture 2			0.008	(0.014)			0.012	(0.015)
European Takeover Directive			-0.017	(0.013)			-0.015	(0.013)
Inverse Mill's ratio	Yes		Yes		Yes		Yes	
Control variables	Yes		Yes		Yes		Yes	
Year-fixed effects	Yes		Yes		Yes		Yes	
# of obs.	734		734		674		674	
Adj. R^2	0.04		0.05		0.04		0.05	
F statistic	1.39		1.43		1.44		1.47	
p-value	0.09		0.06		0.07		0.05	

TABLE 7
Robustness Test for Investor Protection as a Determinant of Bidder Wealth Effects in Cross-border Acquisitions

This table provides the robustness tests for the regressions testing whether corporate governance differences motivate cross-border acquisitions. The sample consists of 3,085 European mergers and acquisitions completed between 2001 and 2011. The dependent variables in each model are 11-day OLS market model CARs. The control variables are the same as in Table 8 and suppressed for better readability. In addition, we include the inverse Mill's ratio as an independent variable, addressing a potential sample selection bias. In panel A, we test the robustness of our results by using alternative measures of investor protection, i.e., Martynova and Renneboog's (2011b) corporate governance indices for the bidder. Panel B differs from panel A in that it uses the difference in investor protection between the bidder and the target. In panel C, we test whether investor protection has a significant effect on bidder wealth effects when controlling for the case that an above-median protected bidder acquires a below-median protected target. In panel D, we test whether investor protection has a significant effect on bidder wealth effects when controlling for the case that a below-median protected bidder acquires an above-median protected target. All models control for year-fixed effects. Standard errors (s.e.) are heteroskedasticity-adjusted. ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively.

	Dependent Variable: OLS Market Model 11-day CARs											
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.	Coeff.	s.e.
Panel A: Acquirer's investor protection												
Legal environment												
Acquirer's shareholder rights	0.002	(0.002)	0.002	(0.002)	0.002	(0.002)	0.002	(0.002)	0.002	(0.002)	0.003	(0.002)
Acquirer's minority shareholder rights	-0.002	(0.002)	-0.002	(0.002)	-0.002	(0.002)	-0.003	(0.002)	-0.002	(0.002)	-0.002	(0.002)
Acquirer's creditor rights	-0.001	(0.005)	-0.001	(0.005)	-0.000	(0.005)	-0.002	(0.005)	-0.008	(0.005)	-0.008	(0.005)
Ownership concentration			-0.002	(0.040)	-0.001	(0.040)	0.013	(0.044)	0.011	(0.043)	0.007	(0.044)
Market concentration					0.041	(-0.047)	0.040	(0.047)	0.034	(0.047)	0.065	(0.050)
Law enforcement							0.010	(0.011)	0.003	(0.011)	0.001	(0.011)
Culture 1									-0.027**	(0.012)	-0.026**	(0.012)
Culture 2									0.006	(0.009)	0.004	(0.009)
European Takeover Directive											-0.019	(0.012)
Inverse Mill's ratio	Yes		Yes		Yes		Yes		Yes		Yes	
Control variables	Yes		Yes		Yes		Yes		Yes		Yes	
Year-fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
# of obs.	734		734		734		734		734		734	
Adj. R^2	0.03		0.03		0.03		0.03		0.04		0.04	
F statistic	1.63		1.55		1.50		1.53		1.57		1.72	
p-value	0.05		0.06		0.08		0.06		0.04		0.02	

Panel B: Difference between acquirer's and target's investor protection												
Legal environment												
Δ Acquirer's – Target's shareholder rights	-0.001	(0.001)	-0.001	(0.001)	-0.001	(0.001)	-0.001	(0.001)	-0.000	(0.001)	-0.000	(0.001)
Δ Acquirer's – Target's minority shareholder rights	-0.002	(0.002)	-0.002	(0.002)	-0.002	(0.002)	-0.002	(0.002)	-0.002	(0.002)	-0.002	(0.002)
Δ Acquirer's – Target's creditor rights	-0.002	(0.004)	-0.002	(0.004)	-0.002	(0.004)	-0.002	(0.004)	-0.002	(0.004)	-0.002	(0.004)
Ownership concentration			-0.011	(0.041)	-0.010	(0.041)	-0.006	(0.043)	-0.007	(0.042)	-0.011	(0.043)
Market concentration					0.047	(0.048)	0.047	(0.048)	0.045	(0.048)	0.076	(0.051)
Law enforcement							0.004	(0.009)	-0.003	(0.010)	-0.005	(0.010)
Culture 1									-0.023**	(0.011)	-0.022**	(0.011)
Culture 2									0.008	(0.009)	0.006	(0.009)
European Takeover Directive											-0.019	(0.012)
Inverse Mill's ratio	Yes		Yes		Yes		Yes		Yes		Yes	
Control variables	Yes		Yes		Yes		Yes		Yes		Yes	
Year-fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
# of obs.	734		734		734		734		734		734	
Adj. R^2	0.03		0.03		0.03		0.03		0.04		0.04	
F statistic	1.666		1.59		1.53		1.55		1.60		1.72	
p-value	0.04		0.05		0.07		0.06		0.04		0.02	

Panel C: Dummy variable approach testing above-median firms acquiring below-median targets												
Legal environment												
Shareholder rights improvement for target	0.025*	(0.013)	0.027*	(0.014)	0.027*	(0.014)	0.032*	(0.017)	0.025	(0.017)	0.024	(0.017)
Minority shareholder rights improvement for target	-0.021*	(0.012)	-0.022*	(0.012)	-0.022*	(0.012)	-0.023*	(0.012)	-0.010	(0.015)	-0.010	(0.015)
Creditor rights improvement for target	0.015	(0.010)	0.016	(0.010)	0.016	(0.010)	0.013	(0.010)	0.007	(0.011)	0.007	(0.011)
Ownership concentration			0.020	(0.042)	0.022	(0.042)	0.037	(0.050)	0.030	(0.049)	0.024	(0.050)
Market concentration					0.043	(0.047)	0.043	(0.047)	0.041	(0.048)	0.072	(0.050)
Law enforcement							0.010	(0.012)	0.004	(0.012)	0.002	(0.012)
Culture 1									-0.019	(0.014)	-0.018	(0.014)
Culture 2									0.006	(0.010)	0.004	(0.010)
European Takeover Directive											-0.019	(0.013)
Inverse Mill's ratio	Yes		Yes		Yes		Yes		Yes		Yes	
Control variables	Yes		Yes		Yes		Yes		Yes		Yes	
Year-fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
# of obs.	734		734		734		734		734		734	
Adj. R^2	0.03		0.03		0.03		0.03		0.04		0.04	
F statistic	1.99		1.88		1.80		1.77		1.64		1.80	
p-value	0.01		0.01		0.02		0.02		0.03		0.01	

Panel D: Dummy variable approach testing below-median firms acquiring above-median targets												
Legal environment												
Shareholder rights deterioration for target	-0.020*	(0.011)	-0.020*	(0.011)	-0.020*	(0.011)	-0.022*	(0.012)	-0.016	(0.012)	-0.016	(0.012)
Minority shareholder rights deterioration for target	0.010	(0.013)	0.010	(0.013)	0.009	(0.013)	0.008	(0.013)	-0.005	(0.014)	-0.005	(0.014)
Creditor rights deterioration for target	-0.007	(0.013)	-0.007	(0.013)	-0.007	(0.013)	-0.004	(0.015)	0.002	(0.014)	0.002	(0.014)
Ownership concentration			0.003	(0.041)	0.004	(0.041)	0.012	(0.044)	0.006	(0.043)	0.001	(0.044)
Market concentration					0.042	(0.048)	0.043	(0.048)	0.042	(0.048)	0.073	(0.051)
Law enforcement							0.007	(0.011)	0.001	(0.011)	-0.002	(0.012)
Culture 1									-0.024**	(0.012)	-0.024**	(0.012)
Culture 2									0.007	(0.010)	0.005	(0.010)
European Takeover Directive											-0.019	(-0.013)
Inverse Mill's ratio	Yes		Yes		Yes		Yes		Yes		Yes	
Control variables	Yes		Yes		Yes		Yes		Yes		Yes	
Year-fixed effects	Yes		Yes		Yes		Yes		Yes		Yes	
# of obs.	734		734		734		734		734		734	
Adj. R^2	0.03		0.03		0.03		0.03		0.04		0.04	
F statistic	1.63		1.56		1.50		1.49		1.56		1.68	
p-value	0.05		0.06		0.08		0.08		0.05		0.02	

Appendix

TABLE A1

Variable Definitions

Creditor rights	Martynova and Renneboog's (2011b) Creditor Rights Protection Index is used to represent creditor protection. In robustness tests, La Porta et al.'s index (1998) is used as an alternative.
Cross-listing	Dummy variable equal to 1 if the acquirer is listed at two or more stock exchanges.
Culture 1	Power distance is a measure provided by the GLOBE project and based on Hofstede's (1984) work. The construct refers to the difference between the distribution of power within the acquirer and target countries' organizational systems.
Culture 2	Uncertainty avoidance is a measure provided by the GLOBE project and based on Hofstede's (1984) work. It is a construct to measure a society's tolerance for uncertainty and ambiguity. Countries with high scores tend to be more methodical and approach changes gradually, engaging in careful step-by-step planning and abiding by rules and applicable laws. "Culture 2" is constructed as the difference between the acquirer and the target countries' scores.
Deal size	Log of deal value in $mil.
Diversifying	Dummy variable equal to 1 if the acquirer diversifies. Diversification occurs when the bidder acquires a target that is in a different macro industry, as classified by Thomson One Banker.
European Takeover Directive	Dummy variable equal to 1 for acquisitions announced prior to the deadline of the ETD implementation, and 0 for announcements after the deadline (20 May 2006).
Firm size	Log of book value of acquirer's total assets in $mil.
Hybrid payment	Payments consisting of both cash and stock payments, and/or more exotic payment methods.
Law enforcement	Rule of Law is a governance measure provided by the World Bank. It captures perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Estimate gives the country's score on the aggregate indicator (in units of a standard normal distribution, i.e., ranging from approximately −2.5 to +2.0). The difference is calculated as acquirer score minus target score.
Leverage	Leverage over total assets.
Market concentration	The Herfindahl-Hirschman Index (HHI) is used as our measure of market concentration, which is assumed to be inversely related to product market competition. Bebchuk et al.'s (2013) methodology is applied to compute the HHI.
Market run-up	Share price run-up, computed as the acquirer buy-and-hold returns over the [-240;–20] window.
Minority shareholder rights	Martynova and Renneboog's (2011b) Minority Shareholder Rights Protection Index is used to represent minority shareholder protection.
Ownership concentration	Ownership concentration is a proxy for average blockholdings in a country. It is calculated as the average shareholding of the three largest investors and taken from La Porta et al. (1998).
Shareholder rights	Martynova and Renneboog's (2011b) Anti-Director Rights Index is used to represent acquirer shareholder protection. In robustness tests, La Porta et al.'s index (1998) is used as an alternative.
Tobin's Q	Tobin's Q is a proxy for firm performance. It is calculated similarly as in Chung and Pruitt (1994) as the sum of the market value of equity plus debt over total assets.

TABLE A2
Corporate Governance Indices

	Martynova and Renneboog (2011b)			LLSV (1998)	
	Shareholder rights	Minority shareholder rights	Creditor rights	Shareholder rights	Creditor rights
Austria	14	17	2	2	3
Belgium	18	13	2	4	2
Denmark	11	12	3	2	3
Finland	19	10	2	3	1
France	16	14	1	3	0
Germany	18	16	2	1	3
Greece	20	9	4	2	1
Ireland	21	16	2	4	1
Italy	26	17	1	1	2
Luxembourg	12	4	2	(2.57)	(1.43)
Netherlands	19	13	4	2	2
Portugal	20	13	3	2	1
Spain	19	15	1	4	2
Sweden	12	10	1	3	2
U.K.	24	16	2	5	4
European average	17.93	13.00	2.13	2.70	1.90
English origin countries	20.67	13.33	1.33	4.5	2.5
French origin countries	18.75	12.25	2.25	2.57	1.43
German origin countries	16.00	16.50	2.00	1.5	3
Scandinavian origin countries	14.00	10.67	2.00	2.67	2

Notes: La Porta et al. (1998) do not provide scores for Luxembourg, thus their values in the last two columns are based on the averages from the French legal family.

Chapter 3

Legal Shareholder Rights and Acquirer Returns

Legal Shareholder Rights and Acquirer Returns

Gishan Dissanaike[a], Wolfgang Drobetz[b], and Peyman Momtaz[c,*]

Abstract

This paper examines the relationship between legal shareholder rights and acquirer returns. Europe is an ideal context to explore this link because various institutional differences make the European Takeover Directive a suitable focus for a natural experiment. We find that an improvement of legal shareholder rights entails an increase in acquirer returns, supporting the hypothesis that strong shareholder rights constrain the discretion of corporate insiders, leading to better investment decisions. However, this value creation is partly consumed by the costs of the reform. The gains from improving legal shareholder rights are decreasing in the relative disruption of prevailing governance practices.

Keywords: Mergers and acquisitions, market for corporate control, corporate governance, investor protection, shareholder rights, acquirer returns, bidder wealth effects, law and finance, European Takeover Directive

JEL Classification Codes: G30, G34, G38, K20, K22

[a] University of Cambridge, Judge Business School, Trumpington Street, Cambridge CB2 1AG, UK
E-Mail: grd13@cam.ac.uk.

[b] Faculty of Business Administration, Hamburg University, Von-Melle-Park 5, 20146 Hamburg, Germany.
E-Mail: wolfgang.drobetz@uni-hamburg.de.

[c] Faculty of Business Administration, Hamburg University, Von-Melle-Park 5, 20146 Hamburg, Germany.
E-Mail: momtaz@cantab.net.

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1. Introduction

There is an established literature on the relationship between *firm-level* corporate governance and the gains from mergers and acquisitions (M&As). Prior research has found that weakly governed firms are more prone to destroy value in acquisitions (Masulis et al., 2007). It has identified the sources of this value destruction (Harford et al., 2012) and shown that synergistic gains increase in the difference between the acquirer's and the target's shareholder rights (Wang and Xie, 2009). However, the impact of *country-level* corporate governance on acquisition efficiency remains largely unexplored.[1] In particular, the question arises whether legal shareholder rights causally determine acquisition efficiency, or whether the causal link, if there is any, is reversed because shareholder rights laws evolve in response to low acquisition efficiency. Given that sizeable wealth in the form of assets and control rights is being reallocated in the takeover market and corporate insiders redirect part of that wealth into their own pockets (Harford, 2003; Harford et al., 2012; Jensen, 1986; Moeller et al., 2005; Morck et al., 1990), it is of great economic importance to understand how legal shareholder rights influence the efficiency of that allocation process. In this study, we use the European Takeover Directive (ETD) as an event in a natural experiment. This allows us to draw causal inferences about (i) how legal shareholder rights affect acquirer returns, and (ii) how disruptions to prevailing corporate governance practices are reflected in acquisition efficiency.

In imperfect markets, better country-level corporate governance is associated with a more efficient resource allocation (La Porta et al., 1998). In the case of corporate acquisitions, frictions such as agency costs (for example, arising from self-dealing managers or self-dealing controlling shareholders (Claessens et al., 2002; Djankov et al., 2008; Jensen, 1986; Moeller,

[1] We use the term "*country-level* corporate governance" (e.g., legal shareholder rights) to distinguish it from "*firm-level* corporate governance" (e.g., anti-takeover provisions). The term *country-level* corporate governance is used interchangeably with the term "investor protection" in the classical law and finance literature, corresponding to the quality of the law and law enforcement (La Porta et al., 2000).

2005)) and transaction costs (for example, resulting from acculturation in cross-border mergers (Conn et al., 2005) or litigation (Krishnan et al., 2012)), pose obstacles to shareholder value maximization.[2] Country-level corporate governance defines the legal minimum to limit such costs of corporate acquisitions; in addition, there is potentially a variety of corporate governance mechanisms available at the firm level.

Nevertheless, the importance of country-level corporate governance is evident.[3] For example, Bergman and Nicolaievsky (2007) find that public companies do not enhance their corporate governance beyond the country level's default because firm-level governance practices are prohibitively costly to change. Doidge et al. (2007) show that country-level corporate governance, particularly in countries with less developed capital markets, explain variations in governance ratings better than firm-level characteristics. Rossi and Volpin (2004) document that shareholder protection is positively related to takeover activity. Burkart et al. (2014) propose that investor protection enhances the efficiency of contested acquisitions when the acquiring firm is financially constrained. Their model predicts that investor protection increases external funding capacity, which makes it less likely that a wealthy but inefficient firm outbids an efficient but less wealthy bidder. Cremers and Ferrell (2014) substantiate inter alia that the Delaware Supreme Court's landmark 1985 decision on the use of poison pills in *Moran v. Household International* had a detrimental impact on firm value. Finally, Lel and Miller (2015) use the passage of takeover laws across countries to show that increasing the threat of takeovers results in stricter managerial discipline.

[2] Note that we refer only to *shareholder* value maximization. Some frictions, for example, those related to self-dealing by corporate insiders, are not necessarily wealth decreasing but could merely reflect wealth transfers among corporate stakeholders (Kim and Singal, 1993). However, constraining private rent extraction, i.e., illegitimate wealth transfers by corporate insiders, results in increasing shareholder value.

[3] We recognize that one extreme position in the literature posits that laws do not matter because private contracting is more efficient (Coase, 1960; Easterbrook and Fischel, 1996). This *Coasian perspective* argues that firms can negotiate contracts and make governance choices that are value maximizing irrespective of the law. However, the counterview points out that, when laws and law enforcement are weak, firms may breach contracts and thus impede wealth maximization. La Porta et al. (2000) show that strong legal enforcement of private contracts does not prevail in all jurisdictions. Moreover, in the absence of the law, credibly committing to good corporate governance may be prohibitively expensive for individual firms (La Porta et al., 1997).

In summary, prior research suggests that countries' legal institutions play a pivotal role in reducing the discretion of corporate insiders, and thus in reducing frictions in the market for corporate control. Based on this economic rationale, our first hypothesis is that acquirer returns are increasing in legal shareholder rights, as self-dealing by corporate insiders becomes legally constrained.

In addition, because firm-level corporate governance provides additional governance mechanisms beyond the governance provided at the country level, any change in country-level corporate governance may disrupt the equilibrium of governance practices at the firm level. That is, legislative and regulatory actions will alter the grounds on which firm-level corporate governance has been contracted, and may render it necessary to make costly adjustments to such firm-level contracts. However, the prior literature has focused on the question of whether prevailing corporate governance practices are shareholder value maximizing or whether they need to be reformed. This approach is limited as it does not help in assessing *how* a proposed reform will affect financial markets.[4] In fact, a major weakness of the literature is that it remains silent about the cost consequences of corporate governance reforms.

Theoretical work suggests that the costs of corporate governance reforms may include the resistance of controlling forces (Bebchuk and Roe, 1999); the costs of adapting complementary elements of a governance system to a new regime (Khanna et al., 2006), such as the cost of adjusting corporate structures to cope with new compliance requirements (Gilson, 2001); and the costs of protectionist behavior arising from economic nationalism (Aktas et al., 2004). The value of any legal shareholder rights reform consists of the positive effect it has on shareholder value, less the costs of adapting firm-level corporate governance

[4] One notable exception is Larcker et al. (2011), who look at the consequences of several U.S. corporate governance regulations by examining the market reactions to regulatory actions pertaining to CEO pay, blockholders, proxy access, and staggered boards.

practices to the new regime. Therefore, since structural adaptations to the new equilibrium impose costs, our second hypothesis is that the marginal effect of improving legal shareholder rights on acquirer returns is decreasing in the relative disruption of the prevailing governance equilibrium.

In our empirical analyses, we exploit the European Takeover Directive (ETD) as a potential natural experiment. The ETD harmonized takeover law across European member states in 2006 and improved legal shareholder rights in several countries. Unlike the regulatory and economically integrated U.S. takeover market, Europe is an ideal context for a country-level natural experiment because Europe's takeover markets exhibited considerable differences in corporate governance (Enriques and Volpin, 2007; Faccio and Lang, 2002) and substantial variations in regulatory scopes prior to the ETD.[5] The striking benefit of the ETD is that it was not the result of market pressures, i.e., the need to reform the law because of economic misbehavior of some firms, but part of the move towards *European Integration*. Therefore, the ETD represents an exogenous shock to extant governance equilibria.[6] It provides a novel opportunity to better understand how legal shareholder rights affect the efficiency of financial markets, particularly acquisition efficiency, and to explore the costs of corporate governance reform, while being mostly immune to endogeneity concerns.

To test our first hypothesis that acquirer returns are increasing in legal shareholder rights, we use the fact that the ETD improved legal shareholder rights only in some countries, whereas it entailed no substantial changes in those countries that already had all the core provisions of the ETD in effect. Using a sample of 3,085 acquisitions in EU15 countries between 2001 and 2011, we find that the ETD enhanced the legal shareholder rights in six

[5] For example, the British takeover market is regulated by a comprehensive body of rules paragraphed in the "City Code," whereas Luxembourg as a major financial market in Europe did not even have a takeover law prior to the ETD (Paul and Gidley, 2009).

[6] In comparison, the Sarbanes-Oxley Act (SOX) of 2002 was enacted in response to the corporate scandals such as Enron. Therefore, as suggested by Yoshikawa and Rasheed (2009), the SOX would not qualify as a mostly exogenous reform to current governance practices.

countries, leaving the other nine countries as the control group. Our empirical method allows us to isolate the causal effect of a change of legal shareholder rights on acquisition efficiency by differencing out confounding factors in a difference-in-differences model (Imbens and Wool-dridge, 2009; Roberts and Whited, 2013). This causal effect estimator indicates that the ETD-induced improvements of legal shareholder rights caused a statistically significant increase in acquirer returns. Our finding is consistent with the law and finance view that country-level corporate governance affects the efficiency of financial markets (La Porta et al., 1998). It further supports the argument that shareholder rights are causally related to acquirer stock returns and not merely the result of endogenously determined covariates (Bebchuk et al., 2013; Core et al., 2006; Gompers et al., 2003).

To test the second hypothesis, that the benefits of the reform decrease in the size of the disruption of prevailing governance equilibria, we construct a triple difference model. Assuming that the quality of the initial country-level corporate governance is a suitable proxy for the expected disruption of governance equilibria, we find a significantly negative marginal effect of a strong disruption of governance equilibria on the benefits of the reform. That is, the value increasing effect of the improvement of legal shareholder rights was at least partly consumed by the costs of the reform in some countries. This result adds to the empirical evidence on the costs of corporate governance convergence. It shows that improving one element of a governance system may hurt the efficiency of the entire system (Khanna et al., 2006).

Our study makes two contributions to the literature. First, it provides support for the causal relationship between legal shareholder rights and acquirer returns. Our result is contrary to the Coasian perspective and demonstrates that country-level corporate governance matters, because private contracting may not always be cost efficient (Bergman and Nicolaievsky, 2007; Doidge et al., 2007). A limitation of prior research is that it focuses

almost exclusively on the relationship between country-level corporate governance and external finance. Therefore, the effect of country-level corporate governance on shareholder value is only indirectly considered: in the presence of frictions, good country-level corporate governance reduces default risk, which in turn decreases the costs of external finance, leaving higher residual gains to be distributed to shareholders. In this study, we establish a direct link from country-level corporate governance to shareholder value. In particular, country-level governance limits the discretion of corporate insiders, thereby reducing frictions in investment decisions. We conclude that legal shareholder rights directly affect shareholder value.

The second contribution of our analyses is that it disentangles the costs and benefits of corporate governance reforms. By studying the effect of de jure corporate governance convergence in a multi-country setting, we can compare how the same regulatory reform entails different consequences across affected countries. While we find that shareholders of acquiring firms benefit in general from improving legal shareholder rights, we further examine whether these gains are diminished by the initial corporate governance regime. In particular, the use of a multi-country setup is helpful in estimating how relative disruptions of governance practices across countries translate into acquisition efficiency. In particular, it enables us to provide a relative estimate for the costs of corporate governance reforms. Given the increasing number and scope of corporate governance reforms over the last decade, we conclude that the costs of reforms should be of paramount interest to economists and policymakers.

We recognize that legal reforms and their effects on takeovers have been examined in the US context. Both Malatesta and Thompson (1993) and Schipper et al. (1987) analyze the effect of the Williams Act of 1968 on takeovers. However, these studies are single-country studies. The novelty of our approach is that the multi-country research design allows us to test

new hypotheses and establish causation.[7] In a related study, Humphery-Jenner (2012) examines the performance of European acquirers and assesses the overall effect of the ETD against a non-European benchmark. He documents that after the implementation of the ETD, European firms make investments that are less profitable (as proxied by acquirer announcement returns). Overall, he interprets his post-ETD results as consistent with increased managerial empire building and agency-motivated transactions.

The scope of our study is different: First, unlike Humphery-Jenner (2012), we do not assess the effect of the ETD by comparing European acquirers to non-European ones. Instead, our *treatment* and *control* groups are drawn from within the EU itself. Our analysis is motivated by the observation that the ETD improved legal rights only in some EU15 countries (the treatment group), while some EU15 countries experienced no substantial change in legal rights, because they already had all the core provisions of the ETD in place before the implementation deadline. We treat firms from the latter countries as our control group. Therefore, we are primarily interested in the effect the improvement of legal shareholder rights had on shareholder value across the EU15 countries. We find that the firms from our treatment group experience an increase in acquirer returns, whereas firms from our control group experience a significant decrease. Therefore, it is important to analyze whether an overall lower acquisition efficiency is causally attributable to the implementation of the ETD. Second, our analysis puts a focus on the role and the costs of the relative disruptions to corporate governance equilibria. We show that part of the gains from improving legal shareholder rights are consumed by the cost of the reform.

[7] A notable exception is Lel and Miller (2015), who study the staggered initiation of M&A laws in an international context. Their study is important as they show that M&A laws increase the likelihood of poorly performing firms being taken over and the propensity of poorly performing CEOs being replaced. However, our focus is different in that we analyze the effects of the ETD on the acquiring firms' stock prices around the deal announcement date.

The remainder of this paper is structured as follows: In section 2, we introduce the European Takeover Directive (ETD) as a natural experiment and frame the hypotheses. Section 3 describes the data. Section 4 presents our results. It contains univariate analyses of acquirer returns before and after implementation of the ETD, regression analyses based on difference-in-differences(-in-differences) models, and robustness tests. Finally, Section 5 concludes.

