

Disclosure Regulation and Corporate Acquisitions

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October 2018

* We would like to thank Mireia Gine, Ian Gow, Christian Leuz, Stefano Sacchetto, Laurence van Lent, Matthias Breuer, Max Mueller, Max Muhn, Paul Healy, participants at the EAA 2018 annual meeting, and workshop participants at Chinese University of Hong Kong, Hong Kong University of Science and Technology, Frankfurt School of Finance and Management, IDC Herzliya University, IÉSEG School of Management, National University of Singapore, Singapore Management University, The University of Melbourne, Tilburg University, University of Queensland, and University of Technology Sydney for their useful comments and suggestions. The paper has also benefitted from the excellent research assistance of Eloy Lanau, Donald N’Gatta, Vicent Peris, and Sergio Ribera. We benefited from conversations with industry practitioners and regulators. We are indebted to Alvaro Villanueva (former head of M&As at Caixabank), Pedro Arranz (former managing director of the Derivatives & Structured Products Division at Ahorro Corporación), and the U.K. FSA FOIA team for their technical support. Miguel Duro acknowledges financial assistance from research project ECO2016-77579-1-P funded by the Spanish Ministry of Economics, Industry and Competitiveness. Gaizka Ormazabal acknowledges funding from the BBVA Foundation (2016 grant “Ayudas a Investigadores, Innovadores, y Creadores Culturales”), the Marie Curie and Ramon y Cajal Fellowships, and the Spanish Ministry of Science and Innovation (grant ECO2015-63711-P). Send correspondence to Gaizka Ormazabal, IESE Business School. Avd Pearson 21, 08034 Barcelona, Spain. Email-address: gormazabal@iese.edu.

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Abstract

This paper examines the effect of disclosure regulation on the market for corporate control. We study the implementation of a recent European regulation imposing tighter disclosure requirements regarding the financial and ownership information provided by public firms. We find a substantial drop in the number of control acquisitions after the implementation of the regulation, a decrease that is concentrated in countries with more dynamic takeover markets. Consistent with the idea that the disclosure requirements increased acquisition costs, we also observe that, under the new disclosure regime, target (acquirer) stock returns around the acquisition announcement are higher (lower), and toeholds are substantially smaller. Overall, our evidence suggests that tighter disclosure requirements can impose significant acquisition costs on bidders and thus slow down the market for corporate control.

Keywords: disclosure regulation, market for corporate control, takeover laws, proprietary costs, mergers and acquisitions.

JEL Classifications: G34, G38, K22.

1. Introduction

Disclosure regulation is often viewed as critical in promoting capital formation and the well-functioning of capital markets. Consistent with this idea, prior research documents substantial economic benefits of disclosure mandates (see Leuz and Wysocki, 2016, for a review). However, the theoretical literature points out that tightening disclosure rules has important tradeoffs; for example, more disclosure can crowd out private information production, and destroy risk-sharing or trading opportunities (Goldstein and Yang, 2017).

These tradeoffs of disclosure regulation are especially pronounced in the case of the takeover market. While an enhanced information environment could facilitate deals by lowering transaction costs, tighter ownership disclosure requirements could add to the costs faced by potential acquirers and thus deter some otherwise marginally profitable takeovers. In light of this countervailing effect, this paper examines whether mandatory disclosure can introduce costs that outweigh acquirers' benefits from transparency to the point of slowing down takeover activity.

To address this question, we exploit a major regulatory development in the European Union (E.U.): Directive 2004/109/EC, also known as "The Transparency Directive" ("TPD", hereafter). This legislation was approved in 2004, implemented across EU countries at different points in time between 2007 and 2009, and further extended in recent years. The TPD aims to provide greater transparency for investors in European public firms through a set of disclosure requirements that relate to periodic financial information. Importantly, the regulation includes key provisions related to ongoing disclosures. In particular, the TPD tightened ownership disclosure rules by extending the definition of beneficial ownership to shares indirectly owned through financial instruments.

Several considerations suggest that this setting is well suited to address our research question. First, it was introduced separately from the rules governing the takeover process (i.e., Takeover Directive 2004/25/EC) and thus provides a clean setting to study the effect of disclosure regulation on takeover activity. Second, as European countries implemented the directive at different points in time for relatively exogenous reasons, this setting helps address identification challenges faced by prior research (Christensen et al., 2016).¹ Third, as the TPD contains disclosure requirements that could have opposite effects on acquisition activity, this setting allows us to examine whether mandatory disclosure can introduce costs that outweigh acquirers' benefits from transparency. Fourth, the cross-country variation offered by our setting allows us to examine how the effect of disclosure regulation on takeover activity depends on institutional features.

The findings of prior literature on the effect of the TPD on liquidity (Christensen et al., 2016) suggest that disclosure regulation could result in an increase in takeover activity. By decreasing information acquisition costs (Fishman, 1988) and adverse selection (Christensen et al., 2016), tighter financial disclosure requirements on firms' periodic financial reports can lower the cost the bidder faces in identifying and assessing potential targets. The disclosure of major shareholdings may also have a similar effect, as potential bidders could use such information to better understand how acquisition costs are affected by the target firm's voting structure (La Porta et al., 1999) and free float (Ringe, 2016).² Finally, the harmonization of financial and ownership information across the E.U. could have increased comparability, encouraging cross-border acquisitions (Francis et al., 2016).

¹ The country-specific "entry-into-force" or "implementation" dates in each country result from the requirement that member states implement E.U.-wide directives within a given time frame. The specific timing of the implementation is determined by the countries' legislative processes.

² The following anecdote illustrates the importance of information related to the free float. In 2008, Porsche disclosed its 30% hidden stake in Volkswagen. As short sellers had estimated a free float of 13% while the actual free float was 6%, the disclosure allegedly led to a "short squeeze" (i.e., a sharp increase in the stock price that forces short sellers to close out their positions, thus adding to the upward price pressure) (Ringe, 2016).

However, the disclosure requirements for major shareholdings introduced by the TPD could also increase the cost of conducting a takeover. As explained by Grossman and Hart (1980b), mandatory disclosure of ownership information can lower the expected return from acquisition activity because the bidder cannot maintain her initial information advantage throughout the bidding process. That is, the information released under the ownership disclosure rules could be used not only by incumbent shareholders, but also by competing bidders, and by the managers of the target (who could prepare a defense). In addition, to the extent that the disclosure of an increase in ownership can increase the target share price, building a toehold can become more costly if the purchases cannot be conducted before triggering the disclosure requirement.³

The current debate about the so-called “hidden ownership” strategy (also referred to as “stealth stake-building”) suggests that acquirers prefer to avoid the disclosure of an increase in ownership (e.g., Hu and Black, 2007; Enriques and Gatti, 2015). The underlying idea is that, to lower the cost of the acquisition, the bidder builds a stake in the target firm through shares and financial instruments without disclosing its holdings. Several prominent cases from the period when the TPD had still not entered into force illustrate how the “hidden ownership” strategy works in practice. For example, in 2001, SAI successfully parked Fondiaria shares with banks to avoid Italy’s mandatory bid rule, retaining call options on the shares. In 2005, Banco Popolare di Lodi acquired a 46% stake in Antonveneta via direct purchases (29.3%) and undisclosed call options (16.9%). Also in 2005, Victory Industriebeteiligung AG and Renova disclosed a 42% stake in Unaxis, which they had secretly acquired through call options. Two recent examples of the debate spurred by this acquisition strategy in the U.S. are the court

³ As explained by Shleifer and Vishny (1986), pre-takeover toehold acquisitions are a common way to mitigate the free-rider problem in takeovers pointed out by Grossman and Hart (1980a), as the bidders gain on the acquired target shares.

decision in the case of *CSX Corporation v. The Children’s Investment Fund Management* (July 2011) and the Brokaw Act proposal (March 2016).⁴ Critically, the TPD makes the “hidden ownership” strategy more difficult, as the regulation mandates to include shares indirectly owned through financial instruments in the computation of the thresholds triggering ownership disclosure requirements.

Our analyses are based on a comprehensive sample of EU control acquisitions of public firms from 2001 to 2017. Using a difference-in-differences design that exploits the staggered implementation of the TPD, we examine whether the new disclosure requirements affect takeover activity in European countries. We observe an abrupt *decrease* in the number of control acquisitions after the implementation of the TPD. This pattern is robust to including country and month-year fixed effects, as well as a comprehensive set of controls. Our inferences are not affected when we conduct placebo tests that replicate the main analysis by randomizing the country-specific implementation dates, and by relying on a sample of private target firms that are not subject to the TPD. These results hold when we restrict the sample to a short window (12 months) around the implementation of the directive. Collectively, these analyses alleviate the concern that the decrease in takeover activity is driven by a secular trend, by a contemporaneous economic shock such as the financial crisis, or by a confounding legislation.

We further sharpen identification by exploiting cross-sectional variation in the institutional and market characteristics of the sample countries. We find that the documented decrease in takeover activity is concentrated in countries with higher regulatory quality, stricter

⁴The appeals court decision in *CSX Corp. v. Children's Investment Fund Management (UK) LLP* explored the issue of whether the long party to a cash-settled equity total return swap is subject to the disclosure requirements of Sections 13(d) and (g) of the Exchange Act by reason of “beneficial ownership”. The Brokaw Act is named after a town in the U.S. that went bankrupt after the closing of the paper mill employing a large part of the population. The case was controversial, among other reasons, because it was claimed that the closing was related to the takeover of the firm by a hedge fund. The bill sought to “increase transparency and strengthen oversight of activist hedge funds” and spurred a vigorous public debate (e.g., Bebchuk and Jackson, 2012; Emmerich et al., 2013; Brav et al., 2018).

enforcement, and fewer antitakeover provisions. Our results are also stronger in countries with lower ownership concentration and higher institutional ownership. Overall, the TPD appears to have decreased takeover activity to a greater extent in countries where the effect of the regulation is expected to be more pronounced. Such countries exhibit higher levels of takeover activity before the regulation, which suggests that the slowdown in takeover activity after the implementation of the TPD is concentrated in more dynamic markets. As such, under the TPD, E.U. countries converge to a lower level of takeover activity.⁵

To corroborate that our inferences are not confounded by changes in economic conditions concurrent with the introduction of the TPD (notably, the credit shortages which occurred during the financial crisis), we study the effect of later developments of the directive. In 2013, the E.U. issued Directive 2013/50/EU, which, with a special emphasis on the disclosure of equity derivatives, amended the TPD by further tightening ownership disclosure requirements. We find that this tightening of the TPD is followed by an additional decrease in the number of control acquisitions. This result is robust to the battery of placebos and to the short-window analysis we use for our prior tests.

To corroborate that the decrease in takeover activity under the TPD is indeed driven by an increase in the costs bidders face in conducting a takeover, we next examine target and acquirers' stock returns around the acquisition announcement date. The results suggest an increase in takeover premiums after the entry-into-force of the TPD; *target (acquiring)* firms exhibit *higher (lower)* stock price reactions around acquisition announcements made after the regulatory change.

⁵ Our findings are consistent with the results in Christensen et al. (2016), who find evidence of “hysteresis” in the implementation of the TPD and other EU regulations, namely that the effect is concentrated among countries where the previous regulatory conditions are relatively stronger. Similarly, we document that the effect of the TPD on takeover activity is greater in countries where previous regulatory conditions are relatively stronger.

Lastly, we examine whether the implementation of the TPD affects the size of the toehold held by the acquirer at the announcement date. Consistent with the idea that the disclosure of ownership information increases the cost of building a toehold, we document that the TPD is followed by a decrease in the size of the acquirer's toehold, as measured at the announcement date. To the extent that acquirers disclosing a toehold at the acquisition announcement date are more likely to have accumulated undisclosed ownership prior to that date, this evidence reinforces our inference that the decrease in takeover activity following the implementation of the TPD is related to ownership disclosure rules.