2. The European Takeover Directive: A Natural Experiment

2.1. Background

The European Takeover Directive (ETD) was modeled on the *U.K. City Code* with the intention of raising the quality of takeover law, and in particular shareholder rights, in Europe to a common standard. The challenge for regulators when drafting the ETD was to harmonize existing takeover regulations, while providing for the idiosyncrasies of the different corporate governance systems in European countries.[8] While dispersed ownership structures, such as in the U.K., cause collective action problems for shareholders who require mechanisms to avoid managerial expropriation, concentrated ownership structures, such as in Germany, call for provisions to protect minority shareholders from expropriation by blockholders. The European Commission dealt with the various institutional requirements as well as path dependent commonalities and differences by agreeing on a catalogue of general principles in conjunction with minimum statutes. After the promulgation of the ETD in 2004, these minimum statutes had to be enacted into national law by 21 May 2006.

The ETD lends itself to study how an improvement of legal shareholder rights affects acquisition efficiency, since the minimum statutes constitute the reform's substantial changes (McCahery and Renneboog, 2003) and represent a straightforward proxy for legal shareholder

[8] See McCahery and Renneboog (2003) for an overview of the substantial changes brought about by the ETD, Marccus Partners (2012) and Hopt (2014a, 2014b) for a comprehensive assessment thereof.

rights. These minimum statutes include the board neutrality rule, the mandatory bid rule, the squeeze-out right, and the sell-out right, which we briefly discuss in section 2.2. We note that most of these rules are related to the classical shareholder rights literature considered in the context of the anti-director rights index (La Porta et al., 1998) and the G-index (Gompers et al., 2003). In our difference-in-differences framework, we assign to the control group those countries which had no significant changes in their prevailing takeover laws, whereas countries that had to improve their legal shareholder rights are assigned to the treatment group. The underlying idea of our model is to measure, in a pre-post comparison, how the improvement of legal shareholder rights affected acquirer returns in our treatment group, while differencing out confounding factors using our control group.

The central assumption of our model is that the treatment group and the control group follow the same trend in the sample period, except that the treatment group is affected by the treatment ("parallel trend assumption"). In other words, the ETD-induced improvement in legal shareholder rights had to be exogenous to the established shareholder rights regimes in order to estimate its precise effect. The ETD was neither the result of any market pressure nor of the actions of individual firms, but part of the move towards European integration. To reinforce the parallel trend assumption, we perform robustness tests that use only pre-event years, exclude the UK from the sample (given the differences between UK takeovers and Continental European takeovers; Arcot et al., 2010), and further implement a propensity score matching approach. As a result, the ETD can mostly be regarded as an exogenous shock to the prevailing governance practices, making the ETD an ideal natural experiment to examine the effect of legal shareholder rights on takeover markets.[9]

[9] Note that another potential endogeneity would exist if firms based their takeover decisions, in part, on shareholder rights in the target company (Rossi and Volpin, 2004). By implication, firms would then make different types of acquisition after the ETD. However, Bris et al. (2008) and Drobetz and Momtaz (2015) test this hypothesis and conclude that acquisition decisions are not motivated by the level of the target's investor protection.

2.2. Legal Shareholder Rights and Acquirer Returns

The seminal work by La Porta et al. (1998) asserts that country-level corporate governance matters for the functioning of financial markets as it gives investors the right to claim a fair return and ensure legal enforcement of that right. The corporate takeover market is an ideal setting to test this claim because substantial wealth is moved around, and frictions such as agency costs become readily observable (Bris and Cabolis, 2008). For example, Cremers and Ferrell (2014) study the judicial approval of the poison pill in the U.S. and find a significantly negative effect on firm value. Other examples of self-dealing behavior associated with corporate takeovers include, inter alia, empire building (Jensen, 1986), entrenching target selection (Harford et al., 2012), and overpayment in defensive takeovers (Gorton et al., 2009). Country-level corporate governance sets boundaries around corporate insiders' discretion, and thus effective legal shareholder rights should help in reducing such frictions.

The ETD addresses such frictions in the form of conflicts of interest between managers and shareholders as well as between controlling and minority shareholders. For example, the board neutrality rule obligates the board to abstain from any action that could frustrate a bid. It impedes board entrenchment, makes directors subject to the disciplining power of the market for corporate control (at least in widely-held firms), and consequently alleviates conflicts of interest between managers and shareholders. Conflicts of interest between minority and controlling shareholders are largely alleviated by an equal treatment principle that is put into practice through the squeeze-out right, the sell-out right, and the mandatory bid rule.[10] The squeeze-out and sell-out rights give minority shareholders the right to get a fair price for their shares if they are forced to sell by controlling shareholders or wish

[10] The equal treatment principle stands in contrast to the market rule. Under the market rule, the law does not guarantee fair treatment to minority shareholders in corporate takeovers. Instead, controlling shareholders may sell their shares whenever they feel adequately compensated − where this may include compensation for the loss of private rents from minority shareholder expropriation. Bebchuk (1994) shows that the equal treatment principle is superior to the market rule in discouraging inefficient takeovers.

to sell their shares, respectively.[11] The mandatory bid rule obligates the bidder to extend a binding bid to all shareholders at an equitable price. By prohibiting partial bids, acquirers can no longer extract private benefits of control, and minority shareholders benefit since they can cash in on takeover premia. Moreover, the ETD restricts deviations from the one-share-one-vote principle when it comes to votes on takeover bids. In addition to improving legal shareholder rights, the ETD also improved the enforcement of the new law by introducing novel disclosure requirements that give better access to information, and by establishing supervisory authorities in every country. Finally, the ETD lowered the costs of legal suits because it made legal statutes pertaining to takeovers explicit and harmonized applicable law across all EU member states.

Nevertheless, Humphery-Jenner (2012) examines the effect of the ETD on acquirer returns and finds a negative relationship. His study differs from ours in that he compares European takeovers with non-European takeovers.[12] Humphery-Jenner (2012) puts forward plausible reasons why the ETD may have increased the fraction of value-destroying takeovers. Most importantly, the ETD created some degree of legal uncertainty due to vagueness in some ETD provisions (and even some opt-out rights), which in turn can increase the availability of anti-takeover provisions and lead to managerial entrenchment. Other reasons for a negative impact on acquirer returns directly pertain to the costs of some ETD provisions. For example, the downside of the mandatory bid rule in conjunction with the equitable price principle is that it may make takeovers more costly. Bidders must launch a full takeover bid after they have gained control over a target, and the price to be paid for the

[11] The squeeze-out right could be interpreted not as an improvement of corporate governance, but rather as an improvement of the power of the bidder firm to impose worse deals on the target firm. However, the ETD combined this rule with an equitable price rule. The equitable price is the highest price that the bidder has paid for the same securities over a period, to be determined by the member states, of not less than six months and not more that twelve months before the bid. As a result, any extraction of private benefits of control is constrained, and bidders cannot easily impose bad conditions on minority shareholders.

[12] His approach measures the overall value creation effect of the ETD compared to non-European benchmarks, but it does not account for the fact that the extent to which different European countries were affected also differs (see Section 4.4 for a discussion about model dependence).

outstanding shares would equal the highest trading price for the target during the previous twelve months.

Although it is difficult to be sure, a priori, whether the positive or the negative effects of the ETD dominate when comparing European to non-European takeovers (the approach taken by Humphery-Jenner, 2012), there is a strand of literature (reviewed in McCahery and Renneboog, 2003), suggesting that the intra-European effect of the ETD was that it facilitated value-increasing transactions. In their analysis of the effect of the ETD provisions, McCahery and Renneboog (2003, p. 78) conclude that "there are gains to be achieved by creating an active cross-border takeover market that protects minority shareholders and promotes higher disclosure standards."

For those reasons, we claim that the takeover law in the ETD is associated with a decrease in frictions from conflicts of interest, better law enforcement, and efficiency gains due to a set of common legal standards. Taking this together with the evidence from firm-level corporate governance research – that weakly governed firms make bad acquisitions (Harford et al., 2012; Masulis et al., 2007; Wang and Xie, 2009) −, we expect that the *net effect* of the ETD-induced improvement of legal shareholder rights on acquirer returns will be positive. Our first testable hypothesis is:

H1: Acquirer returns are increasing in legal shareholder rights.

2.3. Disruptive Corporate Governance Changes and Acquirer Returns

Reforming country-level corporate governance will usually result in changes in governance practices at the firm level. Because firm-level corporate governance is contracted in the context of country-level corporate governance, reforming country-level corporate governance imposes costs when re-negotiating those firm-level contracts. Khanna et al. (2006, p. 71) argue that "improving any one element [of a governance system] may actually hurt the

efficiency [of the whole system]." Therefore, a meaningful assessment of any reform has to compare the benefits of improving country-level corporate governance with the costs of disrupting the prevailing governance equilibria in order to assess the net effect of a reform.

Unfortunately, prior research has neglected to investigate the costs of corporate governance reforms. Because prior studies look predominantly at whether prevailing governance practices are shareholder value maximizing or whether they need to be reformed, those studies do not help in assessing the overall consequences of reforms. Yet, more and more corporate governance reforms have been proposed recently, increasing our need to understand the overall effect of such reforms. Note, for instance, that Larcker et al. (2011) found as many as 18 corporate governance reforms that had an impact on stock markets in the U.S. between March 2007 and June 2009. Therefore, disentangling the benefits and costs of corporate governance reforms is pivotal to understanding a reform's net wealth effect. While the benefits of the ETD include an improvement in legal shareholder rights, better enforcement thereof, and efficiency gains from a common set of rules, there are costs associated with adapting to the new corporate governance regime dictated by the ETD.

We conceptualize the costs of the ETD via the efforts undertaken by European member states to reach a new equilibrium of governance practices, having been shocked from their initial state.[13] Assuming that variations in the quality of investor protection prior to the ETD are a suitable proxy for disruptions to governance equilibria, we would expect that

[13] We recognize that our study is closely related to the literature on corporate governance convergence. Corporate governance convergence "[…] refers to an increasing isomorphism in the governance practices of public corporations from different countries" (Yoshikawa and Rasheed, 2009, p. 389). One crucial distinction is convergence *in function* versus convergence *in form* (Gilson, 2004). Functional convergence typically evolves from market pressures and is described as gradual, "decentralized, market-driven changes at the firm level" (La Porta et al., 2000, p. 20). Most studies of corporate governance convergence are concerned with convergence in *function* such as cross-listings (Coffee, 2002, 1998). Our study makes an important contribution because it analyzes a rare instance of convergence *in form*, i.e., corporate governance convergence through a legal reform, and the benefits and costs thereof. In contrast to the U.S., which is regulatorily integrated, Europe is an ideal venue to study convergence in form as the ETD was preceded by gaping regulatory differences across member states.

initially weakly governed countries incurred higher costs in adapting to the new governance system dictated by the ETD.

Let us consider the following example: The reinforcement of the equal treatment principle may have provoked resistance from controlling shareholders in initially weakly governed systems. Prior to the ETD, controlling shareholders may have requested additional takeover premia through a two-tier bid to be compensated for their loss of private benefits of control (Bebchuk and Roe, 1999; Enriques and Volpin, 2007). Since the mandatory bid rule (as a manifestation of the equal treatment principle) requires that an equitable price is paid to all shareholders, controlling shareholders can no longer be compensated for their loss of private rents. Therefore, to the extent that they block value-enhancing acquisitions after the ETD by refusing to sell their shares, they will impede the efficient functioning of the market for corporate control in such countries.

Furthermore, corporate governance reforms can be costly since they may create legal uncertainty. The ETD has been criticized for creating legal uncertainty, since some statutes are vague and require interpretation at the country level (Humphery-Jenner, 2012). Countries that had to make more adaptations due to the ETD have thus been subject to greater legal uncertainty. Legal uncertainty amplifies the risk of litigation, and litigation associated with takeovers can decrease the value to be gained in M&A transactions (Krishnan et al., 2012).

Country-level corporate governance consists of complementarities. Changing one element of the governance system affects the efficacy of the whole system. Therefore, the costs of corporate governance reforms should be positively related to the disruption of the initial governance equilibria. We expect to observe that the marginal effect of improving shareholder rights on acquirer returns is decreasing in the size of the disruption of prevailing governance practices. Accordingly, our second testable hypothesis is:

H2: The gains from improving legal shareholder rights are decreasing in the relative disruption of prevailing corporate governance practices.

3. Data, Methodology, and Summary Statistics

We compile a sample of 3,085 intra-European acquisitions completed between January 1, 2001, and December 31, 2011 from Thomson Reuters M&A database (formerly SDC), which meets the following criteria: (i) the public acquirer and the target are from EU15 countries; (ii) the acquisition entails a change of control;[14] and (iii) there is comprehensive documentation of the firms' key financial parameters on Datastream and/or Bloomberg.[15] A caveat is that a large majority of acquisitions during our sample period involved private targets. We thus follow Masulis et al. (2007) and limit our main analysis to acquirer returns.[16] In addition, our model requires the parallel trend assumption. We limit our sample to intra-EU15 transactions and require that both the acquirer and the target firms are from European member states. Countries that joined the EU after 2001 are not part of our sample (because their inclusion would represent a radical institutional change which is difficult to fully control for).

We assign to the treatment group those countries that had to improve their legal shareholder rights because of the ETD by adopting at least one of the four minimum statutes (board neutrality rule, mandatory bid rule, squeeze-out rule, and sell-out rule). Countries that were not required to implement any of these core provisions are assigned to the control group. For this purpose of classification, we consult the European Commission (2012) report,

[14] We require that the bidder acquires more than 75% of the voting rights to capture governance-relevant changes in control. Corporate charter amendments in Europe usually require positive votes of more than 75%. In fact, 98.44% of all transactions involved ownership changes with more than 90% of the voting rights being acquired.

[15] Only 17 observations are lost due to a lack of availability of financial parameters, and they are randomly distributed. Therefore, this requirement does not introduce any material selectivity bias.

[16] Of the 3,085 transactions in our full sample, there are only 69 and 40 post-ETD acquisitions involving public targets in the treatment group with complete data available for the double and triple difference models, respectively.

Marccus Partners (2012), and various national legal texts. The treatment group comprises Belgium, Germany, Greece, Luxembourg, the Netherlands, and Spain. The control group consists of Austria, Denmark, Finland, France, Ireland, Italy, Portugal, Sweden, and the UK. Organized by country, Table 1 provides an overview of the changes in legal shareholder rights.

[PLEASE INSERT TABLE 1 HERE]

Our observations are classified based on the country of the acquirer because in full acquisitions, when the acquirer purchases 100% of the target's shares, the target becomes a national of the acquirer's country and the laws of the acquirer's country apply. Bris and Cabolis (2008) and Martynova and Renneboog (2008) examine these corporate governance spillover effects that result when the 'good' or 'bad' governance traits of the acquirer's country 'spill over' to the target. They find that better corporate governance in the acquirer's country leads to more efficient allocation of the target's resources, thereby affecting acquisition efficiency.

In Table 2, we map the initial level of corporate governance around the beginning of our sample period in order to proxy for countries that experienced disruptions to their governance equilibria. We assume that the disruption of governance equilibria is strong whenever a country had initially below-average corporate governance scores on La Porta et al.'s (1998) anti-director rights index.[17] Since the ETD raised takeover law to a common level, the efforts necessary to adapt prevailing governance practices to the new common standard should be particularly high in those countries. Countries with disruptive corporate

[17] There have been some criticisms of these corporate governance indices (Djankov et al., 2008; Martynova and Renneboog, 2011a; Spamann, 2010). To test the robustness of our results, we re-map the classifications based on the alternative indices provided by Djankov et al. (2008), Martynova and Renneboog (2011a), and Spamann (2010). There are minor differences in the classifications, but the results of our analyses in Section 4 are qualitatively the same. Therefore, we report only the findings based on La Porta et al.'s (1998) indices as they are the closest to the beginning of our sample period and thus proxy for the initial level of legal shareholder rights.

governance changes include Austria, Denmark, Germany, Greece, Italy, Luxembourg, Netherlands, and Portugal. Countries with relatively little disruptions are Belgium, Finland, France, Ireland, Spain, Sweden, and the UK.

[PLEASE INSERT TABLE 2 HERE]

We note that it is possible for a country to belong to the control group in Table 1 but still experience disruptive corporate governance changes in Table 2. For example, Austria did not change any of the four ETD core provisions, but is still classified as a country with disruptive corporate governance changes. This is because, while there may not have been significant changes within Austria, there have been significant changes for Austrian firms in the European market for corporate control. For example, Austria is characterized as a stakeholder-oriented country. However, the ETD created a level playing field for takeover bids in Europe, making Austrian firms subject to the disciplining power of more shareholder-oriented firms through the European market for corporate control.[18] As a result, Austrian firms were forced to reconcile their existing governance practices with the new European standard.

In Table 3, we present summary statistics for our sample. Panel A shows that acquisition announcements are not evenly distributed over the sample years. Beginning in 2001, annual takeover announcements increase during the recovery period from the dotcom-crisis until they peak in 2005. In 2006, the year of implementation of the ETD, takeover activity reduces almost by half, and continues to drop off in the subsequent years. We take this pattern into account by including year-fixed effects in our difference-in-differences model.

[18] See the external study of the ETD on behalf of the European Commission (Marccus Partners, 2012) for a detailed overview of these corporate governance changes.

Panel B describes deal characteristics, target type, and method of payment. Our sample acquisitions are diversifying in 1 out of 3, cross-border in 1 out of 4, and hostile in 1 out of 20 cases. The target is publicly traded on a stock exchange in about 17%, private in about 50%, and a subsidiary firm in about 33% of all transactions. Moreover, acquirers choose cash-only payment in 37% of all acquisitions, whilst the others are fully or partially stock-financed.

[PLEASE INSERT TABLE 3 HERE]

In Panel C, we summarize deal size, acquirer, and overall transaction characteristics. We note that there do not appear to be notable differences between European and U.S. transactions with respect to deal characteristics (Fuller et al., 2002; Masulis et al., 2007; Moeller et al., 2004; Moeller, 2005). However, compared to U.S. bidders, European bidders are larger, more leveraged, exhibit lower Tobin's Q, and acquire relatively smaller targets. The relative deal size, the ratio of deal size to acquirer's total assets, is about 50% larger in the U.S. compared to European acquisitions. This is not surprising given the concentrated ownership structures in Continental Europe (Faccio and Lang, 2002; Franks et al., 2016).[19]

4. Empirical Results

In this section, we present our empirical results. Section 4.1 starts with a discussion of acquirer returns, its determinants, and the limitations of our empirical approach. Sections 4.2 and 4.3 discuss the main results from our analyses of legal shareholder rights and disruptions of governance equilibria, respectively. Section 4.4 presents robustness tests.

[19] See Martynova and Renneboog (2011b) for a detailed discussion of M&As in Europe during the fifth takeover wave (1993-2001) and Drobetz and Momtaz (2015) for the period thereafter.

4.1. Variable Construction

4.1.1. Acquirer Returns

As shown in Table 4, the average cumulative abnormal return (CAR) during the event window [-5; +5] in trading days for the full sample is 1.23%, statistically significant at the 1% level.[20] This finding corroborates prior evidence that, on average, European acquirers make wealth-increasing acquisitions (Martynova and Renneboog, 2011b). Transactions before the ETD's implementation deadline (21 May 2006) exhibit an average CAR of 1.76%, whereas the average CAR for post-ETD transactions is -0.24%. The -2.00% difference is statistically significant at the 1% level. This comparison of CARs before and after the implementation of the ETD could suggest that overall the ETD has had a value-decreasing effect, consistent with the claim put forward by Humphery-Jenner (2012).

The overall decrease in CARs could simply be attributable to the recent financial crisis, which falls into our post-ETD period. We control for this potential confounding effect by including year-fixed effects in our difference-in-differences regressions. However, if the effect of the implementation of the ETD has been truly causal and wealth decreasing, we would expect a stronger decrease in average CAR in our treatment group compared to the control group. The patterns of annual average CARs shown in Figure 1 contradict the argument that the ETD caused a decrease in average CARs.[21] The development of the annual CARs of both the treatment group and the control group is almost identical until the end of the year 2005. After that point, the CARs of the countries in our treatment group diverge,

[20] We estimate announcement-related cumulative abnormal returns (CAR), employing an OLS market model, in accordance with the standard event study methodology (Brown and Warner, 1985; MacKinlay, 1997). We use the estimation window [-240; -6] and the event window [-5; +5] in trading days, where 0 is the announcement date. The OLS Market Model computes the CAR for one firm as the actual return in the event window minus the expected return had the focal transaction not occurred, while taking market-wide effects into account. We use the S&P Europe 500 market index as the benchmark index. However, our results do not materially change when we use local indices. For robustness tests, we also employ a market-adjusted return model that corrects daily returns in the event window by daily returns of the market index. This ensures that thin trading in some European countries does not bias our estimates (Humphery-Jenner, 2012). Our results remain robust.

[21] The year 2001 is omitted in Figure 1 because the sample size is not representative.

upwards, from the control group. An explanation for why this pattern is observable even before the ETD implementation deadline (May 2006) could be that some countries anticipated changes and implemented some statutes ahead of the deadline (Fernandez et al., 2008). Overall, Figure 1 shows that acquirer returns were positively affected by the ETD, in particular, countries that were forced to improve legal shareholder rights exhibit higher acquirer returns since the implementation phase.

[PLEASE INSERT FIGURE 1 HERE]

In Table 4, we present a detailed breakdown of the average CAR. Panel A provides descriptive statistics of the average CARs by countries. Most importantly, the post-ETD decrease of 2.41% in the UK is higher than that for the full sample. Given that the ETD was modeled on the UK City Code, this observation further corroborates the conjecture that improvements in legal shareholder rights may have had a positive effect on acquirer returns in affected countries, whereas the decrease in acquirer returns in the full sample by 2.00% may be attributable to some confounding factors.

Panel B of Table 4 divides the EU15 sample into control and treatment groups. Again, the pre-/post-ETD difference in the last column supports the hypothesis that the ETD had a positive effect on acquirer returns in affected countries. Countries that had to improve their legal shareholder rights experienced an insignificant positive effect (0.24%), while countries without any change suffered a significant decrease in acquirer returns (-2.43%).

[PLEASE INSERT TABLE 4 HERE]

In summary, our results so far are consistent with other studies showing that acquirer returns decreased, overall, after implementation of the ETD. However, our analysis reveals an important aspect that has not been noted in the existing literature: Firms in affected countries

(treatment group) experience an increase in acquirer returns, while firms in the control group experience a significant decrease. This finding casts doubt on the argument that the decrease in the average CAR is causally attributable to the ETD's implementation. It rather seems that, in affected countries, ETD-induced improvements in legal shareholder rights increased shareholder wealth in acquisitions. This evidence is consistent with our hypothesis. Next, we control for all relevant acquisition characteristics that potentially affect acquirer returns.

4.1.2. Determinants of Acquirer Returns

Variables that potentially affect acquirer announcement returns are other institutional factors, acquirer characteristics, and deal characteristics. All variable definitions are provided in the appendix.

Other institutional variables. The institutional variables that we control for are ownership structure, industry competitiveness, and the acquirer's legal origin. Jensen and Meckling (1976) show that diffuse shareholdings imply collective action problems, resulting in costs of managerial opportunism. In contrast, managerial agency costs decrease in ownership concentration because large investors closely monitor managers (Bolton and von Thadden, 1998) and replace poorly performing agents (Franks et al., 2001). However, prior work posits that large investors strive to maintain high voting control by paying high voting control premia (Faccio and Masulis, 2005). Nenova (2003) finds that voting control premia are highest in concentrated ownership structures, suggesting a detrimental effect on acquirer returns. More recent work by Masulis et al. (2007) fails to find any significant relation between ownership structure and acquirer returns. Therefore, the effect on acquirer returns is a priori equivocal. We control for ownership structure both at the firm level (blockholding, i.e., insider ownership concentration in the acquiring firm) and at the country level (Faccio and Lang, 2002).

Shleifer and Vishny (1997) argue that industry competitiveness may prevent managers from allocating resources inefficiently, making industry competitiveness an important external governance mechanism. Also, Giroud and Mueller (2011) make a strong case for the relevance of industry competeveness in corporate governance. They find that, compared to strongly governed firms, weakly governed firms in non-competitive industries have lower labor productivity, higher input costs, and make worse acquisitions. This relation does not prevail in competitive industries, however, suggesting that product market competition serves as an external governance mechanism.[22] We employ the Herfindahl-Hirschman-Index (HHI), defined as the sum of the squared market shares in each industry, as a proxy for product market competition. Industries with low HHI values are relatively competitive, and firms from those industries should make better acquisitions.

Finally, we include the legal origin of the acquirer (Anglo-Saxon, French, German, or Scandinavian legal family) as a control variable. La Porta et al. (1998) show that the legal origin is correlated with investor protection. Related work finds that the legal system plays a role in acquisition decisions (see, among others, Faccio and Masulis, 2005; Martynova and Renneboog, 2011b).

Acquirer characteristics. The acquirer characteristics that we control for are Tobin's Q, firm size, leverage, cross-listing, momentum, and the legal family. Early studies argue that Q is a measure of how well a firm is run (Lang et al., 1989; Servaes, 1991), though more recent work finds a negative relationship (Bhagat et al., 2005; Dong et al., 2006; Moeller et al., 2004) or no significant relationship (Harford et al., 2012; Masulis et al., 2007) between Q and acquirer returns. In addition, Dong et al. (2006) point out that Q can be noisy due to agency problems, market misvaluations, and investment opportunities. Therefore, we follow the approach of Chung and Pruitt (1994) to estimate Q but acknowledge its ambiguous nature.

[22] Note that this interpretation is not uncontroversial (see, for instance, Lewellen and Metrick, 2010).

Prior work has established that large firms are more prone to make value-destroying acquisitions. One explanation is that managerial hubris is the main cause for value-destroying acquisitions as large firms overpay and pick targets selectively (Harford et al., 2012; Moeller et al., 2004; Roll, 1986). Another explanation is that firm size is effectively a takeover defense because it requires more resources to acquire large firms, resulting in managerial entrenchment (Masulis et al., 2007).

Our two governance-related acquirer characteristics are financial leverage and cross-listings. Jensen (1986) shows that agency costs are decreasing in financial leverage because higher leverage decreases free cash flows and thus managerial discretion. Similarly, Garvey and Hanka (1999) find that firms protected by antitakeover laws take on less debt than unprotected firms. They attribute their finding to the disciplining power of the market for corporate control. However, European shareholders arguably rely less on the market of corporate control because institutional investors monitor managers more effectively. In fact, Martynova and Renneboog (2008) do not report any significant relationship between leverage and European acquirer returns. Furthermore, we add cross-listings as a control variable because public firms that are traded on several stock exchanges are subject to more regulations, reducing managerial discretion (Coffee, 2002). However, cross-listings come along with increased compliance costs. The net effect of cross-listings on acquirer returns is thus unclear. Finally, we control for stock returns prior to the acquisition announcement to capture information leakages.