Our paper contributes to the literature in several ways. First and foremost, the results of this paper add to the literature studying the tradeoffs of regulations aimed at increasing corporate transparency. On the theoretical side, the literature is quite ambiguous about the effects of disclosure (Leuz and Wysocki, 2016; Goldstein and Yang, 2017).⁶ On the empirical side, there is an extensive literature on the economic effects of disclosure regulation in the U.S and in cross-country settings.^{7, 8} Yet, another strand of the literature documents that greater transparency following a disclosure mandate affects investment and resource allocation (e.g., Badertscher, Shroff, and White, 2013).

Recent reviews of this empirical literature point out that, while providing important insights, the findings are often conflicting, and thus call for further research on the cost and

⁶ On the one hand, by leveling the playing field in financial markets, disclosure regulation could increase market liquidity and market efficiency, and decrease the cost of capital for firms (see Goldstein and Yang, 2017 for a theoretical characterization). However, disclosure regulation could also crowd out private information production (e.g., Verrecchia, 1982; Diamond, 1985), destroy risk-sharing and trading opportunities (Hirshleifer, 1971; Kurlat and Veldkamp, 2015), and generate destabilizing beauty-contest incentives (Morris & Shin, 2002).

⁷ The literature on U.S. disclosure regulation examines the introduction of the Securities Act of 1933 and the Exchange Act of 1934, as well as major subsequent changes, including the 1964 Securities Act Amendments, the 1999 Eligibility Rule on the OTC Bulletin Board, the Regulation Fair Disclosure of 2000, and the Sarbanes-Oxley Act of 2002.

⁸ Notably, some recent papers show that the E.U.'s security regulations have increased financial integration and business-cycle synchronization (Kalemli-Ozcan et al., 2013), improved liquidity (Christensen et al., 2016), and increased external financing, employment, investments (Meier, 2018), and household equity ownership (Christensen et al., 2017). We extend this literature by documenting that the E.U.'s tightening of disclosure regulation has also affected the market for corporate control, a finding important in itself given the current efforts to integrate the E.U. economy and the international reach of E.U. laws.

benefits of disclosure regulation (Beyer et al., 2010; Leuz and Wysocki, 2016). In particular, Leuz and Wysocki (2016) highlight a paucity of evidence on the direct and indirect costs associated with disclosure regulation.⁹ Moreover, this literature rarely addresses the effect of disclosure regulation on the market for corporate control.¹⁰ Against this backdrop, we contribute to the research on the economic consequences of corporate transparency by documenting that certain disclosure mandates can slow down the market for corporate control.

Our paper also contributes to the literature on the effect of regulation on the takeover market. This effect is still not well understood, as highlighted by the ongoing debate around the laws and rules that govern takeover bids and firms' adoption of antitakeover defenses (e.g., Betton et al., 2008; Catan and Kahan, 2016; Cain et al., 2017; Karpoff and Wittry, 2018). Prior works have examined these laws, finding mixed results (see Eckbo, 2009 and Cain et al., 2017 for recent reviews). By showing that disclosure regulation can have first-order effects on the takeover market, we contribute to recent research exploring the takeover market consequences of regulation not directly focused on takeover transactions.¹¹

A stream of the literature has examined takeover regulations that include disclosure requirements. Notably, Jarrell and Bradley (1980) and Schipper and Thompson (1983) document an increase in takeover premiums after the passage of the U.S. Williams Act of 1968.¹² As explained by Eckbo (2009), however, the potential effect of disclosure requirements

⁹ The theoretical literature has pointed out that disclosure regulation can impose proprietary costs, although the empirical evidence of such costs remains elusive. Prior work infers the presence of proprietary costs from documenting that firms avoid disclosing certain sensitive information or take actions to avoid a disclosure requirement (e.g., Berger and Hann 2003; Bernard, 2016), but rarely provides direct tests of the proprietary costs imposed by disclosure regulation.

¹⁰ One notable exception is Chen (2018), who shows that disclosure of the targets' audited financial statements disciplines managers' mergers and acquisitions (M&A) decisions.

¹¹ This research includes international studies such as Rossi and Volpin (2004), Esrel et al. (2012), and Dessaint et al. (2017), which find that takeover activity is enhanced by the country's legal shareholder protection, accounting standards, and labor laws. There is also evidence that industrial deregulation over the past decades has fueled industry merger waves (e.g., Ovtchinnikov, 2013).

¹² The Williams Act of 1968 introduced ongoing ownership disclosure requirements along with a number of procedural requirements related to tender offers. In particular, acquirers who purchase more than 5% of a company have 10 days to issue a 13D filing with the SEC that reports their stake.

embedded in the Williams Act is confounded by the effects of other procedural requirements; a concern exacerbated by recent empirical evidence which suggests that the Williams Act had little effect on the volume of takeover activity (Cain et al., 2017). Eckbo and Langohr (1989) address this identification issue by studying the tender offer regulation of 1970 in France, which focused on mandatory disclosure in the context of takeover bids.

Our study differs from this literature in a number of dimensions. First, unlike these studies, we examine whether disclosure regulation can introduce costs for acquirers that outweigh the benefits they derive from enhanced financial reporting. Second, this literature documents an effect on takeover premiums, but does not explore whether the regulatory effect is strong enough to affect the volume of takeover activity. Third, the disclosure requirements studied by Eckbo and Langohr (1989) relate to bidding rules (for example, the obligation to disclose the rationale behind the offer), and thus are inherently different from the ongoing ownership disclosure requirements we study. Lastly, the evolution of the institutional context –notably the recent use of financial derivatives to build a stealth stake in the target firm– raises the question of whether the inferences of earlier studies are applicable to later periods.

The paper proceeds as follows. Section 2 provides institutional background of the TPD. Section 3 analyzes takeover activity around the implementation of the TPD and its later amendment. Section 4 explores whether the implementation of the TPD is associated with changes in acquisition costs. Section 5 describes additional tests. Section 6 concludes.

2. The E.U. Transparency Directive

In 2004, the E.U. introduced Transparency Directive 2004/109/EC. The TPD was passed in the context of the E.U.'s Financial Services Action Plan, a comprehensive program established in 1999 with the goal of improving and integrating financial markets within the E.U. In this context, the stated objective of the directive was to provide greater transparency

for investors in European public firms and to harmonize the disclosure requirements across E.U. countries (Appendix B.1 includes a summary of the disclosure requirements addressed by the TPD, and Online Appendix OA includes real examples of ownership disclosure before and after the regulation).

In regards to *periodic* information, the TPD includes provisions for financial reporting disclosures (notably, the filing of annual and semi-annual reports in accordance with IFRS). Given that IFRS reporting was already required by previous E.U. regulation (Regulation No. 1606/2002), and the fact that most stock exchanges already required the filing of semi-annual reports and the disclosure of significant events, the TPD did not substantially alter firms' financial reporting requirements.

In regards to *ongoing* information, the TPD significantly tightened ownership disclosure requirements, ensuring broader and quicker access to information about shareholdings. First, the new regulation modified the ownership thresholds triggering public notifications. The TPD not only reduced the minimum disclosure threshold but also increased the number of thresholds triggering disclosure (Article 9). Second, the directive reduced the time for the notification by several days (Article 12). Finally, the directive extended these notification requirements to a natural person or legal entity holding financial instruments, such as derivatives with physical settlement that result in an entitlement to acquire shares of a listed firm (Article 13).

The TPD stipulated major changes to the supervisory regime and the enforcement of corporate reporting and disclosure rules. Specifically, the directive required each member state to designate a competent supervisory authority to be in charge of monitoring compliance with the reporting and disclosure requirements imposed by the directive (Article 24).

The regulation also dealt with the mechanisms through which regulated information is disseminated and stored. The directive required member states to set up an Officially Appointed Mechanism (OAM) in which regulated information would be centrally stored and through which investors could access the information fast and free of charge (Article 21). As a result, the member states have set up online databases that allow the public to search for all required information, similar to the EDGAR database in the U.S.

As a minimum harmonization directive, each country member of the European Union was granted a certain flexibility in implementing the new directive. This flexibility resulted in some cross-sectional variation in the disclosure requirements, but most notably in the timing of the implementation; while the U.K. implemented the directive in 2007, Italy did not do so until 2009.

The impact of the TPD on E.U. capital markets' functioning has proved to be non-trivial, with observable effects on liquidity, and on the amount of financing and investment (e.g., Kalemli-Ozcan et al., 2013; Christensen et al., 2016; Meier, 2018). To gauge the impact of the TPD on the functioning of the takeover market, we first analyze whether the TPD is associated with an increase in the number of ownership notifications. Such a test has the flavor of a first stage analysis, and it intends to provide preliminary evidence on the extent to which the TPD can affect takeover activity by eliciting substantial ownership disclosure.

We obtain information about ownership disclosure filings from the SDC Platinum database.¹³ We first compute the number of ownership notifications filed per month for each country in our sample. Next, we compute the monthly cross-country average of this metric relative to the implementation date. Figure 1 reveals a substantial increase in the average

¹³ Ownership filings contain notifications about changes of 3% or more in the ownership of listed firms.

number of ownership disclosure notifications in the months after the TPD implementation dates, which suggests that the regulation led to the release of more information about firms' ownership structure.

3. Corporate Acquisition Activity

3.1. Average effect of the TPD

To test whether the TPD affects the volume of corporate acquisition activity in the E.U., we collect data from the SDC Platinum Worldwide Mergers and Acquisitions Database on corporate acquisitions over the period from 2001 to 2017. Stock price data are obtained from Datastream and accounting and ownership information is obtained from Worldscope and Amadeus-Bureau van Dijk. Our sample includes all European countries that were members of the E.U. in 2004 (i.e., the year when the TPD was introduced) and in which we observe at least one completed control acquisition of a public company per year.¹⁴

We focus on completed control acquisitions where the target is a listed firm incorporated in the European countries included in Appendix C (i.e., we exclude transactions where the target's listing status is not "public").¹⁵ We also exclude from the sample acquisitions where the target firm is listed on unregulated stock exchanges, as the TPD does not apply to these firms. Following prior literature (e.g., Faccio and Masulis 2005; Faccio et al., 2006; Edmans et al., 2012; Dessaint et al., 2017), we define a "completed control acquisition" as a transaction where the acquirer owns less than 50% of the target's shares prior to the acquisition and buys at least a 25% stake. We further require that the amount paid for the target be at least 5.0 million euros and that stock price data for the target be available on Datastream around the

¹⁴ While not an E.U. member, Norway adopted the TPD. For robustness, we repeat our main analysis including this country in the sample. Inferences are unaffected.

¹⁵ SDC includes transactions coded as "pending". To check that our inferences are not affected by the timing of incorporation of the M&A information into the database, we repeat our main analysis considering "pending" transactions as closed. Our inferences are unaffected.

transaction announcement date. We finally exclude transactions in which the target is a financial firm (SIC code 6000-6999) or a utility firm (SIC code 4000-4949), as takeovers are highly regulated in these industries. We also exclude deals related to bankruptcies, debt restructurings, bank failures, joint ventures, liquidations, privatizations, recapitalizations, and spinoffs. These requirements yield a final sample of 2,873 unique acquisitions across 15 European countries (listed in Appendix C) and 3,060 country-month-year observations. Table 1, panels A and B, report descriptive statistics for the variables we use in our tests at the country level and at the transaction level, respectively.

Our empirical strategy for estimating the effect of the TPD on the market for corporate control exploits the monthly time-series variation in the entry-into-force dates of this disclosure regulation across European countries. We collect these dates from publications by the European Commission.