Deal characteristics. Relevant deal characteristics are deal size, industrial and geographic diversification, hostile deal attitude, the target type, and the method of payment. The evidence for the effect of deal size on acquirer returns is ambiguous (Alexandridis et al., 2013). While larger deals provide better opportunities to extract private benefits of control (Harford and Li, 2007; Morck et al., 1990), they are often uncontested (Gorton et al., 2009),

CEO equity ownership is relatively small (Demsetz and Lehn, 1985), and thus lower acquisition premia are more likely to be accepted in larger transactions. However, more recent studies are consonant with a positive relationship between deal size and acquirer returns (Harford et al., 2012; Masulis et al., 2007).

Prior research suggests that industrial diversification helps entrench managers and leads to lower acquirer returns (Morck et al., 1990; Shleifer and Vishny, 1989). Potential explanations for this are value-decreasing job protection strategies pursued by divisional managers (Scharfstein and Stein, 2000) and inefficient bargaining issues within the company (Rajan et al., 2000). More recent studies find that diversification may also be value-increasing (Campa and Kedia, 2002). However, Masulis et al. (2007) document that firms with relatively more antitakeover provisions are more likely to make diversifying acquisitions. Overall, the influence of diversification on acquirer returns is ambiguous.

Geographic diversification is traditionally associated with positive returns to shareholders of the acquiring firm because of arbitrage opportunities (Hymer, 1976). More recent work finds that acquirer returns in cross-border acquisitions may be higher in takeovers of weakly governed firms because the target's assets are allocated more efficiently by strongly governed acquirers (Bris and Cabolis, 2008). Martynova and Renneboog (2011b) find higher acquirer returns when strong governance firms acquirer weak governance firms for the period 1993-2001, suggesting that strong corporate governance spills over to the target, thereby creating additional takeover gains. However, Drobetz and Momtaz (2015) show that these spillover effects vanished after 2001, and thus the impact of geographic diversification is unclear.

Hostile takeovers are generally associated with higher acquirer returns. Hostile deals offer the means by which poorly performing managers are disciplined in the market for

corporate control, and they allow the acquiring management to renegotiate the target's contracts (Franks and Mayer, 1996; Shleifer and Summers, 1989).

We also control for the target type. Acquisitions of public firms entail lower acquirer returns compared to private firms (Fuller et al., 2002), while subsidiaries generate the most value (Moeller et al., 2004). These patterns are attributable to a liquidity discount for private and subsidiary targets, and an information advantage in the case of subsidiary targets.

Finally, we control for the method of payment. Stock-financed deals signal risk sharing or the acquirer's belief of overvalued equity, both having a detrimental effect on acquirer returns (Travlos, 1987). However, the negative impact of equity payment is mitigated when the target is a private firm since paying with stocks creates a new blockholder who monitors the acquiring management (Chang, 1998; Fuller et al., 2002; Harford et al., 2012). We follow Masulis et al. (2007) and decompose our sample both by method of payment (all-cash and stock) and target type (public, private, and subsidiary) into six groups.

4.1.3. Limitations

Before we proceed with our main results, it may be worthwhile to critically examine our empirical approach. A motivation for examining shareholder rights at the country level is to infer causation. At the firm level, the empirical researcher can only study the effect of a change in shareholder rights on acquisition efficiency that arises from a change in control. In contrast, at the country level, it is possible to study the effect of a change in shareholder rights *per se*. That is, changes in country-level corporate governance can be plausibly treated as exogenous events, whereas firm-level research, although possibly concerned with legal shareholder rights, can at best mitigate endogenous confounding factors.

For example, note that several recent studies use the fact that in full acquisitions the target becomes a national of the acquirer's country, making the target subject to the acquirer's

legal system (Bris and Cabolis, 2008; Martynova and Renneboog, 2008). The target's legal shareholder rights change due to a change in control. The change in control, however, causes several other changes at the firm level such as a change of antitakeover provisions, board size, managerial equity ownership, or turnover of management—in short, the change in country-level corporate governance is accompanied by many changes in firm-level corporate governance. To isolate the effect of a change in country-level corporate governance, one has to control for all firm-level corporate governance changes (Wang and Xie, 2009). In contrast, country-level corporate governance studies that are not linked to changes in firm-level corporate governance, such as ours on the ETD, represent a direct means of studying the value of legal shareholder rights.

Nevertheless, firms have various options when it comes to interpreting local law and implementing firm-level corporate governance mechanisms on top of country-level mechanisms (Easterbrook and Fischel, 1996). Therefore, one weakness of our approach is that we do not have access to data on firm-specific governance practices. The implications are twofold: First, should our empirical results indicate that legal shareholder rights do not causally determine acquisition efficiency, we would need to argue with due caution. An insignificant relationship could be attributed to either the fact that there is no causal relationship at all, or to the fact that the Coasian view might hold true and private contracting makes country-level corporate governance unnecessary. Second, should legal shareholder rights have a significant positive effect on acquirer returns, we acknowledge that the strength of the actual relationship may have been weakened by variations in firm-specific corporate governance practices—such that the estimated relation should be on the conservative side. For example, an acquirer from a country with initially weak legal shareholder rights could improve beyond the legal minimum through corporate governance changes at the firm level.

However, any such changes would move the treatment group closer to the control group, affecting the magnitude but not the sign of our causal effect estimator.[23]

4.2. Regression Analysis of Legal Shareholder Rights

The univariate results so far indicate that acquirer returns for the treatment and control groups diverged after the implementation of the ETD (see Figure 1), strongly suggesting that the ETD might have had a value-increasing impact in affected countries. Next, we substantiate the claim that the improvement in legal shareholder rights caused the increase in acquirer returns (Hypothesis 1). We use a difference-in-differences approach (Imbens and Wooldridge, 2009; Roberts and Whited, 2013), where the "Double Difference Estimator" (*DDE*) is defined as the interaction between having improved legal shareholder rights (*d*(improvement of share-holder rights)) and making acquisitions after the improvement (*d*(ETD)). These two dummy variables control for permanent (time-invariant) differences between the treatment and control groups and for trends common to both treatment and control groups, respectively. Therefore, capturing the variation that remains after differencing out, a significantly positive *DDE* would support the inference that the improvement of legal shareholder rights in the course of the ETD caused the increase in acquirer returns.

Table 6 shows our regression results.[24] Model 1 explains variations in CARs only by the difference-in-differences variables to ensure that any identified relationship is not the result of the presence of our control variables.[25] In our effort to control for all known effects

[23] Finding a significant effect suggests that the true link between legal shareholder rights and acquirer returns is stronger than estimated. Note that while firms operating within a strong legal shareholder rights regime cannot contract below that level, firms within a weak legal shareholder rights regime may improve their shareholder rights beyond the legal minimum. This suggests, if anything, that the treatment group draws near the control group, and not vice versa. Therefore, if one controlled for firm-specific governance practices, it would likely result in an even stronger effect of legal shareholder rights on acquirer returns.

[24] We provide a correlation analysis in Table 5, indicating that multicollinearity is in general not problematic.

[25] In addition to OLS market model CARs, we also use market-adjusted CARs to ensure that the results are not biased by thin trading in some European countries (Humphery-Jenner, 2012). In results not reported, we find that the *DDE* is consistent in all models and statistically significant.

on acquirer returns, we acknowledge that some deal and acquirer traits are likely to be endogenous. To assure that the *DDE* is not biased by these potentially endogenously determined control variables in our models, in model 2 we substitute for firm-specific Q and leverage by their industry-medians. Blockholding, cross-listing, diversification, hostile deal attitude, method of payment, and target type are also excluded from the initial model but not replaced since we are unable to identify substitutes.[26] Model 3 contains all control variables. In addition, models 1 and 2 include year-fixed effects (controlling for industry-level M&A waves). Model 3 includes both year-fixed effects and country-level controls. Standard errors are clustered by year and acquirer's country and adjusted for heteroscedasticity.

The *DDE* is significantly positive throughout all model specifications. In model 3, the *DDE* is 0.0225, suggesting that firms in countries that improved their legal shareholder rights by adopting at least one new protective statute generate, on average, 2.25% higher acquirer returns compared to firms in unaffected countries. Note that this is a non-trivial figure given that the average CAR for the entire sample period is 1.23%. In fact, the positive effect of the improvement of legal shareholder rights is economically significant as it translates into a reduction of frictions to the amount of $8.46 million per deal (based on the median acquirer by market capitalization). Comparing the *DDE* (2.25%) with the estimate for the ETD dummy variable (-2.15%), we find that the improvement of legal shareholder rights even outweighs the observed decrease (common trend) in CAR after the ETD's introduction (see Humphery-Jenner, 2012). Taken together, our results suggest that there is a positive, causal link running from legal shareholder rights to acquirer returns. They support our first hypothesis that improving legal shareholder rights reduces the frictions of self-dealing by corporate insiders.

[PLEASE INSERT TABLE 5 HERE]

[26] We note that other variables could also be endogenously determined, e.g., cross-border acquisitions. However, we limit the exclusions to variables with solid evidence in the literature.

[PLEASE INSERT TABLE 6 HERE]

To assess total efficiency gains, in a robustness check, we rerun the regressions for our subsample of public target firms and replace acquirer CAR as the dependent variable with both the target CAR and a value-weighted portfolio CAR, respectively. The sample size reduces sharply to 513 transactions, with the treatment group consisting of only 69 deal observations. In untabulated results, we find for target returns that the *DDE* is of similar magnitude with 2.26%, albeit it is no longer statistically significant given the very small treatment group. For the value-weighted portfolio of acquirer and target returns, the coefficient decreases to 1.10%, again statistically insignificant due to very small sample size.

Another reassuring observation is that the *DDE* in Table 6 is very similar in all three models. As explained in Roberts and Whited (2013, p. 526), assuming random or exogenous assignment to treatment and control groups, the OLS estimate of the treatment effect is more efficient with additional exogenous controls because these controls reduce error variance. Or put differently, the negligible effect the inclusion of additional covariates has on the estimated treatment effect in our model is one check for randomization (see also Section 4.4).

For the institutional variables, the estimates are also stable across all specifications. Our results cannot confirm the effects of product market competition on acquirer returns, and the coefficients of both firm- and country-level ownership structure are also insignificant. As a robustness check, we follow the procedure by Masulis et al. (2007) and exclude all firms in the lower tercile of product market competition. We find that the *DDE* remains stable after excluding noncompetitive firms from our sample (results not reported), confirming Masulis et al. (2007) in that the effect of corporate governance on acquirer returns does not seem to be abrogated by product market competition. However, we document significant estimates for the legal families. In particular, we infer that the Scandinavian legal system is associated with the highest acquirer returns since it is our base group and all other coefficients exhibit

negative signs. This finding is in line with prior studies that show that Scandinavian bidders even outperform UK bidders (Humphery-Jenner, 2012).

For our other control variables, we report consistent estimates across the three model specifications. Most of the estimates for acquirer and deal characteristics correspond to the findings in Harford et al. (2012), Humphrey-Jenner (2012), Martynova and Renneboog (2011), Masulis et al. (2007), and Moeller et al. (2005). That is, (i) Tobin's Q has a small but significantly negative effect, (ii) the size of the acquiring firm is significantly negatively related to acquirer returns, (iii) leverage has a significantly positive effect, (iv) cross-listing does not significantly affect acquirer returns, (v) momentum has a significantly positive effect on acquirer returns, (vi) deal size is also significantly positive related, (vii) industry and geographic diversification are not significantly related to acquirer returns, and (viii) there is a significantly negative relationship between hostile deal attitude and acquirer returns.

We further decompose our sample by target type (public, private, and subsidiary) and method of payment (all-cash and stock). Since all estimates show negative signs, we infer that the omitted base group, i.e., all-cash paid subsidiaries, is associated with the highest acquirer announcement returns. Ordering the coefficients in ascending order, we find that acquisitions of public targets paid at least partially with stock destroy the most value, followed by all-cash acquisitions of public targets, all-cash acquisitions of private targets, stock-financed takeovers of private targets, and stock-financed acquisitions of subsidiaries. Our results confirm Faccio et al. (2006) in that acquirers of public targets earn less than acquirers of private firms.

To check the internal validity of the difference-in-differences methodology, the validity of the parallel trend assumption, we implement several robustness tests. Our *DDE* rests on the assumption that the treatment group and the control group follow common trends with respect to all sample characteristics except the treatment. Therefore, any difference in time trends in the pre-ETD period would clearly cast the claimed causation into doubt. While

the parallel trend assumption itself is untestable, we repeat our difference-in-differences regressions from Table 6 on the pre-ETD years and use a "placebo" treatment (pseudo-ETD) by changing the breakpoint from 20 April 2004 to 1 January 2003, i.e., we falsely assume that the onset of treatment occurs earlier than it actually does. As expected, these falsification tests produce insignificant estimates for the false DDE that are close to zero, as shown in Table 7, indicating that the observed change in CARs is likely due to the treatment (implementation of the ETD), as opposed to some alternative force.

[PLEASE INSERT TABLE 7 HERE]

In another robustness check, we exclude UK firms (the by far largest group of sample firms) and high tech firms from the sample. Given the differences between UK takeovers and Continental European takeovers (Arcot et al., 2010) and between acquisitions involving high tech firms and all other firms' acquisitions (Masulis et al., 2007), concerns may arise whether these groups of firms follow the same trend except for the imposition of the ETD. The results (not reported) show a stable DDE, indicating that transactions involving UK firms and high tech firms do not cause differences in acquirer returns.

We further test the robustness of our results by controlling for antitrust law enforcement (ATLE). Dissanaike et al. (2016) show that ATLE may detrimentally affect acquisition efficiency of firms that face merger control, although the increase in the degree of legal certainty due to a regulatory reform in 2004 alleviated this effect. We follow the methodology in Dissanaike et al. (2016) and include another dummy variable, which equals one if the transaction was scrutinized by the competition agency, and we let this variable interact with a binary variable for the improvement of legal certainty. Our results (not documented) are robust. Overall, based on these robustness tests, we conclude that there is no difference in time trends during the pre-ETD period between the treatment and control group.

4.3. Regression Analysis of Disruptions to Governance Equilibria

So far our results suggest that acquisition efficiency is increased by an improvement of legal shareholder rights, although this effect does not translate proportionately into acquirer returns in all affected countries. Since corporate governance reforms impose costs of adaptation, we conjecture that the relative size of disruptions of initial corporate governance equilibria has a negative marginal effect on acquirer returns. We employ a triple difference model to test our second hypothesis. In particular, we use a difference-in-differences-in-differences estimator (*DDDE*) that measures whether the marginal effect of improving legal shareholder rights on acquirer returns is decreasing in the relative disruption of the prevailing governance equilibrium. A significantly negative *DDDE* would support our hypothesis that structural adaptations to new corporate governance equilibria impose real costs, which in turn depress the positive effect of improving legal shareholder rights on acquirer returns.

In a first step, in Table 8, we incrementally illustrate the process of "differencing out." The economic intuition is to derive an estimate of the costs of disruptive corporate governance changes in affected countries after the ETD's implementation that is not biased by time effects and country-level confounders. We divide our full sample into two groups, one with strong disruptions to governance equilibria and the other without ("disruption" and "no disruption"). Within these two groups, we further separate the treatment group (which experienced an improvement of legal shareholder rights) and the control group.

[PLEASE INSERT TABLE 8 HERE]

We begin by comparing the pre/post-ETD difference of acquirer returns in both the treatment and the control group, conditional on either strong or little disruptions to corporate governance practices. For example, we find that an improvement in legal shareholder rights given a strong disruption to corporate governance practices ($\bar{y}_t^{IMPROVEMENT} \mid disruption$) is

associated with a decrease in acquirer returns by 4.87 %. Next, we take the difference of acquirer returns between the treatment and the control groups within the "disruption" and "no disruption" categories. For example, the difference of acquirer returns between the treatment and the control group conditional on a strong disruption in acquirer returns [($\Delta\bar{y}_1^{IMPROVEMENT}$ | *weak*) – ($\Delta\bar{y}_1^{NO\ IMPROVEMENT}$ | *weak*)] is -8.59 %. Finally, we take the difference of the difference-in-differences between the "disruption" and "no disruption" categories. In particular, the *DDDE* [($\Delta\bar{y}_1^{IMPROVEMENT}$ | *disruption* – ($\Delta\bar{y}_1^{NO\ IMPROVEMENT}$ | *disruption*)] – [($\Delta\bar{y}_1^{IMPROVEMENT}$ | *no disruption*) – ($\Delta\bar{y}_1^{NO\ IMPROVEMENT}$ | *no disruption*)] adds up to -4.91%, which is statistically significant with a *p*-value below 1%. Note that this estimate is based on an estimation controlling for all known determinants of acquirer returns, as described in Section 4.1.2 (but suppressed here for better readability). This finding supports our second hypothesis (Hypothesis 2) that the positive marginal effect of improving legal shareholder rights on acquisition efficiency is significantly decreasing in the relative size of the disruption to corporate governance practices. Accordingly, the ETD has imposed considerable economic costs on some affected countries. More specifically, given the acquirers' median sample market capitalization of roughly $376 million, the average acquirer's value destruction associated with the disruption to efficient governance practices of -4.91% amounts to $18.5 million.

In a second step, Table 9 shows the main regression results from our triple difference model. Again, models 1 and 2 include year-fixed effects (controlling for industry-level M&A waves). Model 3 includes both year-fixed effects and country-level controls. Standard errors are adjusted for heteroskedasticity and clustered by years and countries. We find that the association between the ETD per se and acquirer returns is significantly negative. The estimate of the ETD dummy variable in model 3 is significantly negative at the 1% level, implying that acquisition efficiency has decreased after the reform by about 2.32% (see also

Humphery-Jenner, 2012), although our research design does not allow us to draw conclusions about the likely causes of that overall decrease (e.g., lower CARs may be a result of the financial crisis). Nevertheless, the *DDE* again indicates that affected countries, which were forced to improve their shareholder rights, benefited from the reform. In those countries, we observe an increase in acquirer returns of about 4.13% in model 3. This result is in line with prior work that finds a value increasing effect of high legal investor protection (Burkart et al., 2014; Cremers and Ferrell, 2014; Doidge et al., 2007) and a positive effect on managerial discipline (Lel and Miller, 2015).

[PLEASE INSERT TABLE 9 HERE]

Most importantly, we find that the *DDDE* is stable across the three model specifications. By construction, the *DDDE* reported in model 3 of Table 9 corresponds to the estimate already shown in Table 8. The difference of the difference-in-differences of -4.91% supports our second hypothesis that the positive marginal effect of improving legal shareholder rights on acquirer returns is decreasing in the relative disruption to the prevailing corporate governance equilibria.

Consistent with the notion of a costly adjustment process to reach the new corporate governance equilibrium, we further find that the *DDDE* incrementally decreases year by year (not reported).[27] The benefits of improving legal shareholder rights have likely been consumed by the costs of structural adaptations due to the disruption to prevailing governance practices in some affected countries. This result exemplifies how improving one element of a governance system may hurt the efficiency of the entire system in a specific country (Khanna et al., 2006).

[27] We individually estimate the *DDDE* for each year after the implementation of the ETD in 2006. That is, we re-run the regression analyses shown in Table 9 with a subsample of our data, consisting of all pre-ETD transactions and post-ETD transactions for each year, starting with the year 2007. The decrease in the *DDDE* over the years is uninterrupted with the exception of one year, in which we have only few observations.

For our control variables, we find similar estimates in Table 9 as already shown in Table 6. We now find that diffuse ownership structures at the country level are associated with higher acquirer returns when controlling for the disruption to governance equilibria. This result coincides with the argument that blockholders require to be compensated for losing their private benefits of control as an incentive to sell their shares (Bebchuk and Roe, 1999; Enriques and Volpin, 2007) and are willing to overpay in acquisitions to maintain high levels of voting control (Faccio and Masulis, 2005; Nenova, 2003). Finally, with an adjusted R-squared of 0.05 in model 3, the explanatory power across our model specifications is similar to related studies (Masulis et al., 2007).

Overall, our results for the *DDDE* support the hypothesis that the positive marginal effect of improving legal shareholder rights on acquirer returns is decreasing in the relative disruption to prevailing governance equilibria. In addition, the *DDE* remains positive and statistically significant even after controlling for the disruptions to governance equilibria, reinforcing the value-increasing effect of improving legal shareholder rights.

4.4. Additional Robustness Checks

First, we address the issue of event timing. The change in the treatment group behavior should be concentrated around the onset of treatment. However, we recognize that it is difficult to determine a single date that clearly separates the pre-reform and post-reform periods. Specifically, the European Commission ceded more than two years of implementation to its member states. To make sure our results hold irrespective of the status of implementation, we exclude the implementation period and re-run all models shown above. Again, our results (not reported) are robust.

Second, we use a propensity score matching approach to mitigate the model dependence of our causal effect estimators. This approach allows us to explicitly address

issues of causal inference from natural experimental data. One concern – irrespective of the fact that the ETD was an exogenous shock to markets – is that the causal effect estimator is model dependent because the assignment of the ETD to the acquisitions in our sample is not truly random. In an ideal setting, in which the ETD-induced improvements of legal shareholder rights had been randomly assigned to our sample firms, the sample distribution of the treatment firms would have perfectly resembled the sample distribution of the control firms with respect to all firm and deal characteristics of the transactions except the treatment. However, the ETD was not randomly assigned. In particular, there may be unobserved country-level effects that potentially induce a bias to the sample distributions of firm and deal characteristics, thereby biasing our inferences.

More formally (in the case of a single difference model), let i index the acquisitions in our sample. $ETD_i=1$ and $ETD_i=0$ indicate treatment and control assignment, respectively. The outcome of acquirer returns is denoted as $CAR_i(ETD_i=1)$ and $CAR_i(ETD_i=0)$ for the acquirer return of transaction i under the treatment and control assignment, respectively. Moreover, let X_i be a vector of all firm and deal characteristics included in Tables 6 and 8. Then, the average expected causal effect of the ETD-induced increase in shareholder rights is computed as $\frac{1}{n}\sum_{i=1}^{n} E\left[\left(CAR_i(ETD_i=1) - CAR_i(ETD_i=0)\right)\middle| X_i\right]$. Because the ETD was not truly randomly assigned to our sample firms, ETD_i and X_i are not independent, which could make our causal effect estimator model dependent.

To limit the problem of model dependency, we follow the propensity score matching approach to break the link between ETD_i and X_i, as suggested by Ho et al. (2007). The procedure for the difference-in-differences models is as follows: First, we estimate the propensity scores for all sample transactions, defined as the probability of $ETD_i=1$ (receiving the treatment), given all control variables X_i. Second, we match treatment with control cases on the basis of the estimated propensity scores. Third, we check the balance of our matching

procedure, i.e., how similar the empirical distributions of all elements in X_i are in the treatment and the control groups. These checks are based on numeric summaries as well as jitter and quantile-quantile-plots. The propensity score matching with the best balance is received when we match one-to-one with the nearest neighbor method and use a Tobit model to estimate propensity scores. Fourth, we re-estimate our parametric models in Section 4.2 with the matched sample. For the triple differences models, the approach follows the same logic, except that we need to match several groups (see Table 8).[28]

In Table 10, we show the regression results for our matched sample. In short, the results of Sections 4.2 and 4.3 remain robust with respect to magnitude and statistical significance of the parameter estimates. We show the difference-in-differences and the difference-in-differences-in-differences models in models 1 and 3, respectively, while excluding possibly endogenously determined controls. Model 1 indicates a significant *DDE*, and model 3 shows both a significant *DDE* and *DDDE*. Models 2 and 4 re-estimate both specifications including all control variables. The *DDE* and the *DDDE* again remain stable in both magnitude and significance. Therefore, the causal effect estimators are not affected by these potentially endogenous variables in our models.

[PLEASE INSERT TABLE 10 HERE]

Overall, we infer that our main findings hold true even after mitigating the problem of model dependence. Our robustness tests corroborate the hypotheses that an improvement of legal shareholder rights causes an increase in acquisition efficiency, but this positive marginal effect is decreasing in the relative size of the disruption to prevailing governance practices.

[28] See Ho et al. (2007) for an overview of this technique.

5. Conclusion

This paper has sought to help resolve the questions (i) whether legal shareholder rights determine acquisition efficiency, and (ii) how disruptions to prevailing governance practices are related to the efficiency of the takeover market. Europe with its institutional differences (Enriques and Volpin, 2007; Faccio and Lang, 2002), variations in takeover market activity (Bris et al., 2007; Rossi and Volpin, 2004), and variable regulatory scopes is an ideal context to examine these issues. In particular, the European Takeover Directive (ETD) suggests itself as a natural experiment, as it harmonized takeover law across Europe. Because (i) legal shareholder rights were changed only in some European countries, and (ii) the disruption to governance practices varies across the affected countries, we can divide our sample (consisting of 3,085 EU15 acquisitions during the 2001-2011 period) into control and treatment groups to examine our research questions using difference-in-differences(-in-differences) approaches.

Although we confirm prior work in that the level of acquirer returns in Europe has decreased overall after the reform (Humphery-Jenner, 2012), we find that the ETD had a significantly positive marginal effect on acquirer returns in affected countries (i.e., the countries that substantially improved their legal shareholder rights). This result supports the hypothesis that legal shareholder rights limit corporate insiders' discretion, leading to an increase in acquisition efficiency. Furthermore, we hypothesize that the gains from improving legal shareholder rights decrease in the size of the disruption to prevailing governance practices. In a nutshell, the costs of structural adaptations due to the reform may at least partly have consumed its gains. Given that the ETD raised takeover law to a common level, we use the heterogeneity in country-level governance prior to the reform as a proxy for the relative disruption to prevailing governance practices. Our findings confirm a significantly negative

relation between the relative disruption to prevailing governance practices and the efficiency gains from improving legal shareholder rights.

The implications of our results are potentially far ranging. Our results complement the literature on the relation between firm-level corporate governance and stock prices by extending it to the country level (Bebchuk et al., 2009, 2013; Bebchuk and Cohen, 2005; Core et al., 2006; Cremers and Nair, 2005; Cremers and Ferrell, 2014; Gompers et al., 2003; Harford et al., 2012; Masulis et al., 2007; Wang and Xie, 2009). More specifically, we complement the work by Masulis et al. (2007) and Harford et al. (2012), who find that weak firm-level corporate governance leads to bad acquisitions. They establish a robust, causal link between antitakeover provisions and acquirer returns. In this study, we establish a robust, causal link that goes from legal shareholder rights to acquisition efficiency. This result is congruent with the more general law and finance view that the quality of the law and law enforcement affect the efficiency of financial markets (La Porta et al., 1998), and thus has important implications for economists and policymakers.