We start our empirical analysis by graphically exploring the trends in takeover activity around the implementation of the TPD across the sample countries. Figure 2 plots the number of completed control acquisitions around the implementation of the TPD. The vertical axis is the monthly average number of control acquisition deals for our sample. We superimpose on the graph estimates from a non-linear regression of the number of control acquisitions, including the corresponding confidence intervals. The graph shows that the number of control acquisitions exhibits a sharp decrease around the implementation month, with no clear pattern in the months leading up to the implementation date.

Table 2, panel A, presents univariate analyses of the number of completed control acquisitions within short windows around the implementation of the TPD. The mean and median of the number of control acquisitions decreases significantly during the six months following the implementation, and these differences are statistically significant.

Next, in the spirit of Rossi and Volpin (2004), we conduct a multivariate analysis of the effect of the TPD on takeover activity by estimating the following model:

$$\begin{aligned} \text{Takeover_Activity}_{iym} = & \alpha_0 + \alpha_1 \times \text{Transparency_Directive}_{iym} + \\ & \Phi_1 \times \text{Country_Controls}_{iym} + \Phi_2 \times \text{Regulation_Controls}_{iym} + \text{Fixed Effects} + \varepsilon \end{aligned} \quad (1)$$

The dependent variable, *Takeover_Activity*, is the logarithm of the number of control acquisitions in country *i*, year *y*, and month *m* (for example, the number of control acquisitions in Germany in May 2010). For country *i*, year *y*, month *m*, *Transparency_Directive* is an indicator variable that equals one for the months after the entry-into-force of the TPD in that country, and zero otherwise. We conduct the analysis at the monthly-level to fully exploit granularity in the available information on the entry-into-force of the TPD.

Country_Controls includes a set of country-level variables to control for factors that may affect the takeover market. *Stock_Market_Size* is the logarithm of the main Stock Exchange's market capitalization in a country-month-year (in millions of euros). *GDP_capita* is the logarithm of the country's annual gross domestic product per capita (in thousands of euros). *Gov_Bond_10yr* is the 10-year yield on government bonds in a country-month-year (in percentage). *Returns_Volatility* is the standard deviation of the daily stock market returns of each country-month-year (in percentage). *Listed_firms* is the logarithm of the number of listed firms in a given country-month-year. *Consumption* is the final consumption expenditures (seasonally and calendar adjusted) in a country-quarter-year, in constant prices (2010 as reference year). *Investment* is the gross fixed capital formation (seasonally and calendar adjusted) in a country-quarter-year, in constant prices (2010 as reference year). We collect this information from Eurostat.

Regulation_Controls includes a vector of controls for potentially confounding regulations: *Takeover_Directive*, *Market_Abuse_Directive*, and *Shareholder_Rights_Directive* (see Appendix E for a summary of each of these regulations). These variables are measured using the country-specific implementation date of each regulation (see Appendix C).¹⁶

To further control for country characteristics as well as trends and shocks common to the sample countries in a given month, we include country and month-year fixed effects (Christensen et al., 2016). Standard errors are clustered by country.¹⁷

Table 2, panel B, reports the results from the estimation of equation (1). The coefficient on *Transparency_Directive* is negative and statistically significant across the model specifications. This result confirms the pattern documented in Figure 2 and panel A of Table 2, and suggests that the implementation of the TPD induced a significant decrease in takeover activity within the E.U. In terms of economic significance, our estimates imply that the implementation of the TPD leads to a decrease in takeover activity of around 0.34 deals per country and month, which is a significant figure considering that our sample covers a wide cross-section of countries.

3.2. Falsification tests

¹⁶ In addition to these regulations, we contemplate the possibility that our inferences are affected by International Financial Reporting Standards (“IFRS”) and by the Markets in Financial Instruments Directive 2004/39/EC (“MiFID”). Regarding IFRS, the adoption date of the new standards is the same for all countries in our sample and thus its potential effect is controlled for by the month-year fixed effect structure of our specifications. Regarding MiFID, the theoretical effect of this regulation on takeover activity is unclear, as the directive mostly focuses on order handling. Moreover, there is little variation in the implementation dates (i.e., 12 out of 15 of the sample countries have a common implementation date), which implies that the potential effect of the MiFID is likely captured by our fixed effect structure. That said, to corroborate that the MiFID does not affect our inferences we include an indicator variable for the implementation of MiFID as additional control variable. The coefficient on *Transparency_Directive* remains negative and significant.

¹⁷ To ensure that our inferences are not affected by estimating standard errors using a reduced number of clusters, we re-estimate equation (1) aggregating acquisitions at the country-industry-month-year level and clustering standard errors at the country-industry level. The overall inference is unchanged.

The main concern about drawing the inference that the implementation of the TPD is associated with a decrease in takeover activity is that the pattern documented in Table 2 could merely reflect a secular trend in the volume of control acquisitions. The decrease in the number of control acquisitions could also be driven by concurrent regulations or by macroeconomic shocks, such as the credit shortages that occurred around the financial crisis.

Our empirical design accounts for the potential confounding effects of trends in takeover activity and E.U.-wide economic shocks by including month-year fixed effects. Indeed, given the staggered implementation of the TPD across E.U. countries and our fixed effect structure, trends and confounding shocks cannot affect our estimates unless they correlate with the country-specific implementation dates. Yet, we further check that our results are indeed attributable to the TPD by conducting two placebo tests.

First, we replicate the analysis in Table 2 by randomizing the dates of the implementation of the TPD over the sample period. If our inferences were the result of a secular trend, then the pattern in Table 2 would not be unique to the TPD implementation dates. Operationally, we randomly draw a date over the sample period for each country. We then re-estimate equation (1) using these random implementation dates. We iterate this procedure 100 times and retain coefficient estimates and standard errors from each of the iterations. Table 3, columns 1-3, reports the average of these coefficients and standard errors. The results indicate that these placebo coefficients are close to zero and not statistically significant, suggesting that we are not simply picking up a secular trend in takeover activity. When we benchmark the coefficients on the treatment effects from Table 2, Panel C, with the placebo coefficients obtained through the randomization exercise we find that the latter are statistically different from the former (p -value < 0.001). This result corroborates that the takeover pattern we document is related to the implementation of the TPD.

Second, we replicate the analysis in Table 2 for control acquisitions where the target firm is not listed in a stock exchange. Since the TPD applies only to listed target firms, if our findings were the result of a confounding economic trend or shock, then we would observe a similar pattern for control acquisitions of private firms. As reported in Table 3, the coefficient on *Transparency_Directive* is not statistically significant in these placebo tests, which suggests that our findings in Table 2 are unlikely to be confounded by time trends unrelated to the TPD.

3.3. Short-window analysis

To further assess whether our results are confounded by the financial crisis, we conduct a short-window analysis around the implementation dates. Specifically, we limit the estimation sample to 12 months before and after the entry-into-force date of the TPD. Consistent with the results of the main analysis, we find that the coefficient on the *Transparency_Directive* is negative and significant, albeit the magnitude is slightly smaller (Table 4). We also explore whether such a pattern is driven by short-term time trends by randomizing the entry-into-force date of the TPD within the $-12/+12$ short-term window around the actual implementation date. Table 4, models 4 through 6, reports the results. None of the placebo coefficients are significant, suggesting that the patterns we document are specific to the entry-into-force dates of the TPD, and do not merely reflect a time trend in takeover activity.

3.4. Cross-sectional variation in the effect of the TPD

We next analyze whether the pattern documented in Table 2 exhibits cross-country variation along the following institutional dimensions: regulatory quality, regulatory enforcement, level of anti-takeover protections, ownership concentration, and level of institutional ownership. To the extent that institutional features have been found to be critical determinants of the intensity of the effects of regulation (e.g., Christensen et al., 2016; Karpoff

and Wittry, 2018), this analysis further sharpens the empirical identification of the effect of the TPD.

Following Christensen et al. (2016), we start by exploring variation in the pattern of Table 2 along measures of the country's overall regulatory quality and enforcement. *Regulatory_Quality* is the index developed by Kaufmann et al. (2009) to measure the "ability of the government to formulate and implement sound policies and regulations". The index is built by aggregating survey responses from regulators on the overall effectiveness of regulation in a given country. Higher values of this metric imply higher regulatory quality. Focusing more directly on the enforcement of the TPD, we define *Enforcement_Change* as an indicator variable that equals one if the country has increased the level of enforcement at the time of the implementation of the TPD, and zero otherwise. Enforcement changes are identified based on a survey sent by Christensen et al. (2016) to the authorities in charge of supervising compliance with accounting standards and the technical departments of the audit firm PricewaterhouseCoopers in each E.U. country (see Christensen et al., 2016 for further details).

Prior literature documents that the TPD increased liquidity in countries with relatively strong enforcement and high regulatory quality, but had little effect in countries with weak enforcement and low regulatory quality. In light of these prior results, we expect the effect of the TPD on the takeover market to be *more* pronounced in countries with higher values of *Regulatory_Quality* and *Enforcement_Change*.

We also explore variation in the antitakeover legislation across the countries in our sample. We collect information on control-enhancing mechanisms (CEMs) available in E.U. countries (EC, 2007). These mechanisms make less likely the success of the deal by allowing incumbent controlling shareholders to maintain control over the firm through deviations from the so-called "proportionality principle" or "one share, one vote" (OECD, 2007; EC, 2007).

Accordingly, we construct an index, *Control_Provisions*, defined as the sum of the number of CEMs available in that country (see Appendix D for details). To the extent that conducting acquisitions is already more difficult in countries with higher values of *Control_Provisions*, we expect the effect of the TPD on the takeover market to be *less* pronounced in these countries.

Next, we examine whether the effect of the TPD varies with the ownership structure prevalent in the country. We analyze two main dimensions of ownership structure that potentially affect the cost of acquiring a company: ownership concentration and institutional ownership.

We measure the ownership concentration prevalent in a country by collecting data on listed firms' ownership structure from the Amadeus-Bureau van Dijk discs. Following Claessens and Djankov (1999), we define *Ownership_Concentration* as the country-specific mean of the shares held by the top five shareholders (as % of the total shares outstanding) of the listed firms of the country, measured in the year before the TPD implementation date. The strategy of building a hidden stake to take over a company is limited in cases where ownership is concentrated. For example, if the major shareholder owns 51% of the company, a potential acquirer cannot obtain a majority stake without reaching an agreement with the controlling shareholder. As such, we expect the effect of the TPD on the takeover market to be *less* pronounced in countries with higher values of *Ownership_Concentration*.

We measure the presence of institutional investors by collecting data on the stakes held by institutional investors from the FactSet/LionShares database. *Institutional_Ownership* is computed as the country-specific mean of the shares of public firms held by all institutional investors (in % of market capitalization) in a country in the year before the TPD entry-into-force date. Institutional investors can play a crucial role in facilitating takeovers, as potential acquirers are more likely to seek support from institutions than from retail investors. Moreover,

institutional investors frequently engage in derivative contracts as counterparties, thus making it easier to build a stake in the target firm through financial instruments. As such, we expect the effect of the TPD on the takeover market to be *more* pronounced in countries with higher values of *Institutional_Ownership*.

Table 5 presents results of estimating equation (1) separately for countries with below and above median values of *Regulatory_Quality*, *Enforcement_Change*, and *Control_Provisions* (panel A), and *Ownership_Concentration* and *Institutional_Ownership* (panel B). Panels A and B of Table 5 document that the decrease in takeover activity is larger in countries with relatively higher regulatory quality, stricter enforcement, fewer control provisions, lower ownership concentration, and higher institutional ownership. That is, the TPD appears to have decreased takeover activity to a greater extent in countries where the effect of this regulation is expected to be more pronounced.