Several issues have been left unresolved. In particular, it is of great economic importance to better understand the relative importance of firm-level versus country-level corporate governance. The extreme *Coasian view* that the law does not matter because firms can more efficiently privately contract their optimal corporate governance arrangements has been refuted in several studies (Bergman and Nicolaievsky, 2007; Bris and Cabolis, 2008; Burkart et al., 2014; Cremers and Ferrell, 2014; Doidge et al., 2007; Rossi and Volpin, 2004). However, we know precious little about to what extent the law can make up for poor governance at the firm level in the market for corporate control or elsewhere.

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Figure 1
The Effect of the ETD on average CARs

This figure depicts the development of cumulated abnormal returns (CARs) for the treatment and control group over the 2002-2011 sample period. We employ an OLS market model to estimate CARs (Brown and Warner, 1985; MacKinlay, 1997), using the estimation window [-240; -6] and the event window [-5; +5] in trading days relating to the announcement date, and the S&P Europe 500 market index as benchmark index. The treatment group consists of Austria, Denmark, Germany, Greece, Italy, Luxembourg, Netherlands, and Portugal. The control group comprises Belgium, Finland, France, Ireland, Spain, Sweden, and the UK.

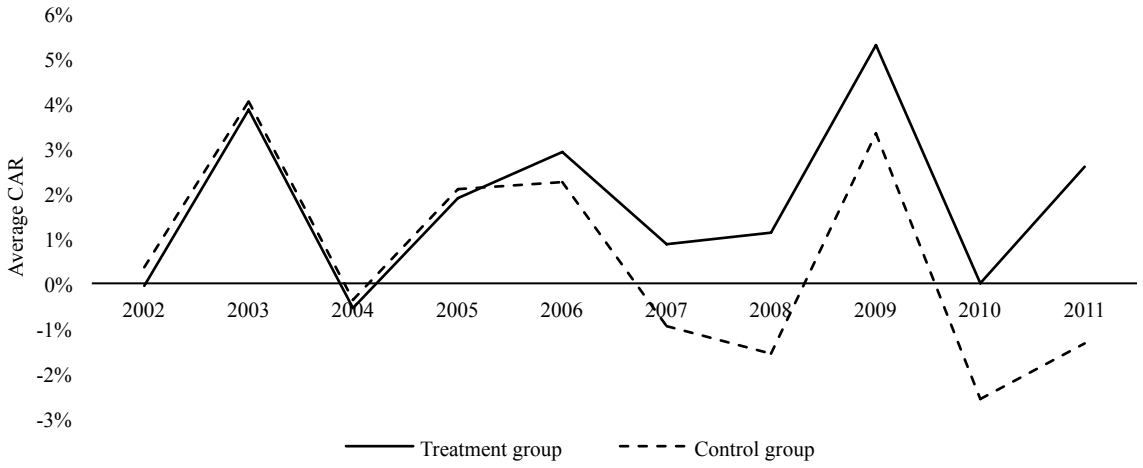

TABLE 1
Control and Treatment Group Classifications

	Mandatory bid rule		Board neutrality rule		Squeeze-out right		Sell-out right	
	Before ETD	After ETD	Before ETD	After ETD	Before ETD	After ETD	Before ETD	After ETD
Control group								
Austria	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Denmark	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Finland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
France	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ireland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Italy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Portugal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sweden	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Treatment group								
Belgium	Yes	Yes	No	No	No	Yes	No	Yes
Germany	Yes	Yes	No	No	No	Yes	No	Yes
Greece	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Luxembourg	No	Yes	No	No	No	Yes	No	Yes
Netherlands	No	Yes	No	No	Yes	Yes	No	Yes
Spain	Yes	Yes	Yes	Yes	No	Yes	No	Yes

Note: The classifications are based on the Report of the European Commission (2012), Marccus Partners (2012), and national legal texts.

TABLE 2
Classification of Countries according to their Initial Level of Corporate Governance

This table shows the classification of countries according to their initial level of corporate governance. We use La Porta et al.'s (1998) Antidirector Rights Index. La Porta et al. (1998) is abbreviated by LLSV. The values range from 1 (weak corporate governance) to 5 (strong corporate governance). We assume that when a country had initially weak country-level corporate governance, its governance equilibrium was relatively strongly disrupted. Note that LLSV do not provide values for Luxembourg, thus we assign the average value for its legal family (French-origin countries). With respect to LLSV's Antidirector Rights Index, a country is defined as having suffered from a relatively strong disruption of its governance equilibrium if its initial Antidirector Rights were below the European average.

	LLSV's (1998) Antidirector Rights Index
Relatively strong disruption of governance equilibria	
Austria	2
Denmark	2
Germany	1
Greece	2
Italy	1
Luxembourg	[2.57]
Netherlands	2
Portugal	2
Relatively little disruption of governance equilibria	
Belgium	4
Finland	3
France	3
Ireland	4
Spain	4
Sweden	3
UK	5
Average	2.71

TABLE 3
Summary Statistics

This table provides summary statistics. The sample comprises in total 3,085 completed transactions announced between 1 January 2001 and 31 December 2011 in the EU15 countries. For example, (Increase | weak initial shareholder rights) means that an increase in shareholder rights in country i occurred in the course of the implementation of the ETD given that country i has had initially weak shareholder rights. Relative deal size is calculated as the ratio of mean deal size over mean acquirer market capitalization. Variable definitions are provided in the Appendix. Figures are in $mil, where applicable.

Panel A: Sample composition by year and acquirer country - relative deal size

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	Total
(No increase | Weak initial shareholder rights)												
Austria	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.1%	0.0%	0.0%	0.1%	0.0%	0.6%
Denmark	0.0%	0.0%	0.3%	0.3%	0.2%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	1.0%
Italy	0.0%	0.6%	1.4%	0.8%	1.2%	0.5%	0.4%	0.1%	0.2%	0.0%	0.1%	5.2%
Portugal	0.0%	0.1%	0.2%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.6%
(No increase | Strong initial shareholder rights)												
Finland	0.0%	0.1%	0.4%	0.8%	0.8%	0.3%	0.1%	0.1%	0.1%	0.0%	0.0%	2.7%
France	0.1%	0.3%	0.9%	1.5%	1.8%	1.1%	0.9%	0.4%	0.1%	0.1%	0.4%	7.5%
Ireland	0.0%	0.2%	0.3%	0.2%	0.4%	0.2%	0.1%	0.2%	0.0%	0.0%	0.1%	1.8%
Sweden	0.0%	0.4%	1.2%	1.1%	1.8%	0.7%	0.2%	0.2%	0.2%	0.3%	0.3%	6.5%
UK	0.4%	5.4%	9.9%	11.8%	11.3%	7.0%	6.0%	3.8%	1.8%	1.8%	0.8%	60.1%
(Increase | Weak initial shareholder rights)												
Germany	0.1%	0.5%	0.6%	0.6%	1.3%	0.4%	0.4%	0.3%	0.2%	0.2%	0.0%	4.5%
Greece	0.0%	0.2%	0.2%	0.0%	0.2%	0.1%	0.1%	0.0%	0.0%	0.1%	0.1%	0.9%
Luxembourg	0.0%	0.0%	0.1%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%
Netherlands	0.0%	0.2%	0.4%	0.7%	0.6%	0.4%	0.3%	0.2%	0.1%	0.1%	0.1%	3.0%
(Increase | Strong initial shareholder rights)												
Belgium	0.1%	0.1%	0.2%	0.5%	0.3%	0.2%	0.1%	0.2%	0.0%	0.0%	0.1%	1.7%
Spain	0.0%	0.2%	0.6%	0.7%	0.7%	0.6%	0.3%	0.3%	0.1%	0.0%	0.1%	3.7%
Total	0.9%	8.3%	16.6%	19.3%	20.8%	11.8%	8.9%	5.8%	2.8%	2.8%	2.0%	100.0%

Panel B: Sample composition by deal characteristics								
	Diversifying	Domestic	Friendly	Target			Method of payment	
				Public	Private	Subsidiary	All-cash	Stock
(No increase | Weak initial shareholder rights)								
Austria	30.0%	30.0%	95.0%	40.0%	25.0%	35.0%	30.0%	70.0%
Denmark	33.3%	63.3%	86.7%	30.0%	26.7%	43.3%	13.3%	86.7%
Italy	26.7%	74.5%	93.8%	23.6%	23.0%	53.4%	22.4%	77.6%
Portugal	27.8%	66.7%	72.2%	16.7%	38.9%	44.4%	16.7%	83.3%
(No increase | Strong initial shareholder rights)								
Finland	30.5%	58.5%	93.9%	12.2%	43.9%	43.9%	26.8%	73.2%
France	30.3%	64.9%	92.6%	36.4%	23.8%	39.8%	21.2%	78.8%
Ireland	44.4%	24.1%	100.0%	1.9%	66.7%	31.5%	48.2%	51.8%
Sweden	35.5%	60.0%	93.0%	19.0%	42.0%	39.0%	20.5%	79.5%
UK	37.6%	87.7%	97.3%	9.6%	62.8%	27.6%	45.5%	54.5%
(Increase | Weak initial shareholder rights)								
Germany	30.9%	59.0%	93.5%	44.6%	17.3%	38.1%	30.2%	69.8%
Greece	31.0%	93.1%	100.0%	58.6%	20.7%	20.7%	20.7%	79.3%
Luxembourg	25.0%	12.5%	62.5%	12.5%	37.5%	50.0%	50.0%	50.0%
Netherlands	28.0%	35.5%	96.8%	24.7%	28.0%	47.3%	34.4%	65.6%
(Increase | Strong initial shareholder rights)								
Belgium	30.2%	37.7%	94.3%	20.8%	45.3%	34.0%	30.2%	69.8%
Spain	25.4%	65.8%	87.7%	27.2%	29.0%	43.9%	8.8%	91.2%
Total	34.9%	76.2%	95.5%	16.7%	50.2%	33.2%	37.0%	63.0%

Panel C: Sample composition by deal size, acquirer characteristics, and general sample information

	Deal size			Acquirer characteristics				Overall transactions and volume of the sample			
	Median deal size	Median total assets (acquirer)	Relative deal size	Median Tobin's q	Median leverage	% of cross-listed firms	Mean momentum	Number of deals	% of deals	Volume of deals (in $mil)	% of total volume
(No increase | Weak initial shareholder rights)											
Austria	92.1	3591	2.56%	0.57	0.31	20%	-0.85%	20	0.6%	9.390	0.81%
Denmark	13.8	530	2.61%	0.82	0.59	10%	0.70%	30	1.0%	19.773	1.70%
Italy	99.0	4158	2.38%	0.71	0.67	34%	0.02%	161	5.2%	208.334	17.88%
Portugal	19.5	2593	0.75%	0.90	0.65	28%	-0.22%	18	0.6%	4.988	0.43%
(No increase | Strong initial shareholder rights)											
Finland	18.3	276	6.62%	1.11	0.505	21%	0.05%	82	2.7%	10.701	0.92%
France	92.5	3758	2.46%	0.84	0.55	29%	0.24%	231	7.5%	231.924	19.90%
Ireland	21.5	952	2.26%	0.99	0.625	80%	-0.43%	54	1.8%	4.758	0.41%
Sweden	19.0	352	5.40%	0.97	0.53	16%	0.73%	200	6.5%	26.480	2.27%
UK	11.2	185	6.03%	1.10	0.47	8%	0.29%	1853	60.1%	238.296	20.45%
(Increase | Weak initial shareholder rights)											
Germany	74.3	4900	1.52%	0.68	0.57	60%	0.18%	139	4.5%	156.097	13.40%
Greece	118.7	1908	6.22%	0.71	0.49	21%	-0.55%	29	0.9%	8.271	0.71%
Luxembourg	34.5	5849	0.59%	0.85	0.425	63%	-0.75%	8	0.3%	859	0.07%
Netherlands	72.0	1530	4.71%	1.01	0.48	45%	-0.17%	93	3.0%	75.563	6.48%
(Increase | Strong initial shareholder rights)											
Belgium	59.0	2961	1.99%	0.97	0.51	38%	0.55%	53	1.7%	50.891	4.37%
Spain	80.3	4237	1.90%	0.99	0.6	57%	0.11%	114	3.7%	119.016	10.21%
Total	18.1	405	4.46%	0.97	0.51	19%	0.24%	3085	100.0%	1.165.205	100.00%

TABLE 4
Average CAR by Countries and Classifications

This table provides a univariate analysis for average CAR by countries in Panel A, and by classifications in Panel B. *** indicates significance at 1% level, ** at 5% level and * at 10% level based on two-sided tests.

Panel A: Countries

	Total		Pre-ETD		Post-ETD		
	Number of deals	Average CAR	Number of deals	Average CAR	Number of deals	Average CAR	*Difference*
Austria	20	-1.85%	12	-1.00%	8	-3.13%	-2.13%
Belgium	53	0.91%	36	-1.50%	17	6.00%***	7.50%***
Denmark	30	5.97%***	26	6.46%**	4	2.75%	-3.71%
Finland	82	2.75%***	71	4.32%**	11	6.09%**	1.77%
France	231	0.42%	162	0.95%	69	-0.84%	-1.79%
Germany	139	0.37%	104	0.53%	35	-0.09%	-0.62%
Greece	29	1.86%	19	1.42%	10	2.70%	1.28%
Ireland	54	-0.07%	40	1.08%	14	-0.34%	-1.42%
Italy	161	0.73%	132	0.82%	29	0.31%	0.51%
Luxembourg	8	-0.63%	7	0.43%	1	-8.00%	-8.43%
Netherlands	93	0.33%	64	0.50%	29	-0.03%	-0.53%
Portugal	18	1.50%	16	1.69%	2	0.00%	-1.69%
Spain	114	2.14%	86	2.36%**	28	1.46%	-0.90%
Sweden	200	1.72%**	160	2.45%*	40	-1.22%	-3.67%
UK	1853	1.24%***	1345	1.90%***	508	-0.51%	-2.41%***
Total	3085	1.23%***	2280	1.76%***	805	-0.24%	-2.00%***
Panel B: Classifications							
(Treatment group)	518	1.05%***	387	1.48%***	131	1.72%**	0.24%
(Control group)	2567	1.17%***	1892	1.81%***	674	-0.62%	-2.43%***

TABLE 5
Pearson Correlation Matrix

		CAR	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.
1.	ETD	-.07																					(*p*-values are shown in parentheses.)
		(.65)																					
2.	Improvement of shareholder rights	.01	-.01																				
		(.54)	(.65)																				
3.	Disruption of governance equilibrium	-.01	-.02	.44																			
		(.44)	(.18)	(.00)																			
4.	Widely-held ownership	.00	.04	-.55	-.59																		
		(.82)	(.02)	(.00)	(.00)																		
5.	HHI	-.01	.47	-.05	-.05	.06																	
		(.42)	(.00)	(.01)	(.01)	(.00)																	
6.	Tobin's Q	-.01	-.07	-.05	-.06	.09	-.03																
		(.46)	(.00)	(.00)	(.00)	(.00)	(.09)																
7.	log(assets)	-.09	.03	.26	.31	-.36	-.05	-.11															
		(.00)	(.15)	(.00)	(.00)	(.00)	(.01)	(.00)															
8.	Leverage	.02	-.14	.00	.00	-.02	-.08	.01	.03														
		(.22)	(.00)	(.90)	(.98)	(.25)	(.00)	(.59)	(.11)														
9.	Blockholding	.01	-.02	.00	.00	-.04	-.02	.00	-.04	-.02													
		(.56)	(.21)	(.85)	(.97)	(.06)	(.27)	(.93)	(.02)	(.25)													
10.	Cross-listing	-.03	-.03	.30	.24	-.29	.00	-.03	.44	.00	-.01												
		(.07)	(.11)	(.00)	(.00)	(.00)	(.96)	(.05)	(.00)	(.91)	(.48)												
11.	Momentum	.05	.04	-.01	-.02	.01	.10	.00	-.03	-.03	.00	-.01											
		(.00)	(.05)	(.51)	(.36)	(.68)	(.00)	(.88)	(.09)	(.05)	(.82)	(.75)											
12.	English legal family	.00	.04	-.57	-.56	.94	.06	.10	-.39	-.02	-.04	-.29	.00										
		(.84)	(.04)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.21)	(.03)	(.00)	(.79)										
13.	French legal family	-.02	.00	.37	.41	-.65	-.02	-.07	.37	.01	.04	.25	-.01	-.69									
		(.38)	(.96)	(.00)	(.00)	(.00)	(.32)	(.00)	(.00)	(.55)	(.02)	(.00)	(.48)	(.00)									
14.	German legal family	-.02	.01	.44	.53	-.21	-.02	-.03	.19	.02	-.03	.21	-.01	-.30	-.13								
		(.24)	(.78)	(.00)	(.00)	(.00)	(.17)	(.09)	(.00)	(.28)	(.16)	(.00)	(.72)	(.00)	(.00)								
15.	log(deal size)	-.03	.07	.23	.24	-.30	.00	-.07	.65	.04	-.01	.33	-.03	-.33	.31	.15							
		(.13)	(.00)	(.00)	(.00)	(.00)	(.96)	(.00)	(.00)	(.05)	(.59)	(.00)	(.07)	(.00)	(.00)	(.00)							
16.	Diversification	.01	.01	-.06	-.05	.07	-.04	-.01	-.07	-.01	.00	-.03	-.02	.08	-.08	-.02	-.09						
		(.75)	(.72)	(.00)	(.00)	(.00)	(.05)	(.62)	(.00)	(.51)	(.85)	(.16)	(.23)	(.00)	(.00)	(.27)	(.00)						
17.	Cross-border	-.02	-.04	.22	.16	-.31	-.04	.02	.26	.01	-.03	.28	-.02	-.29	.18	.11	.20	-.08					
		(.35)	(.05)	(.00)	(.00)	(.00)	(.03)	(.34)	(.00)	(.63)	(.09)	(.00)	(.23)	(.00)	(.00)	(.00)	(.00)	(.00)					
18.	Hostile	-.02	-.06	.06	.05	-.10	-.05	-.03	.14	.02	.03	.08	-.01	-.11	.09	.02	.14	-.03	.04				
		(.18)	(.00)	(.00)	(.00)	(.00)	(.01)	(.15)	(.00)	(.36)	(.17)	(.00)	(.68)	(.00)	(.00)	(.26)	(.00)	(.06)	(.02)				
19.	Public target	-.06	.24	.16	.18	-.20	.15	-.02	.30	.03	-.01	.15	.00	-.25	.19	.17	.41	-.08	.02	.05			
		(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.21)	(.00)	(.06)	(.61)	(.00)	(.85)	(.00)	(.00)	(.00)	(.00)	(.00)	(.38)	(.00)			
20.	Private target	.02	.02	-.19	-.24	.29	-.01	.02	-.41	-.07	-.02	-.21	.01	.32	-.25	-.15	-.39	.08	-.09	-.10	-.45		
		(.25)	(.27)	(.00)	(.00)	(.00)	(.42)	(.23)	(.00)	(.00)	(.21)	(.00)	(.75)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)	(.00)		
21.	Subsidiary target	.03	-.21	.07	.10	-.14	-.10	-.01	.19	.05	.03	.10	.00	-.15	.12	.02	.09	-.02	.08	.07	-.32	-.71	
		(.12)	(.00)	(.00)	(.00)	(.00)	(.00)	(.76)	(.00)	(.01)	(.08)	(.00)	(.85)	(.00)	(.00)	(.21)	(.00)	(.17)	(.00)	(.00)	(.00)	(.00)	
22.	All-cash deal	-.01	.06	-.11	-.09	.21	.05	.02	.01	-.02	-.01	-.03	.02	.23	-.17	-.03	-.05	.03	.00	-.01	-.04	.00	.02
		(.60)	(.00)	(.00)	(.00)	(.00)	(.00)	(.36)	(.43)	(.38)	(.65)	(.13)	(.35)	(.00)	(.00)	(.07)	(.00)	(.06)	(.95)	(.47)	(.05)	(.8)	(.19)

TABLE 6
Regression Results using a Difference-In-Differences Approach

This table provides the regression results for the difference-in-differences model. The sample consists of 3,085 European mergers and acquisitions announced between 2001 and 2011. The dependent variables in all models are 11-day OLS market model CAR. The independent variables are defined in the appendix. The difference-in-differences estimator (DDE) is defined as d(ETD)*d(Increase). Models 1 and 2 include year-fixed effects (controlling for industry-level M&A waves). Model 3 includes both year-fixed effects and country-level controls. All models cluster standard errors by year and acquirer's country and adjust for heteroskedasticity. Standard errors are reported in parentheses. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable: OLS market model CAR		
Independent variables	(1)	(2)	(3)
Double difference variables			
d(ETD)	-0.0269***	-0.0281***	-0.0215***
	(0.007)	(0.0064)	(0.0044)
d(Improvement of shareholder rights)	-0.0032	0.0054	0.0120***
	(0.0043)	(0.0072)	(0.0021)
DDE	0.0265***	0.0286**	0.0225**
	(0.0084)	(0.0114)	(0.0093)
Other institutional variables			
Widely-held ownership		0.0157	0.0162
		(0.0242)	(0.0131)
HHI		0.0075	0.0027
		(0.0242)	(0.0286)
English legal family		-0.0131*	-0.0452
		(0.0139)	(0.0351)
French legal family		-0.0256	-0.0263**
		(0.0087)	(0.0128)
German legal family		-0.0225**	-0.0437***
		(0.0124)	(0.0011)
Acquirer characteristics			
Tobin's Q			-0.0002***
			(0.0000)
Tobin's Q (industry-median)		0.0098	
		(0.0219)	
Assets (ln)		-0.0063***	-0.0063***
		(0.0014)	(0.0008)
Leverage			0.0000**
			(0.0000)
Leverage (industry-median)		0.0567	
		(0.0495)	
Blockholding			0.0005
			(0.0068)
Cross-listing			-0.0013
			(0.0073)
Momentum		0.0915*	0.0948***
		(0.0491)	(0.0147)
Deal characteristics			
Deal size (ln)		0.0033**	0.0035***
		(0.0013)	(0.0013)
Diversification			0.0002
			(0.0027)
Cross-border		-0.0014	-0.0014
		(0.0052)	(0.0028)
Hostile			-0.0101***
			(0.0033)
Stock deal * public target			-0.0260**
			(0.0115)
Stock deal * private target			-0.0069
			(0.0054)
Stock deal * subsidiary target			-0.0034
			(0.0080)
All-cash deal * public target			-0.0141***
			(0.0043)
All-cash deal * private target			-0.0048
			(0.0032)
Intercept	0.0639	0.0625	0.0881*
	(0.0645)	(0.0641)	(0.0632)
# observations	3,085	3,085	2,937
Adjusted R-squared	0.01	0.04	0.05
F-statistic	5.12	4.22	2.74
p-value	0.000	0.000	0.000

TABLE 7
Falsification Tests

This table provides the regression results for falsification tests. We re-run the three models from Table 6 on the pre-ETD years, while falsely assuming that the ETD came into effect one year before it actually did, i.e., in the year 2003. The DDE should be statistically equal to zero, otherwise the increase in acquirer returns cannot be causally attributed to the ETD-induced improvement in legal shareholder rights. We only display the difference-in-differences variables and omit our control variables because the three models are specified in the same way as in Table 6. The pre-ETD subsample consists of 1,303 European mergers and acquisitions announced between 2001 and the promulgation of the ETD in the year 2004. We lose 61 observations in Model 3 due to missing firm-level ownership data. The dependent variables in all models are 11-day OLS market model CAR. The independent variables are defined in the appendix. The difference-in-differences estimator (DDE) is defined as $d(ETD_{false})$*d(Increase). Models 1 and 2 include year-fixed effects (controlling for industry-level M&A waves). Model 3 includes both year-fixed effects and country-level controls. All models cluster standard errors by year and acquirer's country and adjust for heteroskedasticity. Standard errors are reported in parentheses. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

Dependent variable: OLS market model CAR			
Independent variables	(1)	(2)	(3)
Double difference variables			
$d(ETD_{false})$	0.0144	0.0197**	0.1075***
	(0.0098)	(0.0100)	(0.0242)
d(Improvement of shareholder rights)	-0.0088	-0.0003	0.0111
	(0.0197)	(0.0198)	(0.0317)
DDE_{false}	0.0061	0.0062	0.0116
	(0.0206)	(0,0202)	(0.0300)
Other institutional variables	No	Yes	Yes
Acquirer characteristics	No	Selective	Yes
Deal characteristics	No	Selective	Yes
# observations	1,303	1,303	1,242
Adjusted R-squared	0.00	0.03	0.05
F-statistic	1.23	3.91	2.57
p-value	0.298	0.000	0.000

TABLE 8
Marginal Effects in the Difference-In-Differences-In-Differences Model

This table exemplifies the process of "differencing out" for the difference-in-differences-in-differences model. The sample consists of 3,085 European mergers and acquisitions announced between 2001 and 2011. The dependent variable used is the 11-day OLS market model CAR. This model controls for the same variables reported in Table 9 (model 3), but suppresses them here for better readability.