Prior research studying the capital market effects of the adoption of the TPD (e.g., Christensen et al., 2016) finds evidence of “hysteresis”, namely that the effects are concentrated among countries where the previous regulatory conditions are relatively stronger. As such, the evidence in Christensen et al. (2016) suggests that the E.U. capital markets diverge more after the entry-into-force of the regulation. In light of this prior research, we explore whether takeover markets converge/diverge after introducing the TPD. To do so, we test whether the effect we document is concentrated among countries where takeover markets were less/more dynamic prior to the regulation.

Operationally, we repeat our cross-sectional tests partitioning the sample into countries with below and above median values of *Prior_Takeover_Activity*, defined as the average yearly number of takeovers during the pre-regulation period scaled by the number of public firms in the country in the year before the implementation of the TPD. The results in Table 5, panel C,

reveal that the coefficient on *Transparency_Directive* is negative and significant in both subsamples, but the decrease in acquisitions is significantly more pronounced in the subsample of countries with higher pre-TPD takeover activity. These results are consistent with panels A and B of Table 5, as the partitioning variables used in those analyses are correlated with the level of prior takeover activity in the country.¹⁸ This pattern implies that the implementation of the TPD is associated with a convergence in takeover activity across European countries, but a convergence to a lower level of activity.

3.5. Amendment of the TPD

To corroborate that our inferences are not confounded by changes in economic conditions concurrent with the introduction of the TPD (notably, the credit shortages which occurred during the financial crisis), we study the effect of later developments of the TPD. In 2013, the TPD was amended by Directive 2013/50/EU (Appendix B.2 presents a summary of the disclosure requirements addressed by the directive). Critically, the amendment extends the definition of beneficial ownership to cash-settled derivatives (CSD) and imposes the aggregation of beneficial ownership from all contracts considered as such in the computation of the threshold triggering mandatory disclosure.¹⁹ Online Appendix OA presents examples of ownership disclosure under the regulatory amendment. While Directive 2013/50/EU was not exclusively focused on CSD disclosure, the other provisions introduced by the amendment are less likely to affect takeover activity (Nallareddy et al., 2017).

The CSD disclosure requirement was introduced after substantial controversy regarding the use of these financial instruments. For example, in 2008, Schaeffler AG stealthily built a

¹⁸ The correlation between the annual number of takeovers in the country (averaged over the period prior to the TPD and scaled by the number of public firms) and *Regulatory_Quality*, *Enforcement_Change*, *Control_Provisions*, *Ownership_Concentration*, and *Institutional_Ownership* is, respectively, 2%, -19%, -48%, -30%, and 17%.

¹⁹ Equity derivatives can be settled with securities (“physically-settled”) or with cash (“cash-settled”). Cash-settled equity derivatives (CSDs) are also known as “total return swaps” in the U.S. or “contracts for differences” in Europe.

36% stake in Continental AG via direct purchases (2.97%), physically settled equity swaps (4.95%) and various cash-settled equity swap contracts (28%).²⁰ A second example is Lactalis' acquisition of Parmalat in 2011. The French group Lactalis built a 29% stake in the Italian competitor Parmalat through direct purchases, equity swap contracts, and the purchase of blocks held by three activist funds, a stake slightly below the regulatory threshold triggering a mandatory bid. Backed by Parmalat's management, one of the Italian main banks unsuccessfully tried to organize a pool of investors to keep control of Parmalat in Italian hands. After the failed offer attempt, Lactalis launched a tender offer and secured control over Parmalat.²¹

While CSDs do not involve a physical transaction of shares, the potential acquirer could purchase the shares from the dealer (see CSER, 2010). The derivatives dealer (i.e., the short party in the derivatives transaction) often holds the underlying securities as a hedge against its short position, as alternative hedging strategies are likely to be limited and more expensive, especially in those instances where the equity swap involves a substantial number of shares of a single firm. Refusing to sell the shares to the long investor upon termination of the contract could compromise a profitable business relationship. As stated by the Code Committee of the United Kingdom's Panel on Takeovers and Mergers, the expectation of a long swap equity holder is that the derivatives dealer would ensure that the shares are available to be voted on

²⁰ Under the initial version of the TPD, these holdings did not trigger any disclosure requirement; the first two amounts are slightly below the independent ownership thresholds, triggering disclosure of open purchases and physically settled equity swaps, respectively, and the disclosure of cash-settled equity swaps was not mandatory in Germany at the time. However, under the TPD amendment of 2013, the investor would have had to disclose her stake, as the aggregated voting rights from all the shares and financial instruments (including CSDs) is greater than the 5% disclosure threshold.

²¹ In the U.S., given the current jurisprudence (e.g., CSX litigation) and regulatory framework, the applicability of Section 13(d) and 13(g) of the Exchange Act to cash-settled derivatives is unclear and there is still no bright-line rule to follow (see Hu and Black, 2008).

by its customer and/or sold to the customer upon termination or expiration of the contractual relationship (FSA, 2008).²²

To examine the effect of the amendments of the TPD related to ownership disclosure, we re-estimate equation (1) including *TPD_Amendment*, which is an indicator variable that equals one for the period starting when the country includes CSDs in the definition of beneficial ownership, and zero otherwise. Similar to the TPD, Directive 2013/50/EU was implemented in European countries at different points in time. In addition to the variation in implementation dates, some of the countries in our sample implemented the CSD disclosure requirement before the issuance of Directive 2013/50/EU. For example, the U.K. did it in 2009, Italy in 2011, and France and Germany in 2012. In these cases, we code *TPD_Amendment* using these earlier dates.

Table 6, panel A, presents the results of re-estimating equation (1) replacing *Transparency_Directive* with *TPD_Amendment*. The results suggest that, similarly to our main results, the introduction of the TPD amendment is followed by a decrease in takeover activity. This decrease is incremental to that of the TPD, as the coefficient on *TPD_Amendment* remains negative and significant when *Transparency_Directive* is included in the specification. To corroborate this inference, we replicate the placebo and short-window tests in Table 3 and 4 for the TPD amendment and obtain similar results (Table 6, panels B and C).