	Significant disruption of governance equilibrium			No significant disruption of governance equilibrium		
	Treatment group	Control group	Difference	Treatment group	Control group	Difference
	$(\bar{y}_t^{IMPROVEMENT} \mid disruption)$	$(\bar{y}_t^{NO\ IMPROVEMENT} \mid disruption)$		$(\bar{y}_t^{IMPROVEMENT} \mid no\ disruption)$	$(\bar{y}_t^{NO\ IMPROVEMENT} \mid no\ disruption)$	
t = 0 (pre-ETD)	0.1744	0.1108	0.0636	0.1563	0.1340	0.0223
t = 1 (post-ETD)	0.1257	0.1480	-0.0223	0.1360	0.1505	-0.0145
	$(\Delta\bar{y}_1^{IMPROVEMENT} \mid disruption)$	$(\Delta\bar{y}_1^{NO\ IMPROVEMENT} \mid disruption)$		$(\Delta\bar{y}_1^{IMPROVEMENT} \mid no\ disruption)$	$(\Delta\bar{y}_1^{NO\ IMPROVEMENT} \mid no\ disruption)$	
Difference	-0.0487	0.0372		-0.0203	0.0165	
	$[(\Delta\bar{y}_1^{IMPROVEMENT} \mid disruption) - (\Delta\bar{y}_1^{NO\ IMPROVEMENT} \mid disruption)]$			$[(\Delta\bar{y}_1^{IMPROVEMENT} \mid no\ disruption) - (\Delta\bar{y}_1^{NO\ IMPROVEMENT} \mid no\ disruption)]$		
Difference-in-differences	-0.0859			-0.0368		
	$[(\Delta\bar{y}_1^{IMPROVEMENT} \mid disruption - (\Delta\bar{y}_1^{NO\ IMPROVEMENT} \mid disruption)] - [(\Delta\bar{y}_1^{IMPROVEMENT} \mid no\ disruption) - (\Delta\bar{y}_1^{NO\ IMPROVEMENT} \mid no\ disruption)]$					
Difference-in-differences-in-differences	-0.0491					
	[s.e. = 0.0122]					

TABLE 9
Regression Results using a Difference-In-Differences-In-Differences Approach

This table provides the regression results for a difference-in-differences-in-differences model. The sample consists of 3,085 European mergers and acquisitions announced between 2001 and 2011. The dependent variables in all models are 11-day OLS market model CARs. The independent variables are defined in the appendix. The difference-in-differences estimator (DDE) is defined as d(ETD)*d(Increase). The difference-in-differences-in-differences estimator (DDDE) is defined as d(ETD)*d(Improvement of shareholder rights)*d(Strong disruption of governance equilibrium). Models 1 and 2 include year-fixed effects (controlling for industry-level M&A waves). Model 3 includes both year-fixed effects and country-level controls. All models cluster standard errors by year and acquirer's country and adjust for heteroskedasticity. Standard errors are reported in parentheses. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable: OLS market model CAR		
Independent variables	(1)	(2)	(3)
Triple difference variables			
d(ETD)	-0.0278***	-0.029***	-0.0232***
	(0.0066)	(0.0066)	(0.0036)
d(Improvement of shareholder rights)	0.0055	0.0161***	0.0223***
	(0.0053)	(0.0049)	(0.0015)
d(Strong disruption of governance equilibrium)	-0.0031	0.0189***	0.0165*
	(0.0066)	(0.0022)	(0.0086)
DDE	0.0392***	0.0460***	0.0413***
	(0.0135)	(0.0149)	(0.0112)
d(ETD)*d(Strong disruption of governance equilibrium)	0.0083	0.0147	0.0207*
	(0.0053)	(0.0102)	(0.0109)
d(Improvement of shareholder rights)*d(Strong disruption of governance equilibrium)	-0.0148*	-0.0234**	-0.0368***
	(0.0079)	(0.0095)	(0.0078)
DDDE	-0.0272***	-0.0415***	-0.0491***
	(0.0075)	(0.0059)	(0.0122)
Other institutional variables			
Widely-held ownership		0.0418**	0.0475***
		(0.0175)	(0.0125)
HHI		0.0074	0.0023
		(0.0260)	(0.0284)
English legal family		-0.0381***	-0.0278
		(0.0139)	(0.0327)
French legal family		-0.0185***	-0.0119
		(0.0053)	(0.0105)
German legal family		-0.0304***	-0.0169***
		(0.0028)	(0.0059)
Acquirer characteristics			
Tobin's Q			-0.0002***
			(0.0000)
Tobin's Q (industry-median)		0.01	
		(0.0172)	
Assets (ln)		-0.0064***	-0.0064***
		(0.0009)	(0.0007)
Leverage			0.0000**
			(0.0000)
Leverage (industry-median)		0.0538	
		(0.0456)	
Blockholding			0.0000
			(0.0067)
Cross-listing			0.0022
			(0.0074)
Momentum		0.0907***	0.0947***
		(0.0208)	(0.0146)
Deal characteristics			
Deal size (ln)		0.0033**	0.0035***

		(0.0015)	(0.0013)
Diversification			0.0001
			(0.0028)
Cross-border		0.0002	-0.0008
		(0.0007)	(0.0025)
Hostile			-0.0110***
			(0.0032)
Stock deal * public target			-0.0260**
			(0.0117)
Stock deal * private target			-0.0066
			(0.0055)
Stock deal * subsidiary target			-0.0031
			(0.0081)
All-cash deal * public target			-0.0145***
			(0.0042)
All-cash deal * private target			-0.0045
			(0.0033)
Intercept	0.0687	0.0512	0.1340**
	-0.0621	(0.0586)	(0.0636)
# observations	3,085	3,085	2,937
Adjusted R-squared	0.01	0.04	0.05
F-statistic	3.6	3.8	2.7
p-value	0.000	0.000	0.000

TABLE 10
Robustness Checks based on Propensity Score Matching

This table provides the regression results for robustness checks. The estimation method for the propensity scores is based on Ho et al. (2007). Using a Tobit model, the matching is one-to-one and based on the nearest neighbor method. The dependent variable is the 11-day OLS market model CAR. The independent variables are defined in the appendix. The difference-in-differences estimator (DDE) is defined as d(ETD)*d(Increase). The difference-in-differences-in-differences estimator (DDDE) is defined as d(ETD)*d(Improvement of shareholder rights)*d(Strong disruption of governance equilibrium). Models 1 and 3 include year-fixed effects (controlling for industry-level M&A waves). Models 2 and 4 include both year-fixed effects and country-level controls. All models cluster standard errors by year and acquirer's country and adjust for heteroskedasticity. Standard errors are reported in parentheses. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% level, respectively.

	Dependent variable: OLS market model CAR			
Independent variables	(1)	(2)	(3)	(4)
Double and triple difference variables				
d(ETD)	-0.0348**	-0.0352**	-0.0616***	-0.0591***
	(0.0168)	(0.0161)	(0.0080)	(0.0093)
d(Increase)	0.0027	0.0026	-0.0086	-0.0136
	(0.0059)	(0.0043)	(0.0121)	(0.0098)
d(Strong disruption of governance equilibrium)			-0.0061	0.0074**
			(0.0168)	(0.0036)
DDE	0.0286***	0.0325***	0.0734***	0.0720***
	(0.0082)	(0.0071)	(0.0113)	(0.0127)
d(ETD)*d(Strong disruption of governance equilibrium)			0.0394***	0.0404***
			(0.0008)	(0.0030)
d(Increase)*d(Strong disruption of governance equilibrium)			0.0040	0.0133
			(0.0092)	(0.0118)
DDDE			-0.0644***	-0.0617***
			(0.0151)	(0.0169)
Other institutional variables				
Widely-held ownership	0.0367***	0.0466***	0.0355***	0.0361***
	(0.0125)	(0.0176)	(0.0024)	(0.0139)
HHI	0.0654**	0.0705	0.0698	0.0589
	(0.0545)	(0.0535)	(0.0543)	(0.0539)
English legal family	-0.0309**	-0.0425	-0.0708**	-0.0907***
	(0.0124)	(0.0383)	(0.0171)	(0.0247)
French legal family	-0.0121	-0.0187	-0.0243**	-0.0348***
	(0.0079)	(0.0156)	(0.0097)	(0.0111)
German legal family	-0.0269***	-0.0311***	-0.0325***	-0.0430**
	(0.0029)	(0.0112)	(0.0038)	(0.0191)
Acquirer characteristics				
Tobin's Q		0.0011		0.0008
		(0.0010)		(0.0014)
Tobin's Q (industry-median)	0.0761**		-0.0072	
	(0.0350)		(0.0099)	
Assets (ln)	-0.0076***	-0.0057***	-0.0078***	-0.0054***
	(0.0019)	(0.0018)	(0.0012)	(0.0018)
Leverage		0.0001***		0.0001***
		(0.0000)		(0.0000)
Leverage (Industry-median)	0.2038**		0.0615**	
	(0.0926)		(0.0254)	
Blockholding		-0.0093		0.0093
		(0.0132)		(0.0242)
Cross-listing		-0.0076		-0.0021
		(0.0102)		(0.0117)
Momentum	-0.0688	-0.0542	0.0784	0.0861
	(0.2112)	(0.2189)	(0.2530)	(0.2587)
Deal characteristics				
Deal size (ln)	0.0060***	0.0068***	0.0035	0.0039**

	(0.0020)	(0.0024)	(0.0012)	(0.0016)
Diversification		0.0027		0.0022
		(0.0074)		(0.0070)
Cross-border	0.0017	0.0017	-0.0036	-0.0068
	(0.0051)	(0.0042)	(0.0059)	(0.0083)
Hostile		-0.0073		-0.0045
		(0.0055)		(0.0049)
Stock deal * public target		-0.0037		-0.0003
		(0.0139)		(0.0094)
Stock deal * private target		0.0152		0.0026
		(0.0163)		(0.0100)
Stock deal * subsidiary target		0.0162		0.0098
		(0.0154)		(0.0034)
All-cash deal * public target		-0.0144		-0.0182
		(0.0080)		(0.0059)
All-cash deal * private target		0.0078		0.0084
		(0.0177)		(0.0088)
Intercept	-0.1365	0.0251	0.0872	0.0989
	(0.1454)	(0.0761)	(0.0844)	(0.0617)
# observations	1,036	982	1,036	982
Adjusted R-squared	0.05	0.05	0.06	0.07
F-statistic	3.24	3.62	3.39	2.96
p-value	0.000	0.000	0.000	0.000

Appendix

TABLE A1
Variable Definition

Panel A: Acquirer returns	
OLS market model CAR	Eleven-day [-5; +5] cumulative abnormal returns calculated using an OLS market model. The estimation window is [-240; -6], and the S&P Europe 350 serves as the market index. The results do not materially change when we use local indices.
Market-adjusted CAR	Eleven-day [-5; +5] cumulative daily market-adjusted abnormal returns. The S&P Europe 350 serves as the market index. The results do not materially change when we use local indices.
Panel B: Difference-in-difference(s)(-in-differences) approach	
d(ETD)	Dummy variable: 1 for deals taking place after May 21, 2006.
d(Improvement of shareholder rights)	Dummy variable: 1 for deals involving an acquirer from a country that had to significantly improve its shareholder rights. See Section 3 for a list of those countries and the definition of significant changes.
d(Strong disruption of governance equilibrium)	Dummy variable: 1 for deals involving an acquirer from a country whose corporate governance equilibrium was significantly disrupted by the reform. See Section 3 for a list of those countries and the definition of strong disruptions of governance equilibria.
Double difference estimator (DDE)	Defined as d(ETD)*d(Improvement of shareholder rights)
Triple difference estimator (DDDE)	Defined as d(ETD)*d(Improvement of shareholder rights)*d(Strong disruption of governance equilibria)
Panel C: Other governance variables	
Widely-held ownership	The percentage of widely-held firms in a given country, where widely-held is defined by no ultimate owner controlling more than 20% of the corporation (Faccio and Lang, 2002).
Product market competition	The Herfindahl-Hirschman-Index (HHI) is used to control for product market competition and is calculated as the sum of the squares of $s_{i,t,j}$, where $s_{i,t,j}$ is the market share based on sales of firm i in year t in industry j (based on Thomson One Banker's macro industry classification scheme).
Panel D: Acquirer characteristics	
Tobin's Q	Market value of assets over book value of assets.
Assets	Log of book value (in $mil) of total assets.
Leverage	Book value of debts over book value of total assets.
Cross-listing	Dummy variable: 1 for deals with acquirers that are publicly traded on more than one stock exchange, 0 otherwise.
Blockholding	Ownership concentration; shares held by insiders of the acquiring firm as a percentage of total outstanding shares (Worldscope item: closely held shares).
Momentum	Acquirer's buy-and-hold-abnormal-return (BHAR) during the period [-240;-10], adjusted for the S&P Europe 350 market return over the same period.
English legal family	Dummy variable: 1 if acquirer from Ireland or the UK, 0 otherwise.
French legal family	Dummy variable: 1 if acquirer from Belgium, France, Greece, Italy, Luxembourg, Netherlands, Portugal, and Spain, 0 otherwise.
German legal family	Dummy variable: 1 if acquirer from Austria or Germany, 0 otherwise.
Panel E: Deal characteristics	
Deal size	Log of deal value in $mil.
Diversification	Dummy variable: 1 if acquirer targets a firm from another macro industry, as classified by Thomson One Banker, 0 otherwise.
Cross-border	Dummy variable: 1if acquirer targets a firm from another country, 0 otherwise.
Hostile	Dummy variable: 1 if hostile deal attitude, 0 otherwise.
Stock deal	Dummy variable: 1 for deals when consideration contains a stock component or is fully stock-financed, 0 otherwise.
All-Cash Deal	Dummy variable: 1 for deals wholly cash financed, 0 otherwise.
Private Target	Dummy variable: 1 if acquirer not publicly traded on a stock exchange, 0 otherwise.
Public Target	Dummy variable: 1 if acquirer publicly traded on a stock exchange, 0 otherwise.
Subsidiary Target	Dummy variable: 1 for targets with a parent of 50% or more that is not publicly traded on a stock exchange and the parent is not a government.
Panel F: Other variables	
Year-fixed effects	The volume of all acquisitions in a given industry and documented in Thomson Reuter's M&A database divided by the volume of sales of that industry in a given year.

Country-level controls	We employ a vector of country-level controls consisting of corporate governance indices by La Porta et al. (1998) and Martynova and Renneboog (2011b), respectively, the yearly rule of law indicator provided by the World Bank, and cultural difference between the acquirer's and the target's country based on the GLOBE project.

Chapter 4

Does Competition Policy Affect Acquisition Efficiency?
Evidence from the Reform of European Merger Control

Does Competition Policy Affect Acquisition Efficiency?

Evidence from the Reform of European Merger Control

Gishan Dissanaike[a], Wolfgang Drobetz[b], and Paul Peyman Momtaz[c,]*

Abstract

We use the reform of the *European Commission Merger Regulation* as a natural experiment to examine the more general relationship between merger control and the profitability of corporate acquisitions. Our results suggest that acquisition efficiency is significantly lower in controlled deals, although the reform-induced improvement of legal certainty ameliorated this effect. The valuation effect is more pronounced in concentrated industries and in national cultures where firms tend to be more intolerant to uncertainty. These findings are consistent with the hypothesis that uncertainty about merger control decisions impedes M&A activity, which amplifies managerial entrenchment and enables managers to make agency-motivated acquisitions.

Keywords: Mergers and acquisitions (M&A), takeovers, acquirer returns, acquisition efficiency, bidder wealth effects, antitrust law enforcement, competition policy, merger control, law and finance

JEL Classification Codes: G30, G34, G38, K21, L4

[a] University of Cambridge, Judge Business School, Trumpington Street, Cambridge CB2 1AG, UK. E-Mail: grd13@cam.ac.uk.

[b] Faculty of Business Administration, Hamburg University, Von-Melle-Park 5, 20146 Hamburg, Germany. E-Mail: wolfgang.drobetz@uni-hamburg.de.

[c] Faculty of Business Administration, Hamburg University, Von-Melle-Park 5, 20146 Hamburg, Germany. E-Mail: momtaz@cantab.net.

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1. Introduction

This study examines the relation between merger control and the profitability of mergers and acquisitions (M&A) in Europe. The aim of European antitrust law enforcers, paragraphed in the European Commission Merger Regulation (ECMR), is to control mergers that could 'significantly impede effective competition' to protect consumer welfare.[1] Merger control has received criticism for deterring and prohibiting efficient deals, approving anticompetitive ones, being biased, vague, and discretionary; hence, being a source of substantial uncertainty for potential acquirers. Fortunately, the European Commission (EC) has recognized the need to reform the original ECMR of 1990 and promulgated a new ECMR on 29 January 2004.[2] The reformed ECMR came into effect on 1 May 2004. No study has analyzed whether this important reform has created value, nor is it clear whether ECMR-induced uncertainty discourages firms from making value-increasing acquisitions at all. We combine propensity score matching and difference-in-differences approaches to, first, compare acquisition gains of controlled firms to those of uncontrolled but matching firms, and, second, to estimate the marginal effect of the ECMR reform on any such identified difference.

The ECMR attempts to protect and promote effective competition. It defines the scope of this legislative mandate, procedures for merger control, and the powers of the enforcers. However, the ECMR does not define specific criteria as to when a proposed deal is deemed incompatible with the 'common market'. Nevertheless, a large body of case law has evolved from more than 6,000 notified cases since ECMR's enactment in 1990. It seems to be a stylized fact that efficiency considerations are of less importance to European enforcers

[1] European enforcers test whether a proposed deal would 'significantly impede effective competition', whereas U.S. enforcers test whether a proposed deal would 'significantly lesson competition'. See Betton et al. (2008) for a comprehensive survey of research on merger control.

[2] Original ECMR: Council Regulation (EC) No 4064/89 of December 21, 1989 on the control of concentrations between undertakings (OJ 1989, L 395, p. 1). Reformed ECMR: Council Regulation (EC) No 139/2004 of January 20, 2004 on the control of concentrations between undertakings (OJ 2004, L 24, p. 1).

compared to U.S. enforcers (Bagchi, 2005). Nevertheless, the 2004 ECMR reform has marked convergence towards U.S. law in terms of the substantive test underlying antitrust decisions. The newly implemented 'significant impediment of effective competition' (SIEC) test is closer to the U.S. 'significant lessening of competition' (SLC) test than the old dominance test was.[3]

Merger control has received criticism on several grounds. The overarching theme is that the ECMR creates substantial legal and commercial uncertainty for potential acquirers. It may thus reduce the frequency at which efficient deals are proposed and indirectly entrench managers by decreasing M&A activity, which in turn lowers the threat of takeover. The main criticism includes: (1) The ECMR is vague and discretionary (Röller and De la Mano, 2006); (2) merger control is biased and leads to erroneous antitrust decision (Duso et al., 2007). Potential reasons include bureaucratic self-interest (Bittlingmayer and Hazlett, 2000), industry capture (Evans and Salinger, 2003), and political influences (e.g., protectionism (Aktas et al., 2007; Dinc and Erel, 2013); (3) merger policy instruments do not always effectively resolve anticompetitive concerns (Duso et al., 2011), and also do not yield the desired deterrence effects (Clougherty et al., 2015); (4) there are considerable costs (e.g., opportunity costs for delayed merger implementation) and risks (e.g., reputational risks (Neven et al., 1998)) associated with public merger control. As a result, ECMR-related uncertainty and costs may reduce the proclivity of firms to attempt acquisitions with unclear outcome.

We derive four testable hypotheses. First, our main prediction is that the ECMR might depress returns to shareholders of acquiring firms because it amplifies managerial entrenchment and, hence, enables agency-motivated acquisitions that destroy value. Similarly, Harford et al. (2012) and Masulis et al. (2007) find that managers who increase their level of

[3] The old dominance test required a dominant position to declare a proposed acquisition anticompetitive (e.g., a market share of more than 40% has often been used as an indicative threshold). The new SIEC test considers the competitive consequences in a more flexible way that is similar to the approach taken by U.S. enforcers (Röller and de la Mano, 2006).

entrenchment by adopting antitakeover provisions are more prone to make acquisitions that harm their shareholders. As a result, the ECMR might reduce acquisition efficiency in a similar way to the entrenchment-increasing European Takeover Directive, or ETD (Humphery-Jenner, 2012). Nevertheless, our second hypothesis is that the ECMR reform's marginal effect on this association might be positive. Reasons could include that it reduced legal and commercial uncertainty by constraining the discretion of enforcers, making procedural improvements, and, overall, increasing the quality of merger control decisions. Third, the valuation effects of the ECMR in general and the ECMR reform might be more pronounced in concentrated industries because the probability of regulatory intervention is higher in concentrated industries. Finally, our fourth hypothesis is that the effects of the ECMR in general and the ECMR reform might be more pronounced in national cultures where firms are more intolerant to uncertainty. The deterrence of potential acquirers due to legal and commercial uncertainty might be amplified where cultural uncertainty avoidance is strong. In line with this, Dikova et al. (2009) find that managers in culturally uncertainty avoiding countries are less likely to complete proposed deals.

This study combines propensity score matching and difference-in-differences approaches to test these four hypotheses. Methodologically, we use propensity scores to identify a matching 'control group' of unscrutinized M&As for the deals that were examined by antitrust enforcers ('treatment group'). Note that the treatment group is sampled from outright approved transactions only. Restricting the sample to those unproblematic mergers is imperative to avoid that our measure of acquisition efficiency is biased by market power rents or investors' anticipation of regulatory intervention (see, e.g., Aktas, 2004). The final sample consists of 1,336 transactions between 2001 and 2011, with equally large treatment and control groups. The empirical analyses proceed in three steps. First, in our basic difference-in-differences framework, we examine the effects of European merger control and the ECMR

reform on acquisition efficiency. We focus on the profitability for acquirers rather than that for targets because we expect that the ECMR in general and its 2004 reform affect corporate investment behavior. In particular, we expect the frequency and the type of proposed acquisitions to be deviant under the ECMR. The propensity to attempt relatively efficient acquisitions abates since highly profitable mergers are more likely to face regulatory scrutiny (Eckbo, 1983), and entrenched managers are more likely to make agency-motivated and value-decreasing investment decisions (Harford et al., 2012; Humphery-Jenner, 2012); both effects influence the returns to shareholders of acquiring firms. Second, we extend this framework by dividing our sample successively into low/high industry concentration (based on the Herfindahl-Hirschman-Index) and cultural uncertainty intolerance (based on the Uncertainty Avoidance Index (Hofstede, 1984)) subsamples. Given these subsamples, we repeat our main analyses. Third, we test the robustness of our results by conducting a falsification test on the pre-reform years. We use year-fixed effects as well as country-level and corporate governance control variables. Moreover, we control for the concurrent initiation of the European Takeover Directive that was promulgated on 21 April 2004 and had to be implemented by 20 May 2006 to mitigate potential concerns about the parallel trend assumption in the difference-in-differences models.

Our key results are as follows: First, acquisition efficiency, proxied by the market reaction to acquisition announcements, is significantly lower in the treatment group, indicating that merger control detrimentally affects the profitability of corporate acquisitions. Controlled acquisitions create 3.47% less returns to shareholders of acquiring firms before the implementation of the ECMR reform. This is also economically significant given that the mean acquirer return is 1.29% in the full sample. Second, acquirer returns in scrutinized deals have significantly increased after the ECMR reform, indicating that the reform has created value. After controlling for other factors, the marginal effect of the ECMR reform on the

relationship between merger control and acquisition efficiency is as high as 3.07%. Third, merger control and ECMR-reform effects are only significant in concentrated product markets, thus suggesting that ECMR-related uncertainty does not impede M&A activity in fragmented industries to an extent that it would affect acquirer returns. Fourth, cultures where firms are more intolerant to uncertainty are more sensitive to merger control. In fact, the ECMR reform entailed significant effects only in cultures where firms' proclivity to avoid uncertainty is more pronounced. Fifth, the results on merger control and the ECMR reform are robust to controlling for the concurrent European Takeover Directive (ETD). Consistent with prior research on the ETD (Dissanaike et al., 2016; Humphery-Jenner, 2012), we further confirm that overall acquisition efficiency decreased after the implementation of the ETD, but countries that had to improve their legal shareholder rights due to the ETD experienced a significant increase in acquirer returns even after controlling for merger control. Accordingly, both major M&A market reforms in the European context (mostly) improved the functioning of the 'common market' for corporate control.

Our work is related to two studies: Aktas et al. (2004) study whether investors anticipate regulatory interventions in controlled deals, and Duso et al. (2013) examine the ECMR reform with respect to the predictability of antitrust decisions, decision errors, reversion of anticompetitive rents, and deterrence. Both our focus and our methodology are different. We are interested in whether merger control affects the efficiency of the market for corporate control rather than in anticompetitive effects (thus we only work with uncomplicated and outright approved deals), and whether the ECMR reform created value. The results are of great economic import because sizable wealth in the form of assets and control rights is moved around in the European M&A market and, consequently, it is essential to analyze potential obstacles to the efficiency of this reallocation process. In addition, our results add to the recent literature on the regulatory embeddedness of the European market for

corporate control (Dissanaike et al., 2016; Humphery-Jenner, 2012; Moschieri and Campa, 2014), and to the more general debate about how the enforcement of law affects financial market outcomes (Bhattacharya and Daouk, 2009; Dubois et al., 2014; Humphery-Jenner, 2013). To the best of our knowledge, this is the first article to examine the impact of merger control and the ECMR reform on acquisition efficiency.

The remainder of this paper is organized as follows. Section 2 describes the institutional background on European merger control. Section 3 frames the testable hypotheses. Section 4 describes the data. Section 5 presents our empirical results and robustness tests. Section 6 concludes.

2. European Commission Merger Regulation: Institutional Background

The European Commission Merger Regulation (ECMR) specifies the mandate of the European Commission (EC) laid down in Articles 101, 102 of the Treaty on the Functioning of the European Union and aims "to maintain and develop effective competition within the common market" (Art. 2 (1a) of the ECMR). The ECMR came into effect in 1990 and was reformed in 2004.[4] It states that the European competition agency, the Directorate-General for Competition (DG COMP), has jurisdiction over the control of proposed mergers that are of 'Community dimension':

> (i) *Combined aggregate global turnover of all businesses concerned is more than € 5 billion and the aggregate EU turnover is more than € 250 million* or
>
> (ii) *combined aggregate global turnover of all businesses concerned is more than € 2.5 billion, in each of at least three Member States the combined aggregate turnover of all businesses concerned is more than € 100 million (aggregate turnover of at least two of those*

[4] Old ECMR: Council Regulation (EC) No 4064/89 of December 21, 1989 on the control of concentrations between undertakings (OJ 1989, L 395, p. 1). New ECMR: Council Regulation (EC) No 139/2004 of January 20, 2004 on the control of concentrations between undertakings (OJ 2004, L 24, p. 1).

businesses concerned needs to be more than € 25 million), and aggregate EU turnover is more than € 100 million.[5]

Under the reformed ECMR, Art. 2 (2) states that "A concentration which would significantly impede effective competition ['SIEC'], in particular by the creation or strengthening of a dominant position, in the common market or in a substantial part of it shall be declared incompatible with the common market." This so-called SIEC-test replaced the old dominance test. Under the dominance test, a merger had to be declared anticompetitive if it would "create or strengthen a dominant position as a result of which effective competition would be significantly impeded" (Article 2 (2) of the old ECMR).[6]

The ECMR also defines the procedural steps of merger control. Figure 1 illustrates the process. Acquirers must formally notify DG COMP (Art. 4) if their intended deal is of Community dimension, although acquirers are advised to seek pre-notification contact with DG COMP to clarify critical issues beforehand. During a period of 25 working days, DG COMP undertakes a formal investigation (Phase I investigation), after which it has to decide, given that the proposed case is of European dimension and thus subject to investigation, whether (i) it is compatible with the common market and can be approved without conditions, (ii) it can only be declared acceptable contingent on conditions, or (iii) there are serious concerns, in which case an in-depth Phase II investigation will be launched (Art. 6 (1b), 8). Phase II investigations last usually 90 working days and result in a final merger control decision (Art. 8, 10 (3)). In case of a clearance decision, the merger may finally be implemented. If the merger is implemented before final approval, the EC has the power to order any action that could restore initial competition such as divestiture of assets or

[5] These thresholds do not apply if each of the business concerned achieves more than two-thirds of its aggregate EU turnover within one and the same Member State (see Art. 1 II, III of the New ECMR).

[6] The significance of the reform of the substantive test for European merger control is discussed in Röller and de la Mano (2006).

dissolving control structures after a public bid. The merging parties can object to DG COMP decisions by submitting the case to the Court of First Instance (CFI).

[PLEASE INSERT FIGURE 1 HERE]

Leading up to the 2004 ECMR reform was a situation of considerable legal uncertainty about merger control. Several prominent cases were brought before the CFI that reversed DG COMP decisions accompanied with severe criticism of the quality of European merger control. For example, in 2002, the CFI overturned three DG COMP decisions within only six months. In the *Airtours/First Choice* case[7], the CFI annulled DG COMP's 1999 merger prohibition and attested to DG COMP's "incomplete and incorrect assessment of the data submitted […] during the administrative procedure" and DG COMP's failure to prove allegations.[8] Similarly, in *Schneider/Legrand*, the CFI found "errors, omissions, and inconsistencies […] of undoubted gravity […] in the Commission's analysis of the impact of the merger" in addition to worrying procedural errors.[9] Similar comments also accompanied CFI's reversal of the *Tetra Laval/Sidel* decision.[10]

The 2004 reform addressed those issues and improved the quality of European merger control. Duso et al. (2013) find in their comprehensive empirical assessment of the reform that it indeed improved the predictability of merger control decisions. Explaining DG COMP decisions by observable characteristics (such as deal, market, and institutional measures), they show that the goodness-of-fit of their predictive model significantly increased subsequent to the ECMR reform. We discuss the most relevant changes of the reform in Section 3 below.

[7] Decision No 2000/276/EC of September 22, 1999, in Case No IV/M.1524, Airtours/First Choice (OJ 2000, L 93, p. 1).

[8] Case T-342/99, Airtours v Commission [2002] ECR II-2585.

[9] Case T-77/02, Schneider Electric v Commission [2002] ECR II-4201.

[10] Decision No 2004/124/EC of October 30, 2001, in Case No COMP/M.2416, Tetra Laval/Sidel (OJ 2004, L 43, p. 13); Case T-5/02, Tetra Laval v Commission [2002] ECR II-4381.

3. Hypotheses Development

Our overarching hypothesis is that the ECMR amplifies managerial entrenchment in the large-cap deal segment within the EU. We conjecture that legal uncertainty about the ECMR and ECMR-related takeover costs create managerial entrenchment because they attenuate the disciplining effect of the market for corporate control. This entrenchment effect aggravates agency conflicts in firms subject to the ECMR, which in turn affects corporate investment decisions. As a result, the ECMR causes substantial frictions in the reallocation process of assets and control rights in the M&A market. In keeping with this, Harford et al. (2012) and Masulis et al. (2007) show that entrenched managers destroy value by making bad acquisitions that preserve or further enhance their level of entrenchment. Following their approach, since we expect the ECMR to influence the firms' investment decisions, we focus on the takeover profitability for acquirers rather than that for targets.

The ECMR creates legal uncertainty and also amplifies commercial uncertainty, which reduces the proclivity of firms to attempt an acquisition with unclear outcome. As a consequence, the threat of takeover in the large-cap deal segment shrinks, which in turn increases managerial entrenchment levels. Consistent with our reasoning, Lel and Miller (2015) show for an international sample that the initiation of laws aiming to curb takeover activity caused managerial discipline. We identify at least four sources of ECMR-related legal uncertainty:

(1) The ECMR is vague. While the ECMR extensively describes procedural steps of merger control, it does not elaborate on the substantial criteria that would make a proposed acquisition 'incompatible with the common market'. In fact, until the 2004 reform, there have been no merger guidelines whatsoever issued by DG COMP. Moreover, the responsibilities of European antitrust law enforcers are to some extent unclear. If an acquirer deems that the proposed deal could significantly influence

competition in a specific Member State, it can request that this country has jurisdiction over the merger control (Art. 4 (4)). However, no thresholds of 'significant influence' are defined, and it is in the Member State's discretion to approve or disapprove the request. Until the 2004 reform, there was also no formal legal basis to account for unilateral effects in European merger control. DG COMP took unilateral effects still into account as a mitigating as well as an aggravating factor in merger control, but without a formal mandate (Völcker, 2004).[11]

(2) The ECMR vests considerable discretion in DG COMP. The uncodified consideration of unilateral effects is one example. Even more importantly, in the absence of publicly available criteria that unequivocally define when a proposed deal is deemed 'compatible with the common market', it is fully up to the enforcer's discretion to approve or prohibit a deal – which is problematic in the European context as enforcers play both prosecutor and judge (Monti, 2007).[12] Consequentially, enforcers have considerable bargaining power over firms (Garrod and Lyons, 2011). This fact is problematic when merging parties have to negotiate remedial actions. As the *Schneider/Legrand* case illustrates: Enforcers can use and have used their bargaining power to force illegitimate remedies on merging firms that destroy value.[13] Moreover,

[11] Unilateral effects refer to post-merger situations, in which supply-side product competition between the merging parties is eliminated so that the merged firm can unilaterally exercise market power and harm consumers (Tirole et al., 2003). On the one hand, unilateral effects had been assessed by the EC as an aggravating circumstance in the dominance analysis. For example, in *Siemens/Drägerwerk*, the Commission's decision relied not only on high market shares in the relevant product markets but also on the closeness of substitute products of the merging entities. On the other hand, the Commission has drawn on unilateral effects as a mitigating factor of dominance findings. For example, in *Volvo/Renault*, the merger would have resulted in a 49% market share in France, which is above the prima facie dominance threshold. However, the Commission consulted a pricing study and took into account that Volvo and Renault are very distant competitors in the French market and that DAF and Scania are perceived as better substitutes for Volvo, which mitigated the dominance finding (see Völcker (2004)).

[12] In the U.S., enforcers need to seek a judge's approval prior to preventing a proposed acquisition. This is not the case in the EU. European enforcers can prohibit deals without judicial consent.

[13] In the landmark judgement in *Schneider Electric v. Commission*, the Court of First Instance ordered the European Commission to pay damages to *Schneider Electric* for the losses of selling the acquired entity at a discount as a requirement of the questionable merger review and the administrative procedures following the judgment.

enforcers have been accused of being susceptible to industry capture (Evans and Salinger, 2003) and bureaucratic self-interest (Bittlingmayer and Hazlett, 2000), both being consequences of a too discretionary legal mandate.

(3) European merger control is also susceptible to political influences (Duso et al., 2007). For example, Aktas et al. (2007) and Dinc and Erel (2013) report evidence that merger control in Europe is prone to economic nationalism, a specific form of political rent extraction. They find that merger control decisions are biased in that they discriminate against non-European bidders. The referral provision of merger cases to specific Member States, paragraphed in Art. 4 (4), risks to aggravate such protectionist behavior. In addition, Carlton and Gertner (2003) point out that there is a conflict of interest between merger control and a political interest in intellectual property protection that may prevent efficient M&A in the high-tech sector.

(4) European merger control creates legal uncertainty by issuing questionable merger control decisions. Duso et al. (2007) find in their sample of 168 controlled deals that DG COMP has mistakenly blocked or remedied procompetitive, efficient deals in 28% of the cases; in addition, it has falsely approved 23% of anticompetitive mergers. Similarly, Duso et al. (2011) find that DG COMP's remedial interventions are frequently ineffective as they fail to reverse market power rents. This fact sends two problematic signals to the market. First, it signals efficient managers that a procompetitive acquisition might still be blocked (type I error), which decreases efficient M&A activity and further entrenches poorly performing managers. Second, it signals inefficient managers that empire-building strategies that are anticompetitive and wealth-decreasing still have chances of being approved (type II error), which will encourage further managerial entrenchment by stimulating value destroying acquisitions (Harford et al., 2012).

There are also ECMR-related costs that could affect the profitability of corporate acquisitions. While such costs may directly influence acquirer returns, e.g., the anticipated costs of regulatory interventions (Aktas et al., 2004), they may also have an indirect effect: ECMR-related costs depress M&A activity in the large-cap deal segment, which reduces the threat of a takeover and amplifies managerial entrenchment. These effects, in turn, will enable agency-motivated investments, ultimately reducing acquisition efficiency in Europe. In particular, we identify three sources of ECMR-specific costs: (1) There are substantial transaction costs for acquirers. These costs embrace the effort for complying with the notification requirements (e.g., preparing notification forms and reacting to DG COMP's statement of objections) and the actual review process (e.g., appearing to oral hearings),[14] the costs of litigation or legal fees in case of objections by competitors (Egge et al., 2004) or appealing to the antitrust decision to the Court of First Instance, and the opportunity costs associated with the delay of the merger (Clougherty, 2005). (2) There are also considerable reputational risks for the firm and its incumbent managers associated with merger control (Neven et al., 1998). (3) Finally, merging parties have to disclose private information (Barros, 2003), and part of that information will be accessible by competitors (Paul and Gidley, 2009).

Taken together, we hypothesize that legal uncertainty and ECMR-related costs amplify managerial entrenchment, which should have a detrimental impact on acquisition efficiency in the large-cap deal segment within the EU. Our first hypothesis is:

Hypothesis 1: Merger control depresses returns to shareholders of acquiring firms in controlled deals.

Next, we hypothesize how the 2004 ECMR reform has affected the relation between merger control and acquisition efficiency. Such an effect is pivotal for our study because it

[14] Such compliance costs must not be underestimated. For example, Neven et al. (1998) document that the preparation of the notification form alone takes on average 130 person days.

enables us to draw causal inferences about the claimed relation underlying our first hypothesis. Therefore, we can use difference-in-differences methodology to examine whether the reform-induced exogenous variation in the quality of European antitrust law enforcement caused a change in acquisition efficiency.

The ECMR reform seems to have improved the quality of European antitrust law enforcement. We identify at least three levels of improvement: (1) The new ECMR has constrained the discretion of enforcers. For example, the Court of First Instance has established accelerated proceedings for objections to DG COMP decisions, which strengthen its role as a monitor of DG COMP. Furthermore, it has created transparency, which helps firms to better predict merger control outcomes since the EC published merger guidelines and best practices as well as and codified previous practices (e.g., now the ECMR explicitly considers unilateral effects through the introduction of the 'significant impediment of effective competition' test (Art. 2 (2)) (Duso et al., 2013; Röller and De la Mano, 2006).[15] In line with this, Aktas et al. (2012) find supportive evidence of constrained discretionary power as they show that the protectionist stance in European merger control has diminished. (2) The reform has made several procedural improvements. For example, it reduced the time pressure for both DG COMP and merging parties, and gave acquirers more control over notification timing (Art. 10).[16] This change has improved the quality of economic analysis by DG COMP, given that Duso et al. (2007) show that time issues are a major source for erroneous merger

[15] Although DG COMP considered unilateral effects already under the old ECMR's dominance framework, the codification of such a practice through the SIEC test might affect financial market outcomes. In this vein, former DG COMP Chief Economist Röller and De la Mano (2006, p. 17) note that "clarity in itself has a value and may have an economic effect".

[16] The ECMR reform reduced the time pressure for both acquirers and DG COMP by (i) encouraging pre-notification contacts that can endure several months, in which potential issues can be identified and the amount and level of detail of information to be provided can be agreed to ensure a an efficient post-notification process, (ii) departing from the requirement of a binding letter of intent signed by the merging parties to be entitled to notification (Art. 5 I 2nd paragraph), giving the transaction parties more control over the timing of the antitrust review process, (iii) abandoning the seven-day-rule concerning mandatory notification after signing a binding letter of intent in case that the merging parties first sign such a document (Art. 4 I), and (iv) giving DG COMP more time to thoroughly review each case (Art. 10).

control decisions.[17] It also promoted pre-notification contacts between DG COMP and acquirers, in which critical issues (e.g., market definition and business overlaps) and potential risks can be identified and assessed beforehand (Art. 4). (3) The quality of DG COMP decisions has significantly improved. For example, the reorganization of DG COMP staff along industry sectors deepened market understanding. In addition, the creation of the post of Chief Economist paired with an office of antitrust economists (all hold PhDs) and the assignment of at least one such economist per case team strengthened the economic soundness of merger control (Monti, 2007).[18] The European Commission has conducted an extensive study on the implementation and effectiveness of remedies.[19] Finally, the institutionalization of a peer-review panel and a Hearing Officer ensures quasi-judicial assessment of each decision before publication, making it (theoretically) legally airtight.[20] In line with this argument, Duso et al. (2013) document that DG COMP less frequently remedied procompetitive deals after the ECMR reform, that is, the probability of type I errors in merger control decreased.

All in all, we expect that the ECMR reform-induced decrease in the discretion of antitrust law enforcers, procedural improvements, and the more sound and robust merger control outcomes have improved the quality of European antitrust law enforcement. Therefore, our second hypothesis is;

Hypothesis 2: The ECMR reform's marginal effect on the relation between merger control and shareholder value of acquiring firms in controlled deals is positive.

[17] It has also reduced commercial uncertainty for firms as it reduces the substantial risk of submitting incomplete or false information, which can lead to considerable fines (Egge et al., 2004; Paul and Gidley, 2009).

[18] For example, in the Sony/BMG case, the Chief Economist's arguments caused a change of the case team's initial evaluation.

[19] The study is available at http://ec.europa.eu/competition/mergers/legislation/remedies_study.pdf.

[20] The peer-review panel acts as "devil's advocate" and judges the strength and validity of presented arguments from an unprejudiced viewpoint. These panels usually include senior clerks of Court of First Instance (CFI) judges, thus each decision goes through a quasi-judicial assessment before it is made public. Similarly, a Hearing Officer is in charge of ensuring independent decision making of the case team and the merging parties' procedural rights. Although the post of a Hearing Officer already existed, it has now been given more resources.

We next extend our basic framework by incorporating industry concentration. Industry concentration is a key theme in DG COMP's initial assessment of notified cases. Intuitively, a merger in a market with 3 firms is more problematic than one in a market with 30 firms, and this fact has also been internalized into decision making by potential acquirers (Joskow, 2002). Clougherty et al. (2015) find that deterrence effects of merger policy instruments are stronger in concentrated industries, thus significantly reducing the threat of takeover. Duso et al. (2013, 2007) find that erroneous merger control decisions depend on specific industry effects. Therefore, outcome uncertainty, potential risks (e.g., delay of merger strategy due to the launch of Phase II investigations), and costs (e.g., remedies) are likely to be materially higher in concentrated industries. As a consequence, the M&A market's external corporate governance mechanism should be weaker in concentrated industries. This notion is consistent with complimentary evidence in Giroud and Mueller (2011) indicating that product market competition is negatively related to agency costs caused by entrenched managers. Overall, we therefore expect that the effects of merger control and the ECMR reform on acquisition efficiency are stronger in concentrated industries, that is:

> *Hypothesis 3a: The negative effect of merger control on acquisition efficiency is more pronounced in concentrated industries.*
>
> *Hypothesis 3b: The ECMR reform's marginally positive effect on the relation between merger control and acquisition efficiency is more pronounced in concentrated industries.*

Since a central tenet of our argumentation is the role of uncertainty about ECMR, we also incorporate cultural uncertainty into our analysis. If legal and commercial uncertainty reduce M&A activity, leading to reduced threat of takeover and increased managerial entrenchment, this causal effect should be stronger in cultures that are, a priori, relatively more intolerant to

uncertainty. In line with this, Dikova et al. (2009) document that cultural uncertainty avoidance reduces the probability of M&A deals being completed. Therefore, we expect:

Hypothesis 4a: The negative effect of merger control on acquisition efficiency is more pronounced in countries where firms are more intolerant to uncertainty.

Hypothesis 4b: The ECMR reform's marginally positive effect on the relation between merger control and acquisition efficiency is more pronounced in countries where firms are more intolerant to uncertainty.

4. Data and Summary Statistics

There are 3,337 M&A notifications to DG COMP during our sample period 2001-2011. Thereof, 3,011 (90.2%) cases were cleared unconditionally, and 48 (1.4%) were approved with commitments (e.g., divestiture of subsidiaries) after Phase I investigations. 110 (3.3%) notified M&A proposals entered in-depth Phase II investigations, in which 36 (1.1%) cases were declared compatible with the ECMR, 48 (1.4%) cases were approved subject to commitments, and 8 (0.2%) were prohibited. The remaining cases were either withdrawn, out of the ECMR's scope, or referred to Member States.[21]

Therefore, for our empirical tests, we sample the treatment group (notified and outright approved M&A deals) from the population of 3,011 cases during 2001-2011, including notifications under the old (Council Regulation 4064/89) and the new ECMR (Council Regulation 139/2004).[22] We require that the deal was approved outright since including other decision types could bias our estimates of acquisition efficiency when investors anticipate costs associated with regulatory interventions, as shown by Aktas et al.

[21] Merger statistics are available at http://ec.europa.eu/competition/mergers/statistics.pdf.

[22] A list of merger cases that have been subject to the DG COMP's merger control can be obtained from the following link: http://ec.europa.eu/competition/elojade/isef/index.cfm?clear=1&policy_area_id=2.

(2004). Restricting our sample to unproblematic transactions is also imperative in the first place to avoid that the dependent variable, announcement returns to shareholders of the acquiring firm, is confounded by market power rents. Furthermore, we require that the publicly listed acquirer and the target are located in a European Member State to avoid any protectionist bias (Aktas et al., 2007). Additional information on market, firm, and deal characteristics is obtained from Thomson Reuters SDC M&A database, Bloomberg, and Datastream.

For the control group, we sample from the population of regulatory unscrutinized M&A deals contained in the Thomson Reuters SDC M&A database between 2001 and 2011. The control group identification is based on propensity score matching, which helps to ameliorate the potential problem of model dependency in natural experiments. Our approach is similar to that in Dissanaike et al. (2016) and Humphery-Jenner (2012) for the identification of a control group in their studies of the European Takeover Directive. A concern is that the causal effect estimators in our difference-in-differences approach might be model dependent since the treatment (ECMR reform) was not truly randomly assigned – only 'Community dimensional' M&A deals were affected by the treatment. Therefore, the sample distributions of the treatment and control groups do not perfectly resemble each other with respect to all firm and deal characteristics. For example, both acquirer and deal size are necessarily larger in the treatment group. We follow Ho et al. (2007) approach to address this issue. First, we pre-select potentially matching firms for each controlled case – largely following the approach in Bris and Cabolis (2008) – by requiring that (i) firms belong to the same country and industry as the treatment observation, (ii) the matching merger happened in the same year, and (iii) the target firm is the closest in terms of relative deal size.[23] Next, we estimate for each observation the probability of being in the treatment group, given all

[23] For the industry matching, we use Thomson Reuters macro-industry classification system. Relative deal size is defined as deal size over acquirer total assets.

explanatory variables, as defined in Section 5.1.2. Second, we match control with treatment cases based on these probabilities. Third, we check the similarity of the empirical sample distributions of all control variables by comparing numeric summaries, jitter, and quantile-quantile plots. We find that the best balance is achieved with one-to-one nearest-neighbor-matching using a Tobit model. Finally, all restrictions and the propensity score matching approach lead to a total sample of 1,336 M&A, consisting of controlled (668) and non-controlled (668) transactions at equal parts.

Table 1 presents the sample distribution by announcement years. Our sample represents approximately 22,2% of all European dimensional M&A over the sample period. Consistent with other studies of European M&A – see Drobetz and Momtaz (2016) for a recent reference – our sample evidences an increasing number of acquisitions until the peak in 2005, followed by a decreasing trend. The pre-reform sample consists of 398 transactions, while we have 938 deals for the post-reform period. We also report market capitalization of the acquiring firms, deal size, and relative deal size for controlled and non-controlled firms separately. The average acquirer market value in our treatment (control) group is USD 24 (5) billion, the deal size is USD 1.5 (0.1) billion, and the relative deal size is 6% (1.5%). We further note that the average size of acquirers increased from USD 18.5 billion pre-reform to USD 26.8 billion post-reform. The difference is statistically significant with a *p*-value of 2% and suggests that very large firms became more active acquirers after the reform. This may be indicative of an increased threat of takeover in the large-cap deal segment after the reform.

[PLEASE INSERT TABLE 1 HERE]

5. Empirical Results

5.1. Variable Construction

5.1.1. Cumulative Abnormal Returns

As Panel A of Table 2 shows, the average 11-day acquirer cumulative abnormal return (CAR) for the whole sample is 1.29%, significantly different from zero at the 1% level.[24] The result that the average European takeover is beneficial to shareholders of the acquiring firm is consistent with earlier studies such as Martynova and Renneboog (2011) (0.79%) and Drobetz and Momtaz (2016) (1.23%). Controlled M&A deals create insignificant value (0.39%), while uncontrolled deals generate highly significant 2.18% in acquisition gains, suggesting that European merger control has a detrimental impact on acquirer returns. Furthermore, the level of acquisition efficiency fell from 2.06% before the 2004 ECMR reform to only 0.96% thereafter (both at 1% significance). Whether this decrease is causally attributable to the ECMR reform should become clear from the difference of a pre-/post-reform comparison for the treatment and control group.

To this end, we decompose our sample with respect to the relevance for DG COMP (controlled and uncontrolled deals) and the announcement date (pre- and post-reform). The results are presented in Panel B of Table 2. For the treatment (control) group, pre-reform acquisition efficiency is insignificant at 0.01% (highly significant at 3.73%), which increased (decreased) after the reform to 0.55% (1.47%). The pre-/post-reform difference for the treatment group is positive (0.54%), while it is negative for the control group (-2.26%). The difference in these pre-/post-reform differences suggests that the reform created value of about 2.80% (at 1% significance). We note that the significantly positive difference in the pre-

[24] We use [-5,+5] market-adjusted CARs instead of OLS market model CARs because thin trading in some European countries could theoretically bias OLS estimates (Humphery-Jenner, 2012). This approach is in line with a number of recent studies, although Fuller et al. (2002) and MacKinlay (1997) show that there are no significant differences between the methods.

/post-reform differences is mainly driven by the decrease in the control group, suggesting that the benefits of the ECMR reform have compensated for the overall decrease in acquisition efficiency. While we are unable to draw inferences about the likely causes of the overall decrease at this point, we recognize that it might be imputed to the concurrent ETD (Humphery-Jenner, 2012). Although this evidence is congruent with our hypotheses, we need to control for all determinants of CARs reported in the literature – such as the ETD – before drawing robust conclusions.

[PLEASE INSERT TABLE 2 HERE]

5.1.2. Determinants of CARs

The determinants of announcement-related CARs consist of firm and deal characteristics. All variables are explained in detail in the appendix. Firm characteristics include Tobin's Q, firm size, combined sales, leverage, cross-listing, and share price run-up. Early M&A studies used Tobin's Q as a proxy for how well a firm is run. The use of Tobin's Q is based on the empirical evidence that synergistic gains from takeovers increase in the bidder's Q, but decrease in the target's Q (Lang et al., 1991; Servaes, 1991). Recent research reports a negative impact of bidder's Q on bidder wealth effects (Bhagat et al., 2005; Dong et al., 2006; Moeller et al., 2004), while the target's Q seems not to affect synergy gains (Dong et al., 2006; Wang and Xie, 2009). We include Q as a control variable, but acknowledge its ambiguousness.

Firm size is included as a proxy for managerial hubris (Roll, 1986). Moeller et al. (2005) show that large firms tend to destroy value in corporate takeovers, which is in accordance with much of the empirical literature (Harford et al., 2012; Martynova and Renneboog, 2011a; Masulis et al., 2007). We also include the acquirer's and target's combined sales as a control because the probability of regulatory intervention is increasing in

sales volume, thus combined sales may depress acquisition efficiency. Moreover, leverage is expected to affect bidder wealth effects because high leverage makes acquirers subject to closer investor monitoring (Maloney et al., 1993). High leverage is also inversely related to free cash flow, which should reduce agency costs (Gilson, 1990; Jensen, 1986).

The effect of cross-listing on bidder wealth effects is ambiguous. On the one hand, a cross-listing obliges the acquirer to comply with multiple regimes, which induces higher transaction costs. On the other hand, multiple regulatory requirements reduce opportunistic managerial behavior (Coffee, 1998, 2002). Which effect will eventually prevail is an empirical question. Finally, we include the share price run-up to account for possible information leakage prior to the deal announcement (Masulis et al., 2007).

Furthermore, we control for the target type. Illiquidity and information discounts may explain differences in how target types influence bidder wealth effects. Shares of private targets are by definition illiquid, which typically results in a pricing discount (Faccio et al., 2006; Fuller et al., 2002; Moeller et al., 2004). That is, private firms should sell at lower levels than public targets, and positively affect bidder wealth effects. Public firms are also subject to more comprehensive information disclosures than private firms (Martynova and Renneboog, 2011a), which may result in an information discount for private targets. Therefore, acquisitions of private targets should exhibit stronger positive bidder wealth effects than acquisitions of public targets.

The deal characteristics that are most likely to affect bidder wealth effects are relative deal size, cross-border transactions, hostile takeovers, and the method of payment. Relative deal size is expected to be positively correlated with the expected wealth effect in large deals if the benefits from the economies of scale outweigh the complexity costs (Asquith, 1983). Although diversifying takeovers often take place under the pretext that they enable economies of scope, the empirical evidence suggests a wealth-decreasing effect (Shleifer and Vishny,

1989; Morck et al., 1990). Possible reasons include job security for managers, the extraction of private rents by divisional managers (Scharfstein and Stein, 2000), and inefficient bargaining within the new company (Rajan et al., 2000).

Similarly, earlier studies indicated a positive wealth effect in cross-border transactions because acquirers potentially exploit arbitrage opportunities (Hymer, 1976). However, this effect seems questionable given the advanced economic integration in Europe (Bagchi, 2005) and the fact that we only analyze intra-European takeovers. Recent studies even document a wealth-decreasing effect of cross-border transactions, due mainly to cultural differences that can affect the realization of synergies (Hutzschenreuter et al., 2014), and to increased transaction costs (Dikova et al., 2009).

Moreover, in the market for corporate control, hostile takeovers can be an important governance mechanism to rein in opportunistic managerial behavior. They are therefore associated with a positive wealth effect (Franks and Mayer, 1996). However, the downside of hostile takeovers is that they require higher takeover premiums to succeed, which potentially eliminates any takeover gains (Goergen and Renneboog, 2004). The effect of a hostile deal attitude on bidder wealth effects thus remains unclear.

Finally, we control for the method of payment. We distinguish among cash-only consideration forms and those including a stock component. The literature generally agrees that cash-only offers signal bidders' convictions of takeover gains, because they are choosing not to share risk. Stock offers suggest risk-sharing between the bidder and the target, as well as bidders' possible beliefs that their stocks are overvalued, which may result in a stock price adjustment (Faccio and Masulis, 2005; Huang and Walkling, 1987; Loughran and Vijh, 1997; Travlos, 1987). We thus expect to observe higher acquirer returns in cash-only deals.

5.2. Merger Control, the ECMR Reform, and Acquisition Efficiency: Baseline Results

The univariate results so far suggest that merger control depresses acquisition efficiency in controlled deals, although the ECMR reform may have ameliorated this effect. To substantiate these claims, we use a difference-in-differences approach (Imbens and Wooldridge, 2009; Roberts and Whited, 2013), where the difference-in-differences estimator (DDE_{ECMR}) is defined as the interaction between facing an antitrust investigation (d(merger control)) and acquiring after the ECMR reform (d(post-reform)). The two binary variables control for time-invariant differences between and for trends common to the treatment and the control group. Observing a significantly positive DDE_{ECMR} would support our hypothesis that the improvement of the quality of European antitrust law enforcement in the course of the ECMR reform caused the increase in acquirer returns.

Table 4 presents the results of our baseline regressions. The dependent variable is the 11-day market-adjusted CAR around the deal announcement. In Model 1, we regress CARs only on the variables necessary to construct the DDE_{ECMR} and year-fixed effects. We do so in an effort to assure that any identified effect between merger control and acquirer returns is not driven by the presence of our control variables. In Model 2, we further appreciate that some of the independent variables are potentially endogenously determined, such as Tobin's Q, leverage, cross-listings, friendly takeovers, the method of payment, and the target type (Masulis et al., 2007; Wang and Xie, 2009). Therefore, to assure that our DDE_{ECMR} is not biased by these controls, we replace Tobin's Q and leverage with their industry-medians. The other controls are omitted since we are unable to find suitable substitutes. Model 3 includes all control variables. All variable definitions are provided in the appendix.

The coefficient of d(merger control) is significantly negative in all model specifications, while DDE_{ECMR} is significantly positive. DDE_{ECMR} ranges from 3.07% to 3.24%. This small range across the different models is reassuring because, if the treatment is

really exogenous, including additional covariates should only have a negligible impact the treatment effect (Roberts and Whited, 2013).

In Model 3, the coefficient of merger control is -0.0347, significantly negative at the 1% level. The DDE_{ECMR} in Model 3 is 0.0307, statistically significant at the 1% level. Both are nontrivial figures given that the whole sample's average CAR is 1.29%. Given an acquirer's average market capitalization in the treatment group of about USD 24.3 billion, the reform-induced improvement of merger control quality lead to an increase in returns to shareholders of acquiring firms of USD 835 million per deal. As a result, the ECMR reform was also economically significant for acquirers. These results lend support to our first two hypotheses. First, we find that merger control depresses acquisition efficiency in controlled deals by -3.47%. This finding is consistent with the hypothesis that legal and commercial uncertainty about the ECMR deters M&A activity, and thus reduces the threat of takeover, which amplifies managerial entrenchment and enables agency-motivated investments. Second, the results suggest that the ECMR reform ameliorated this effect, since it increased acquisition efficiency by 3.07%. This finding is again in line with our proposition that ECMR-related uncertainty reduces the disciplining effect of the M&A market, which, in turn, enables agency-motivated acquisitions because the reform created more legal clarity.

Looking at control variables, we find consistent parameter estimates across all model specifications. We further note that most of our findings are consistent with recent work, such as Dissanaike et al. (2016), Harford et al. (2012), Humphery-Jenner (2012), Martynova and Renneboog (2011), and Masulis et al. (2007). That is, (i) Tobin's Q is insignificant, (ii) firm size is significantly negative, (iii) the relation between acquirer returns and leverage is negative in Europe, which contrasts with U.S. evidence, (iv) relative deal size is positively correlated with acquirer returns, and (v) cross-border acquisitions create more value than domestic ones in Europe. We also decompose our sample by the method of payment (all-cash

or stock-component) and the target type (public or private). The omitted base group (all-cash*public target) is associated with the highest CARs since the remaining parameter estimates have all negative signs, albeit they are mostly not significantly different.

[PLEASE INSERT TABLE 3 HERE]

[PLEASE INSERT TABLE 4 HERE]

Finally, we check the internal validity of our model. The central assumption of our difference-in-differences model is that the treatment group and the control group follow common trends with respect to all sample characteristics except the ECMR reform (parallel trend assumption). Therefore, any difference in time trends during the pre-reform period would cast the assumed causation into doubt. Because the parallel trend assumption itself is untestable, we re-run our regression models from Table 4 on the pre-reform period and use a "placebo" treatment by changing the breakpoint from 1 April 2004 (the actual date the ECMR reform came into effect) to the arbitrary date 1 January 2003. The results of these analyses are reported in Table 5.[25] As expected, we observe that merger control significantly reduces acquisition efficiency also in the pre-event period. But most importantly, we report an insignificant 'placebo DDE' that is close to zero. Accordingly, there is no evidence of different time trends in the pre-event years, and our results are robust to this falsification attempt.

[PLEASE INSERT TABLE 5 HERE]

[25] For the sake of brevity, we only report the difference-in-differences coefficient estimates and suppress the remaining control variables. They are similar to those reported in Table 5.

5.3. Industry Concentration

Our results so far indicate that merger control depresses acquisition efficiency in controlled deals, although the ECMR reform ameliorated this effect. Next, we aim to test whether these effects are different in concentrated versus fragmented industries. Intuitively, the impact of ECMR-related uncertainty should be stronger in concentrated industries because of a higher probability of regulatory intervention.[26] Therefore, we hypothesize that the negative effect of merger control on acquisition efficiency and the ECMR reform's marginal effect on this relationship are more pronounced in concentrated industries.

To test for heterogeneous treatment effects, we divide our sample into two groups; the one with M&A deals in concentrated industries, and the other one with observations in fragmented industries. For the purpose of classification, we revert to the Herfindahl-Hirschman-Index (HHI). The HHI is computed as a sum of the squares of market share $s_{i,t,j}$ based on firm i's sales in year t in industry j. Acquisitions in above-mean HHI industries are assigned to the concentrated industry group. We then repeat our difference-in-differences analyses for both groups separately.

In Table 6, we incrementally illustrate the process of 'differencing out'. The economic rationale is to derive, for concentrated and fragmented industries separately, estimates of the detrimental effect of merger control on acquisition efficiency and of the marginal effect the ECMR reform had on this relationship, which are not biased by time-varying determinants of acquirer returns. The left-hand column of Table 6 shows the analysis for concentrated industries, while fragmented industries are shown on the right-hand side. Within these subsamples, we further separate our treatment (merger control) and control (no merger

[26] This is also the view of the EC. The EC states in its horizontal merger guidelines that "The overall concentration level in a market may also provide useful information about the competitive situation. In order to measure concentration levels, the Commission often applies the Herfindahl-Hirschman Index (HHI). [...] The absolute level of the HHI can give an initial indication of the competitive pressure in the market post-merger."

control) groups. All figures in Table 6 are based on multivariate analyses, controlling for all known determinants of acquirer returns.

We begin by comparing the differences in acquirer returns in both the treatment and the control group before and after the ECMR reform, conditional on either concentrated or fragmented industries. We find that the ECMR reform has created most value in the treatment group of concentrated industries (Δ ($\bar{y}_t^{MC}$ | *concentrated*)). That is, we find an increase in acquisition efficiency of 1.08%, compared to pre-/post-reform decreases in all other subsamples. This is first indicative evidence that the quality of European antitrust law enforcement matters most where product market competition is low. The control group of concentrated industries experienced a decrease in acquisition efficiency of -3.02% (with *p*-value below 5%). We note that this estimate would correspond to β(post-reform) in the logic of Table 4. Similarly, the pre-reform difference between the treatment and the control group of -4.26% (with *p*-value below 1%) corresponds to β(merger control). Finally, taking the pre-/post-reform difference between the treatment and the control group [Δ ($\bar{y}t^{MC}$ | .)] − [Δ ($\bar{y}t^{NO\ MC}$ | .)], we derive at a difference-in-differences estimator of significant 4.10% (with *p*-value below 1%) for concentrated industries. In contrast, for fragmented industries the difference-in-differences estimator is small with 0.99% and statistically insignificant.

[PLEASE INSERT TABLE 6 HERE]

Overall, these results corroborate our hypotheses that the negative effect of pre-reform merger control is significantly stronger in concentrated industries (-4.26%; 1% significance level), and the ECMR reform's marginally positive effect on this relation is also more pronounced where product market competition is low (4.10%; 5% significance level). They are consistent with the notion that ECMR-related uncertainty deters more M&A in

concentrated industries because the probability of regulatory intervention is relatively higher, thus amplifying managerial entrenchment and enabling agency-motivated investments.

5.4. Cultural Uncertainty Avoidance

Next, we investigate whether the effects of merger control and the ECMR reform on acquisition efficiency depend on cultural uncertainty avoidance. Given that we hypothesize that ECMR-related uncertainty is a main driving force behind the discount on acquirer returns in controlled deals, we should expect a nation's cultural intolerance to uncertainty to further amplify this effect.

Drawing on social psychology, we use the concept of 'uncertainty avoidance' to test whether the effects of merger control and the ECMR reform are more pronounced in relatively more uncertainty avoiding cultures. Uncertainty avoidance is a measure provided by the GLOBE project and based on Hofstede's (1984) work. Countries with high scores are relatively intolerant to uncertainty, abide by applicable rules, and are hesitant to make ambiguous decisions. As Dikova et al. (2009) show, the probability of proposed M&A deals being completed is significantly lower in strictly uncertainty avoiding countries. Therefore, we split our sample into above- and below-mean uncertainty avoiding groups, and further separate within these subsamples our treatment and control groups.

Table 7 presents the results. The pre-/post-reform comparisons of acquisition efficiency indicate that the acquirer returns in both treatment groups [(Δ ($\bar{y}_t^{MC}$ | *high unc. avoid.*)) and (Δ ($\bar{y}_t^{MC}$ | *low unc. avoid.*))] slightly increased, whereas it decreased in both control groups [(Δ ($\bar{y}_t^{NO\,MC}$ | *high unc. avoid.*)) and (Δ ($\bar{y}_t^{NO\,MC}$ | *low unc. avoid.*))]. However, the difference-in-differences estimator is only statistically significant for strictly uncertainty avoiding cultures (3.35%; with *p*-value below 5%). This result suggests that the improvement of the quality of European antitrust law enforcement matters more in national cultures where

firms are more intolerant to uncertainty. It is in line with our overarching notion that ECMR-related uncertainty deters M&A, which reduces the threat of takeover and amplifies managerial entrenchment, which in turn enables agency-motivated acquisitions. Cultural uncertainty avoidance further magnifies this effect.

[PLEASE INSERT TABLE 7 HERE]

5.5. Additional Robustness Tests

In this section, we aim to further ameliorate potential violations of the parallel trend assumption in our difference-in-differences models. First, we need to control for a concurrent regulatory reform, the European Takeover Directive (ETD).[27] The implementation of the ETD in May 2006 created a level playing field for takeovers in Europe by harmonizing takeover law, strengthening shareholder and minority shareholder rights, and installing efficient takeover mechanisms (European Commission, 2007; Moschieri and Campa, 2014). Although the ETD's net effect on acquisition efficiency was likely detrimental (Humphery-Jenner, 2012), some European countries still benefitted from the reform (Dissanaike et al., 2016). This influence could be problematic for our study if the distribution of transactions by acquirer country is different after the ECMR reform. It would imply that at least part of the identified variation in acquisition efficiency around the ECMR reform could in fact be attributable to the ETD.

In an effort to control for the ETD, we follow Dissanaike et al.'s (2016) method to estimate the effect of the ETD on acquirer returns. They suggest using the inter-country variation in the quality of takeover laws before the ETD-induced harmonization as a proxy for the improvement of legal investor protection. Countries that significantly improved their legal shareholder rights because of the ETD by adopting at least one of the ETD's four major

[27] Directive 2004/25/EC of the European Parliament and of the Council of 21 April 2004 on takeover bids.

statutes (mandatory bid rule, board neutrality rule, and squeeze-out and sell-out rights) are assigned a value of one [$ETD_{improvement} = 1$], and zero otherwise. As shown in Table 8, those countries include Belgium, Germany, Greece, Luxembourg, the Netherlands, and Spain. The remaining countries are Austria, Denmark, Finland, France, Ireland, Italy, Portugal, Sweden, and the UK. Next, transactions after the implementation deadline of the ETD in May 2006 are assigned a value of one [$ETD_{after} = 1$], and zero otherwise. The interaction term [$DDE_{ETD} = (ETD_{improvement})*(ETD_{after})$] serves as the estimator for the causal effect of the ETD on acquirer returns. All three variables are included in our regression models.

[PLEASE INSERT TABLE 8 HERE]

Second, we include country-level variables in our regressions because institutional differences across countries may bias our difference-in-differences estimator (DDE_{ECMR}) if the geographical distribution of transactions differs after the reform. We control for legal origin (Anglos-Saxon, French, German, Scandinavian), ownership dispersion, control of corruption, and regulatory quality.

In Table 9, we present the regression results controlling for the ETD and the institutional variables. To begin with, DDE_{ECMR} is similar to the ones reported in prior sections with respect to sign, magnitude, and significance. Parameter estimates for firm and deal characteristics are also similar to those reported in Table 4. Therefore, the parallel trend assumption does not seem to be violated to an extent that materially changes our results. Furthermore, our results confirm Dissanaike et al. (2016) in that the ETD-induced improvement of legal shareholder rights caused an increase in acquisition efficiency in countries that had to improve their legal shareholder rights due to the ETD since DDE_{ETD} is significantly positive. This result is also consistent with recent theoretical work, suggesting that acquisition efficiency is increasing in the quality of legal investor protection (Burkart et

al., 2014). Finally, we find a significantly positive coefficient for control of corruption, indicating that acquisition efficiency is decreasing in the extent to which public power is exercised for private gains. This finding is consistent with Bittlingmayer and Hazlett (2000) that antitrust agencies block efficient M&A for reasons such as bureaucratic self-interest, private use of antitrust, and political extraction.

[PLEASE INSERT TABLE 9 HERE]

Third, we check the sensitivity of our results also to a battery of ad-hoc specifications of our models that are common in the literature. The results (not shown) are also robust to the following modifications: (i) We measure cumulative abnormal announcement returns alternatively by mean-adjusted CARs[28]; (ii) we employ a dummy variable approach, where our dependent variable equals one if the market-adjusted returns are positive, and zero otherwise; (iii) we cluster standard errors by years and countries; (iv) we include La Porta et al.'s (1998) anti-director and creditor rights and Martynova and Renneboog's (2011b) shareholder, minority shareholder, and creditor rights indices as control variables; (v) we distinguish the method of payment in all-cash, stock-component, and all-stock deals; (vi) we control for whether the acquirer or the target come from a big country[29]; (vii) we control for whether the acquirer and the target speak the same language.

6. Conclusion

This paper seeks to shed some light on the effect of competition policy on acquisition efficiency. We use the reform-induced exogenous variation in the enforcement quality of competition policy in Europe as a natural experiment to examine the impact of merger control

[28] Our estimation procedure is based on MacKinlay (1997). Estimation and event window are the same as for the market-adjusted CARs.

[29] Consistent with Duso et al. (2011), we define France, Germany, Italy, Spain, and the U.K. as big countries.

on acquisition efficiency, and, more specifically, how the 2004 reform of the European Commission Merger Regulation (ECMR) affects this relation. We hypothesize that ECMR-related uncertainty and costs deter M&A activity, reduce the threat of takeover, and amplify managerial entrenchment; these effects, in turn, enable entrenched managers to make agency-motivated, value-decreasing acquisitions. Combining propensity score matching and difference-in-differences methodologies, first, we compare acquisition gains of scrutinized firms in outright approved deals to those of unscrutinized matching firms, and, second, estimate the marginal effect of the ECMR reform on any such identified difference. Consistent with our main hypotheses, the results indicate that merger control depresses announcement-related acquirer returns in controlled deals significantly before the reform (-3.47%; with *p*-value < 1%), but the ECMR reform significantly ameliorated this effect (3.07%; with *p*-value < 1%). These effects are also economically significant given that the average acquirer return in is 1.29%. In line with our hypotheses, we also show that the effects of merger control and the ECMR reform on acquisition efficiency are more pronounced in concentrated industries, where the probability of regulatory intervention is higher, and in national cultures, where firms are more intolerant to uncertainty. Our results are, inter alia, robust to controlling for the concurrent improvement of shareholder rights laws (European Takeover Directive).

On balance, this study makes important contributions to the regulatory embeddedness of the European M&A market and to the more general effect of competition policy on acquisition efficiency. Our study is the first comprehensive assessment of both the ECMR reform and the European Takeover Directive. Both regulations mark the two most important takeover market reforms in European history. Our focus on European merger control generates important policy implications. The identified detrimental effect on the efficiency in the M&A market contributes to the debate about the need of ex ante merger control, i.e.,

antitrust decisions based on hypothetical scenarios, and the need of competition policy at all (Baker, 2003; Crandall and Winston, 2003; Duso et al., 2011). At least, our results have important implications for the institutional design of merger control in European Member States as well as in other jurisdictions. More generally, the findings indicate that perfect legal certainty should be a desirable goal in policymaking as any concessions impair the quality of law enforcement, which deteriorates financial market outcomes.

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FIGURE 1
Merger Control Process according to Council Regulation 139/2004

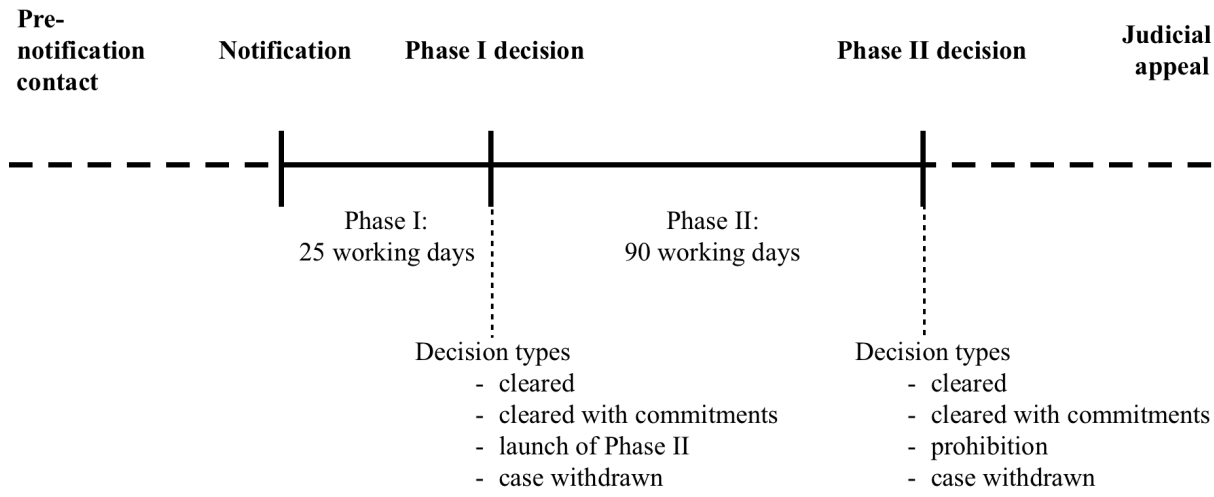

TABLE 1

Sample Distribution by Announcement Years

The sample consists of 1,336 controlled and non-controlled European mergers over the 2001-2011 period. Variable definitions are provided in the appendix. The pre-reform period is from 1 January 2001 to 30 April 2004, and the post-reform period from 1 May 2004 to 31 December 2011. We obtain the subsample of controlled mergers from an overall population of 3,011 cases that were declared Art. 6 I b ECMR compatible, that is, these cases were cleared unconditionally. The table show summary statistics for controlled and non-controlled mergers separately, where the averages for non-controlled mergers are displayed in parentheses. Figures are in $mil, where applicable.

Year	# of all unconditionally cleared mergers (Art. 6 I b of ECMR)	# (%) of all mergers in the sample	Average market value of controlled (non-controlled) acquirers	Average value of controlled (non-controlled) deals	Average relative deal size of controlled (non-controlled) deals
2001	299	24	15077	4845	32.1%
		(1.8%)	(207)	(29)	(14.1%)
2002	238	92	14954	1322	8.8%
		(6.9%)	(875)	(58)	(6.6%)
2003	203	208	20592	771	3.7%
		(15.6%)	(14428)	(38)	(0.3%)
2004	220	256	18741	1141	6.1%
		(19.2%)	(6528)	(99)	(1.5%)
2005	276	260	44392	1308	2.9%
		(19.5%)	(5008)	(84)	(1.7%)
2006	323	144	22554	2699	12.0%
		(10.8%)	(1170)	(61)	(5.2%)
2007	368	120	22639	2431	10.7%
		(9%)	(671)	(32)	(4.7%)
2008	307	92	17717	1478	8.3%
		(6.9%)	(677)	(169)	(25.0%)
2009	225	48	21173	862	4.1%
		(3.6%)	(129)	(15)	(11.7%)
2010	253	52	15069	458	3.0%
		(3.9%)	(379)	(90)	(23.7%)
2011	299	40	19434	838	4.3%
		(3%)	(145)	(14)	(9.5%)
Pre-reform	887	398	18483	1385	7.5%
		(29.8%)	(8647)	(78)	(0.9%)
Post-reform	2124	938	26829	1480	5.5%
		(70.2%)	(3253)	(69)	(2.1%)
Total	3011	1336	24343	1452	6.0%
		(100%)	(4860)	(72)	(1.5%)

TABLE 2

Univariate Analysis of CARs (-5, +5)

This table provides a univariate analysis of CARs. The sample consists of 1,336 controlled and non-controlled European mergers over the 2001-2011 period. The CARs are estimated using a market-adjusted model with an eleven-day event window. The pre-reform period is from 1 January 2001 to 30 April 2004, and the post-reform period from 1 May 2004 to 31 December 2011. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Average CARs

	# obs.	**CAR**
Total	1336	1.29%***
Controlled mergers	668	0.39%
Non-controlled mergers	668	2.18%***
Pre ECMR reform	398	2.06%***
Post ECMR reform	938	0.96%***

Panel B: Differences in CARs

	Treatment group (Merger Control (MC))	**Control group** (No Merger Control (NO MC))
# observations	668	668
Pre-reform (t = 0)	$\bar{y}_{t=0}^{MC}$ 0.01%	$\bar{y}_{t=0}^{NO\ MC}$ 3.73%***
Post-reform (t = 1)	$\bar{y}_{t=1}^{MC}$ 0.55%*	$\bar{y}_{t=1}^{NO\ MC}$ 1.47%**
Differences	$\bar{y}_{t=1}^{MC} - \bar{y}_{t=0}^{MC}$ 0.54%	$\bar{y}_{t=1}^{NO\ MC} - \bar{y}_{t=0}^{NO\ MC}$ -2.26%**
Difference-in-differences	$[\bar{y}_{t=1}^{MC} - \bar{y}_{t=0}^{MC}] - [\bar{y}_{t=1}^{NO\ MC} - \bar{y}_{t=0}^{NO\ MC}]$ 2.80%***	

TABLE 3
Pearson Correlation Matrix

	CARs	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
2. After reform	-.09***														
3. Treatment group	-.05*	.00													
4. Tobin's Q	.01	-.11***	-.07***												
5. Total assets (mil$)	-.05*	.26***	.03	-.05**											
6. Combined sales (mil$)	-.07**	.43***	.04	-.07***	.57***										
7. Leverage	-.04	.08***	-.07***	.02***	.03	.04									
8. Cross-listing	-.01	.40***	-.01	-.10	.20***	.32***	.05**								
9. Momentum	.02	-.04	.00	-.01	-.03	-.01	-.02	.00							
10. Relative deal size	.08***	-.08***	.03	.04	-.05*	-.06**	.01	-.08***	.01						
11. Domestic	-.06**	-.15***	.08***	-.15***	-.08***	-.09****	-.07**	-.20***	.05*	.05*					
12. Friendly	.01	-.13***	.04	.04	-.05*	-.08****	-.03	-.11***	.04	.01	.01				
13. Stock*public	-.05*	.18***	.05*	-.07***	.15***	.15***	.04	.05*	.01	.05*	.11***	.00			
14. Stock*private	.03	-.21***	.06**	-.04	-.10***	-.16***	-.06**	-.16***	-.02	.08***	.08***	.08***	-.22***		
15. Cash*public	-.03	.21***	.06**	-.05*	.06**	.19***	.03	.13***	.02	-.01	-.09***	-.04	-.14***	-.16***	
16. Cash*private	.02	-.17***	.08***	.07**	-.10***	-.13***	-.09***	-.13***	-.04	-.05*	-.02	.04	-.18***	-.21***	-.13***

TABLE 4

Baseline Regression Analysis of CARs

This table provides the regression results for the difference-in-differences model. The sample consists of 1,336 transactions announced between 2001 and 2011, consisting of controlled and non-controlled mergers at equal parts. A propensity score matching approach is used to assure that our estimates are not model dependent. The dependent variables in all three models are the eleven-day market-adjusted CARs. The independent variables are defined in the appendix. The difference-in-differences estimator (labelled DDE_{ECMR}) is defined as the interaction D(merger control) * D(post-reform). Standard errors are adjusted for heteroskedasticity and are reported in parentheses. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% levels, respectively.

	Model 1	**Model 2**	**Model 3**
Difference-in-differences variables			
D(merger control)	-0.0406***	-0.0351***	-0.0347***
	(0.0089)	(0.0114)	(0.0112)
D(post-reform)	-0.0283***	-0.0245**	-0.0266***
	(0.0099)	(0.0096)	(0.0095)
DDE_{ECMR}	0.0324***	0.0312**	0.0307***
		(0.0114)	(0.0114)
Firm characteristics			
Tobin's Q			-0.0002
			(0.0002)
Tobin's Q (industry median)		-0.0179	
		(0.0339)	
Assets (ln)		-0.0092***	-0.0075**
		(0.0035)	(0.0036)
Combined sales (ln)		0.0080*	0.0050
		(0.0042)	(0.0040)
Leverage			-0.0019**
			(0.0008)
Leverage (industry median)		0.0254	
		(0.0775)	
Cross-listing			0.0095
			(0.0059)
Momentum		0.1062	0.1052
		(0.1865)	(0.1899)
Deal characteristics			
Relative deal size		0.0087*	0.0097*
		(0.0052)	(0.0055)
Domestic		-0.0159***	-0.0153***
		(0.0051)	(0.0053)
Friendly			0.0010
			(0.0077)
Stock*public			-0.0002
			(0.0117)
Stock*private			-0.0021
			(0.0073)
Cash*public			-0.0072
			(0.0086)
Year-fixed control	0.0139	0.0157	0.0147
	(0.0144)	(0.0125)	(0.0114)
(Intercept)	-0.0291	-0.0173	-0.0052
	(0.0728)	(0.1146)	(0.0647)
# obs.	1,336	1,336	1,336
R^2	1.67%	3.51%	3.73%
F-statistic:	6.80	4.85	3.80
p-value:	0.000	0.000	0.000

TABLE 5

Falsification Test

This table presents the falsification test of our regression results from the difference-in-differences models in Table 4. We use a subsample consisting of 398 deals that took place before the passage of the ECMR reform. We also introduce a placebo treatment by arbitrarily changing the breakpoint from 1 April 2004 (the actual date the ECMR reform came into effect) to 1 January 2003. The intension of this test is to check whether there exists any difference in the time trends of the treatment and the control group over the pre-reform years, which would be indicated by a significant DDE_{ECMR}. Finding such a difference in the tests below would suggest that the claimed causation between the ECMR reform and the change in acquisition efficiency is false. To this end, we re-run all models from the above Table 4 with the reduced sample and the placebo treatment. The dependent variables in all three models are the eleven-day market-adjusted CARs. The independent variables are defined in the appendix. The difference-in-differences estimator (labelled placebo DDE_{ECMR}) is defined as the interaction D(merger control)*D(placebo reform). Standard errors are adjusted for heteroskedasticity and are reported in parentheses. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% levels, respectively. The control variables are suppressed in this table for brevity reasons since they are comparable to the estimates provided in Table 4.

	Model 1	**Model 2**	**Model 3**
D(merger control)	-0.0407*	-0.0608**	-0.0554**
	(0.0209)	(0.0235)	(0.0227)
D(placebo reform)	0.0130	0.0168	0.0162
	(0.0200)	(0.0207)	(0.0222)
Placebo DDE_{ECMR}	0.0004	0.0149	0.0104
	(0.0230)	(0.0202)	(0.0221)
Year-fixed effects	Yes	Yes	Yes
Firm controls	No	Selected	Yes
Deal controls	No	Selected	Yes
# obs.	398	398	398
R^2	0.05	0.14	0.14
F-statistic:	9.48	4.76	5.53
p-value:	0.000	0.000	0.000

TABLE 6

Industry Concentration

This table reports the results from the difference-in-differences models analyzing the role of industry concentration. It distinguishes between concentrated and fragmented industries. We use the Herfindahl-Hirschman-Index for the purpose of this classification, which is calculated as the sum of the squares of $s_{i,t,j}$, where $s_{i,t,j}$ is the market share based on sales of firm *i* in year *t* in industry *j* (based on Thomson One Banker's macro industry classification scheme). We classify industries that have an above-mean HHI score as concentrated industries, otherwise they are labeled fragmented. The sample consists of 1,336 European M&A between 2001 and 2011, with equally large treatment and control groups. The dependent variable is the 11-day market-adjusted CAR. The models also control for all independent variables from Model 3 in Table 4, which are suppressed here for better readability (defined in the appendix). We also include both year-fixed effects and country-level controls. All models adjust standard errors for heteroskedasticity.

	Concentrated Industries			Fragmented Industries		
	Treatment Group	Control Group	Difference	Treatment Group	Control Group	Difference
	$(\bar{y}_t^{MC} \mid concentrated)$	$(\bar{y}_t^{NO\,MC} \mid concentrated)$	Δ	$(\bar{y}_t^{MC} \mid fragmented)$	$(\bar{y}_t^{NO\,MC} \mid fragmented)$	Δ
t = 0 (pre-reform)	-0.0202	0.0224	-0.0426	-0.04249	-0.02569	-0.0168
t = 1 (post-reform)	-0.0094	-0.0078	-0.0016	-0.05029	-0.04339	-0.0069
	$\Delta\,(\bar{y}_t^{MC} \mid concentrated)$	$\Delta\,(\bar{y}_t^{NO\,MC} \mid concentrated)$		$\Delta\,(\bar{y}_t^{MC} \mid fragmented)$	$\Delta\,(\bar{y}_t^{NO\,MC} \mid fragmented)$	
Difference	0.0108	-0.0302		-0.0078	-0.0177	
	$[\Delta\,(\bar{y}_t^{MC} \mid concentrated)] - [\Delta\,(\bar{y}_t^{NO\,MC} \mid concentrated)]$			$[\Delta\,(\bar{y}_t^{MC} \mid fragmented)] - [\Delta\,(\bar{y}_t^{NO\,MC} \mid fragmented)]$		
Difference-in-differences	0.0410			0.0099		
	[s.e. = 0.0168]			[s.e. = 0.0141]		

TABLE 7

Cultural Uncertainty Avoidance

This table reports the results from the difference-in-differences models analyzing the role of cultural uncertainty avoidance. It classifies into above- and below-mean uncertainty avoidance firms using the proxy of the GLOBE project based on Hofstede's (1984) work. The sample consists of 1,336 European M&A between 2001 and 2011, with equally large treatment and control groups. The dependent variable is the 11-day market-adjusted CAR. The models also control for all independent variables from Model 3 in Table 4, which are suppressed here for better readability (defined in the appendix). We also include both year-fixed effects and country-level controls. All models adjust standard errors for heteroskedasticity.

	Above-average uncertainty avoidance			Below-average uncertainty avoidance		
	Treatment Group	Control Group	Difference	Treatment Group	Control Group	Difference
	$(\bar{y}_t^{MC} \mid \textit{high unc. avoid.})$	$(\bar{y}_t^{NO\,MC} \mid \textit{high unc. avoid.})$	Δ	$(\bar{y}_t^{MC} \mid \textit{low unc. avoid.})$	$(\bar{y}_t^{NO\,MC} \mid \textit{low unc. avoid.})$	Δ
t = 0 (pre-reform)	-0.0888	-0.0536	-0.0352	0.0589	0.0982	-0.0393
t = 1 (post-reform)	-0.0885	-0.0868	-0.0017	0.0779	0.0881	-0.0102
Difference	$\Delta\,(\bar{y}_t^{MC} \mid \textit{high unc. avoid.})$	$\Delta\,(\bar{y}_t^{NO\,MC} \mid \textit{high unc. avoid.})$		$\Delta\,(\bar{y}_t^{MC} \mid \textit{low unc. avoid.})$	$\Delta\,(\bar{y}_t^{NO\,MC} \mid \textit{low unc. avoid.})$	
	0.0003	-0.0332		0.019	-0.0101	
Difference-in-differences	$[\Delta\,(\bar{y}_t^{MC} \mid \textit{high unc. avoid.})] - [\Delta\,(\bar{y}_t^{NO\,MC} \mid \textit{high unc. avoid.})]$			$[\Delta\,(\bar{y}_t^{MC} \mid \textit{low unc. avoid.})] - [\Delta\,(\bar{y}_t^{NO\,MC} \mid \textit{low unc. avoid.})]$		
	0.0335			0.0291		
	[s.e. = 0.0154]			[s.e. = 0.0221]		

TABLE 8

Changes in Legal Shareholder Rights due to the European Takeover Directive

The table is adapted from Dissanaike et al. (2016). The classifications are based on the Report of the European Commission (2012), Marccus Partners (2012), and national legal texts.

	Mandatory bid rule		**Board neutrality rule**		**Squeeze-out right**		**Sell-out right**	
	Before ETD	After ETD	Before ETD	After ETD	Before ETD	After ETD	Before ETD	After ETD
Control Group								
Austria	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Denmark	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Finland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
France	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ireland	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Italy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Portugal	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sweden	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UK	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Treatment Group								
Belgium	Yes	Yes	No	No	No	Yes	No	Yes
Germany	Yes	Yes	No	No	No	Yes	No	Yes
Greece	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Luxembourg	No	Yes	No	No	No	Yes	No	Yes
Netherlands	No	Yes	No	No	Yes	Yes	No	Yes
Spain	Yes	Yes	Yes	Yes	No	Yes	No	Yes

TABLE 9

Controlling for the European Takeover Directive

This table provides the regression results for the difference-in-differences model. The sample consists of 1,336 transactions announced between 2001 and 2011, consisting of controlled and non-controlled mergers at equal parts. A propensity score matching approach is used to assure that our estimates are not model dependent. The dependent variables in all three models are the eleven-day market-adjusted CARs. The independent variables are defined in the appendix. The first difference-in-differences estimator (labelled DDE_{ECMR}) is defined as the interaction D(merger control) * D(post-reform). The second difference-in-differences estimator (labelled DDE_{ETD}) is defined as the interaction D(improvement of shareholder rights) * D(ETD). Standard errors are adjusted for heteroskedasticity and are reported in parentheses. ***, **, and * stand for statistical significance at the 1%, 5%, and 10% levels, respectively.

	Model 1	**Model 2**	**Model 3**
Difference-in-differences variables			
D(merger control)	-0.0382***	-0.0328***	-0.0360***
	(0.0092)	(0.0113)	(0.0108)
D(post-reform)	-0.0176	-0.01402	-0.0175
	(0.0109)	(0.0109)	(0.0111)
DDE_{ECMR}	0.0289***	0.0254**	0.0292***
	(0.0111)	(0.0113)	(0.0112)
Firm characteristics			
Tobin's Q			-0.0002
			(0.0002)
Tobin's Q (industry median)		-0.0034	
		(0.0335)	
Assets (ln)		-0.0100***	-0.0080**
		(0.0036)	(0.0038)
Combined sales (ln)		0.0086**	0.0064
		(0.0042)	(0.0042)
Leverage			-0.0014**
			(0.0007)
Leverage (industry median)		0.0441	
		(0.0814)	
Cross-listing			0.0091
			(0.006)
Momentum		0.1282	0.1219
		(0.1893)	(0.1935)
Deal characteristics			
Relative deal size		0.0092	0.0098*
		(0.0056)	(0.0059)
Domestic		-0.0138***	-0.0128**
		(0.0053)	(0.0054)
Friendly			0.0022
			(0.0081)
Stock*public			-0.0033
			(0.0135)
Stock*private			-0.0022
			(0.0071)
Cash*private			-0.0074
			(0.0094)
Year-fixed control	-0.0004	-0.0030	-0.0030
	(0.0196)	(0.0196)	(0.0192)
Controlling for ETD			
$ETD_{improvement}$	-0.0010	0.0007	-0.0039
	(0.0065)	(0.0066)	(0.008)
ETD_{after}	-0.0185**	-0.0178**	-0.0154*
	(0.0085)	(0.0082)	(0.0087)
DDE_{ETD}	0.0300*	0.0248*	0.0272*
	(0.0154)	(0.0145)	(0.0159)

Institutional Determinants			
French legal family			0.0191
			(0.0155)
German legal family			0.0228
			(0.0166)
Scandinavian legal family			0.0298
			(0.0186)
Ownership dispersion	0.0028	-0.0042	0.0248
	(0.0093)	(0.0089)	(0.0217)
Control of corruption	0.0246**	0.0271**	0.0233*
	(0.0112)	(0.0109)	(0.0128)
Regulatory quality	-0.0282	-0.0384*	-0.0221
	(0.0216)	(0.0216)	(0.0234)
(Intercept)	-0.0203	-0.0086	0.0041
	(0.1027)	(0.1524)	(0.1061)
# obs.	1,336	1,336	1,336
R^2	2.54%	4.47%	5.20%
F-statistic:	4.150	4.026	3.250
p value	0.000	0.000	0.000

Appendix

TABLE A1

Variable Definitions

Panel A: Acquirer returns	
Market-adjusted CAR	Eleven-day [-5; +5] cumulative daily market-adjusted abnormal returns. S&P Europe 350 serves as the market index. The results do not materially change when we use local indices.
Panel B: ECMR Difference-in-differences variables	
d(merger control)	Dummy variable: 1 for mergers controlled by the Directorate-General for Competition (DG COMP) as to whether they are incompatible with the European common market.
d(post-reform)	Dummy variable: 1 for deals taking place after May 1, 2004.
Difference-in-differences estimator (DDE_{ECMR})	Defined as d(merger control)*d(post-reform).
Panel C: Firm characteristics	
Tobin's Q	Market value of assets over book value of assets.
Assets	Log of book value (in $mil) of total assets.
Combined sales	Combined sales of acquirer and target in financial year -1 relating to the merger announcement date (in mil$).
Leverage	Book value of debts over book value of total assets.
Cross-listing	Dummy variable: 1 for deals with acquirers publicly traded on more than one stock exchange, 0 otherwise.
Momentum	Acquirer's buy-and-hold-abnormal-return (BHAR) during the period [-240;-10], adjusted for the S&P Europe 350 market return over the same period.
English legal family	Dummy variable: 1 if acquirer from Ireland or the UK, 0 otherwise.
French legal family	Dummy variable: 1 if acquirer from Belgium, France, Greece, Italy, Luxembourg, Netherlands, Portugal, and Spain, 0 otherwise.
German legal family	Dummy variable: 1 if acquirer from Austria or Germany, 0 otherwise.
Scandinavian legal family	Dummy variable: 1 if acquirer from Denmark, Finland, and Sweden, 0 otherwise.
Panel D: Deal characteristics	
Relative deal size	Defined as deal value over acquirer total assets.
Domestic	Dummy variable: 1if acquirer targets a firm from the same country, 0 otherwise.
Friendly	Dummy variable: 1 if friendly deal attitude, 0 if hostile.
Stock deal	Dummy variable: 1 for deals when consideration contains a stock component or is fully stock-financed, 0 otherwise.

All-cash deal	Dummy variable: 1 for deals wholly cash financed, 0 otherwise.
Private target	Dummy variable: 1 if acquirer not publicly traded on a stock exchange, 0 otherwise.
Public target	Dummy variable: 1 if acquirer publicly traded on a stock exchange, 0 otherwise.
Panel E: Institutional variables	
Widely-held ownership	The percentage of widely-held firms in a given country, when widely-held is defined by no ultimate owner controlling more than 20% of the corporation.
Market concentration	The Herfindahl-Hirschman-Index (HHI) is used to control for market concentration and is calculated as the sum of the squares of $s_{i,t,j}$, where $s_{i,t,j}$ is the market share based on sales of firm i in year t in industry j (according to Thomson One Banker's macro industry classification scheme).
Uncertainty avoidance	We use uncertainty avoidance as a proxy for culture, which is a measure provided by the GLOBE project and based on Hofstede's (1984) work. It is a construct to measure a society's tolerance for uncertainty and ambiguity. Countries with high scores tend to be more methodical and approach changes gradually, engaging in careful step-by-step planning and abiding by rules and applicable laws.
Control of corruption	Control of corruption is a measure provided by the World Bank. It "captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as "capture" of the state by elites and private interests" (see http://info.worldbank.org/governance/wgi/index.aspx#doc).
Regulatory quality	Regulatory quality is a measure provided by the World Bank. It "captures perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development" (see http://info.worldbank.org/governance/wgi/index.aspx#doc).
Panel F: ETD Difference-in-differences variables	
d(ETD)	Dummy variable: 1 for deals taking place after May 21, 2006.
d(Improvement of Shareholder Rights)	Dummy variable: 1 for deals involving an acquirer from a country that had to significantly improve its shareholder rights. See Section 3 for a list of those countries and the definition of significant changes.
DDE_{ETD}	Defined as d(ETD)*d(Improvement of Shareholder Rights).
Panel G: Other control variables	
Year-fixed Effects	The volume of all acquisitions in a given industry and documented in Thomson Reuter's M&A database divided by the volume of sales of that industry in a given year.

Chapter 5

Appendices

APPENDIX 1

Abstracts and current status of papers contained in the dissertation pursuant to § 6 (6) of the PromO

Paper 1	
Title in English:	Corporate Governance Convergence in the European M&A Market
Title in German:	Corporate-Governance-Konvergenz im Europäischen M&A Markt
Abstract in English:	Regulatory reforms have initiated a process of corporate governance convergence in the European market for mergers and acquisitions (M&As) in the years 2004-2006. The European M&A market is an interesting venue to study the consequences of corporate governance convergence because all four legal families are simultaneously affected. For a comprehensive sample of European takeovers over the 2001-2011 period, we analyze changes in deal characteristics, the impact of the regulatory environment on acquisition efficiency, and corporate governance spillover effects through cross-border M&As. First, while we document some changes in deal characteristics that are similar across all legal families (e.g., pertaining to the method of payment and target type), we find also some dramatically different effects across legal families (e.g., pertaining to cross-border M&As). Second, our analysis of the determinants of acquisition efficiency reveals that differences in the effects of legal family on acquirer returns diminished after the harmonization of takeover law in 2006, while at the same time the importance of the quality of law enforcement and culture increased. Finally, next to the regulator-driven convergence, we also report an ongoing market-driven convergence through cross-border takeovers. Cross-border deals contribute to an increase in shareholder rights and a growing dispersion in firms' ownership structures. However, our findings do not support the hypothesis that different corporate governance standards are an economic motive for acquisitions abroad.
Abstract in German:	Regulatorische Reformen haben einen Prozess der Corporate-Governance-Konvergenz im Europäischen Markt für Mergers & Acquisitions (M&A) in den Jahren 2004-2006 initiiert. Der Europäische M&A-Markt bietet einen interessanten Kontext für eine Analyse zu Corporate-Governance-Konvergenz, da alle vier Rechtstraditionen simultan betroffen sind. Anhand einer umfassenden Stichprobe von Europäischen M&A-Transaktionen zwischen 2001 und 2011 analysieren wir Veränderungen der Transaktionscharakteristika, den Einfluss der regulatorischen Rahmenbedingungen auf Akquisitionseffizienz und sog. Spillover-Effekte von Corporate Governance in grenzüberschreitenden Transaktionen. Erstens finden wir einige Veränderungen von Transaktionscharakteristika, die in allen Rechtstraditionen gleich sind (bspw. die Zahlungsform oder die Übernahmezielauswahl betreffend), wobei sich andere in den Rechtstraditionen diametral unterscheiden (bspw. grenzüberschreitende Transaktionsmuster betreffend). Zweitens offenbart unsere Analyse der Determinanten von Akquisitionseffizienz, dass Unterschiede des Einflusses von Rechtstraditionen nach der regulatorischen Konvergenz verschwinden, wohingegen die Relevanz des Gesetzesvollzugs in den einzelnen Rechtstraditionen sowie der kulturellen Dissonanz zwischen Käufer- und Verkäuferland zunimmt. Schließlich untersuchen wir neben der regulatorinduzierten auch marktinduzierte Konvergenz. Dabei zeigen wir, dass grenzüberschreitende Transaktionen zu einer Erhöhung von Aktionärsrechten und der Dispersion von Eigentumsstrukturen führen. Allerdings stützen unsere Ergebnisse nicht die Hypothese, dass Unterschiede der Corporate Governance ein ökonomisches Motiv für grenzüberschreitende Akquisitionen sind.
Current status:	Submitted to the Journal of Management and Governance

Paper 2

Title in English:	Legal Shareholder Rights and Acquirer Returns
Title in German:	Gesetzliche Aktionärsrechte und Akquisitionsrenditen
Abstract in English:	We examine the relationship between legal shareholder rights and acquirer returns. Europe is an ideal context to explore this link because various institutional differences and the recent regulatory integration of takeover markets make the European Takeover Directive (ETD) a suitable focus for a natural experiment. We show that an improvement of legal shareholder rights entails an increase in acquirer returns, supporting the hypothesis that strong legal shareholder rights confine the discretion of corporate insiders, leading to better investment decisions. However, our results also indicate that this value creation is partly consumed by the costs of the reform. We find that the gains from improving legal shareholder rights are decreasing in the relative disruption of prevailing governance practices.
Abstract in German:	Wir untersuchen den Zusammenhang zwischen gesetzlichen Aktionärsrechten und Akquisitionsrenditen. Europa bietet einen idealen Kontext, um diesen Zusammenhang zu untersuchen, denn institutionelle Unterschiede und die regulatorische Integration von M&A-Märkten machen die Europäische Übernahmerichtlinie (EÜR) zu einem geeigneten natürlichen Experiment. Wir zeigen, dass eine Stärkung gesetzlicher Aktionärsrechte eine Erhöhung von Akquisitionsrenditen verursacht. Dieses Ergebnis stützt die Hypothese, dass starke gesetzliche Aktionärsrechte den Ermessensspielraum von unternehmerischen Insidern begrenzen, was wiederum zu besseren Investitionsentscheidungen führt. Allerdings indizieren unsere Ergebnisse ebenfalls, dass diese Wertsteigerung durch die Kosten der regulatorischen Reform im Rahmen der EÜR teilweise aufgezehrt wurden. Wir zeigen einen negativen Zusammenhang zwischen der Steigerung von Akquisitionsrenditen durch die Stärkung gesetzlicher Aktionärsrechte und der relativen Disruption der vorherrschenden Corporate-Governance-Standards.
Current status:	Submitted to The Review of Financial Studies

Paper 3	
Title in English:	Does Competition Policy Affect Acquisition Efficiency? Evidence from the Reform of European Merger Control
Title in German:	Beeinflusst Wettbewerbspolitik die Effizienz von Unternehmensübernahmen? Evidenz aus der Reform der Europäischer Fusionskontrolle
Abstract in English:	We use the reform of the European Commission Merger Regulation as a natural experiment to examine the more general relationship between merger control and the profitability of corporate acquisitions. Our results suggest that acquisition efficiency is significantly lower in controlled deals, although the reform-induced improvement of legal certainty ameliorated this effect. The valuation effect is more pronounced in concentrated industries and in national cultures where firms tend to be more intolerant to uncertainty. These findings are consistent with the hypothesis that uncertainty about merger control decisions impedes M&A activity, which amplifies managerial entrenchment and enables managers to make agency-motivated acquisitions.
Abstract in German:	Wir nutzen die Reformierung der Europäischen Fusionskontrollverordnung als natürliches Experiment, um den generellen Zusammenhang zwischen Fusionskontrolle und der Profitabilität von Unternehmensübernahmen zu untersuchen. Unsere Ergebnisse zeigen, dass die Effizienz von Unternehmensübernahmen in kontrollierten Transaktionen signifikant schwächer ist, wenngleich die reforminduzierte Verbesserung der Rechtsicherheit diesen Effekt gemildert hat. Dieser Bewertungseffekt ist ausgeprägter in konzentrierten Industrien und in nationalen Kulturkreisen, in den Firmen tendenziell unsicherheitsavers sind. Diese Ergebnisse sind konsistent mit der Hypothese, dass Unsicherheit hinsichtlich der Fusionskontrollentscheidungen M&A-Aktivität hindert, was das Risiko einer feindlichen Übernahme für bestehende Manager verringert (’managerial entrenchment’) und somit zu wertvernichtenden Unternehmensübernahmen führt.
Current status:	Working Paper

APPENDIX 2

Statement of personal contribution pursuant to § 6 (4) of the PromO

Paper	Title	Co-authors	Personal Contribution		
			Conception	**Execution**	**Reporting**
1	Corporate Governance Convergence in the European M&A Market	Wolfgang Drobetz	Participation in literature review Participation in identification of the research gap and aimed incremental contribution Participation in development of conceptual framework and research design	Sample compilation from various sources Preparation of data Programming of statistical code in R Execution of data analyses following consultation with co-authors Participation in interpretation of results Participation in incorporating referees' comments	Preparation of the first draft Participation in the writing and editing of all revised manuscript versions Participating in compiling a version for submission to the European Financial Management
2	Legal Shareholder Rights and Acquirer Returns	Gishan Dissanaike, Wolfgang Drobetz	Extension of master thesis (at the University of Cambridge, Judge Business School) Participation in literature review Participation in identification of the research gap and aimed incremental contribution Participation in development of conceptual framework and research design	Sample compilation from various sources Preparation of data, in particular with regard to the specifications for the difference-in-differences models Programming of statistical code in R Execution of data analyses following consultation with co-authors Participation in interpretation of results Participation in incorporating referees' comments	Preparation of the first draft Participation in the writing and editing of all revised manuscript versions Participating in compiling a version for submission to the Review of Financial Studies Presentation of working paper at the PhD seminar at the University of Cambridge, Judge Business School

3	Does Competition Policy Affect Acquisition Efficiency? Evidence from the Reform of European Merger Control	Gishan Dissanaike, Wolfgang Drobetz	Participation in literature review Participation in identification of the research gap and aimed incremental contribution Participation in development of conceptual framework and research design	Sample compilation from various sources (mostly hand-collected) Preparation of data, in particular with regard to the specifications for the difference-in-differences models Programming of statistical code in R Execution of data analyses following consultation with co-authors Participation in interpretation of results	Preparation of the first draft Participation in the writing and editing of all revised manuscript versions

APPENDIX 3

Overview of activities eligible for credits pursuant to § 6 (8) of the PromO

Name	Location	Event	Date	Lecturer	Eligible	Points
PhD coursework	University of Cambridge	MPhil program	01.10.2013-31.07.2014	Cambridge Judge Business School faculty	No	90
Course "Advanced Regressions"	University of St. Gallen	Global School of Empirical Research Methods	08.-12.06.2015	Prof. Zorn (Pennsylvania State University)	Yes	6
Course "Bayesian Statistics"	University of St. Gallen	Global School of Empirical Research Methods	15.-19.06.2015	Prof. Kruschke (Indiana University)	Yes	6
					Sum eligible:	**12**

APPENDIX 4

Affidavit

Hiermit erkläre ich, Paul Peyman Momtaz, an Eides statt, dass ich die Dissertation mit dem Titel

„The Law and Finance of Corporate Takeovers in Europe"

selbstständig und bei einer Zusammenarbeit mit anderen Wissenschaftlern gemäß der beigefügten Darlegung nach § 6 Abs. 4 der Promotionsordnung der Fakultät für Betriebswirtschaft vom 9. Juli 2014 verfasst habe. Andere als die angegebenen Hilfsmittel habe ich nicht benutzt. Die den herangezogenen Werken wörtlich oder sinngemäß entnommenen Stellen sind als solche gekennzeichnet. Darüber hinaus versichere ich hiermit, dass ich keine Promotionsberatung in Anspruch genommen wurde und die Arbeit nicht schon einmal in einem früheren Promotionsverfahren im In- oder Ausland angenommen oder als ungenügend beurteilt wurde.

Frankfurt am Main, den 25.07.2016