Taken together, the evidence in Tables 2 through 6 suggests that the pattern we document is unlikely to be driven by a secular trend or by changes in economic conditions

²² Using CSD as a takeover strategy entails some risks. First, using CSDs could antagonize the target's management and thus eliminate the possibility of termination agreements (Betton et al., 2009). Second, using CSDs could result in a substantial negative return if the bid fails, because such failure would signal a high level of managerial entrenchment (Goldman and Qian, 2005). Third, regulators can identify the use CSDs and challenge the transaction (Zetsche, 2010; FSA, 2008). Finally, the dealer might not close out a cash-settled derivative with the underlying shares (Hu and Black, 2006). Along the same lines, there may be new takeover strategies to circumvent these disclosure rules, but they may be more costly or illegal. For example, the use of shell companies that reside beyond European borders and are not subject to European supervision, or the so-called "wolf-pack strategy", which relies on gentlemen's agreements (Zetsche, 2010; Coffee and Palia, 2016).

(notably the credit shortage around the 2007-2008 financial crisis), either at the E.U.-level or at the country-level. For this to be the case, the confounding factor should occur in different countries at points in time that happen to coincide with the TPD implementation dates (whose monthly variation is mainly determined by the backlog of work of E.U. country parliaments, rather than by economic conditions). Moreover, the confounding factor should affect the cross-section of E.U. countries differently, and in a way that is correlated with the institutional determinants of the regulatory effect. Finally, the credit shortage around the financial crisis is unlikely to explain the effect of the subsequent amendment of the TPD, as the TPD amendment entry-into-force dates occurred several years after the economic upheaval.

4. Acquisition costs

To further corroborate that the slowdown of the takeover market after the implementation of the TPD is driven by an increase in acquisition costs, we perform two additional sets of analyses. First, we analyze whether the TPD affects the takeover premiums around the acquisition announcements. Second, we analyze whether the TPD affects acquirers' stock returns around acquisition announcements. An increase in takeover premiums and a decrease in acquirers' returns after the disclosure mandate relative to the prior period would be consistent with the hypothesis that acquirers' costs increase with the implementation of the TPD.

4.1. Target returns

In light of prior literature (e.g., Schwert, 1996), we examine the effect of the TPD on takeover premiums by estimating the following model at the control acquisition level:

$$\begin{aligned} Target_Returns = & \gamma_0 + \gamma_1 \times Transparency_Directive + \beta_1 \times Country_Controls + \\ & \beta_2 \times Regulation_Controls + \beta_3 \times Transaction_Controls + Fixed\ Effects + \varepsilon \end{aligned} \quad (2)$$

For each control acquisition, the dependent variable, *Target>Returns*, is the target cumulative abnormal returns over the (-42, +1) day window around the acquisition announcement date.²³ Following prior work, we compute abnormal returns based on a one-factor market model estimated over the (-253, -127) day window before the announcement date. This measure is commonly used in extant literature to gauge the acquisition premium paid by the acquirer (Eckbo, 2009).

In addition to the control variables already defined in equation (1), we include *Transaction_Controls*, a vector of controls for transaction-level factors that can affect the premium paid by the acquirer. *Transaction_Value* is the logarithm of the all-in value of the acquisition (in millions of euros) paid by the acquirer. *Cross_Border* is an indicator variable that equals one if the target and the acquirer are from different countries, and zero otherwise. *Tender_Offer* is an indicator variable that equals one if the acquisition involves a tender offer, and zero otherwise. *Toehold* is an indicator variable that equals one if the acquirer owns a stake in the target at the announcement date, and zero otherwise. *Cash* is an indicator variable that equals one if the whole payment is made in cash, and zero otherwise. *Shares* is an indicator variable that equals one if the whole payment is made in equity, and zero otherwise. *Number_Bidders* is the total number of bidders participating in the takeover contest. We include country (target), industry (target), and month-year fixed effects to control for country and industry characteristics, as well as changes in the overall economic conditions. Standard errors are clustered at the (target) country month-year level.

²³ Some prior work uses initial bid prices to compute the takeover premium (see Eckbo, 2009 and Betton et al., 2014). We do not use initial bid prices to compute the takeover premium because these data are missing for a number of transactions in our sample. Other papers (e.g., Schwert, 1996) compute the takeover premium using a window of (-42, +126) days around the announcement (including the post-announcement days controls for the possibility that the terms of the deal are changed in later bids). Our inferences are not sensitive to repeating our tests using this alternative window (see Table OB8 in the Online Appendix OB).

Following prior research, we also estimate equation (2) including all public firms with non-missing stock price and accounting data over the sample period. As in prior literature (e.g., Edmans et al., 2012), we set *Target>Returns* to zero if a listed firm is not acquired in a given calendar year. This alternative research design alleviates the concern that the population of target firms (or the types of transactions) could have changed over time due to confounding factors.

Table 7 shows that takeover premiums increase significantly (by around 4%) after the implementation of the TPD (models 1-3). The increase in the premium paid by the acquirer is statistically significant also when we include in the model public firms that have not been acquired over a calendar year (models 4-6). Overall, the results in Table 7 are consistent with the notion that the average acquisition cost has increased after the implementation of the TPD.

Next, following prior literature (e.g., Schwert, 1996), we decompose *Target>Returns* into two components. First, we compound abnormal returns to the target stock over the “run-up” period (i.e., the $(-42, -1)$ day window before the announcement). Second, we compound abnormal returns to the target stock from the day of the first bid public announcement to the day after the first bid (i.e., the $(0, +1)$ day window around the announcement). Following prior literature, we refer to these two components of the takeover premium as *Run-up* and *Mark-up*, respectively. As a placebo, we also compound abnormal returns to the target stock over the “pre-run-up” period (i.e., the $(-63, -43)$ day window before the announcement). We refer to this alternative dependent variable as *Pre-run-up*.

We first plot average cumulative abnormal stock returns (CAR) over the period prior to the acquisition announcement date separately for the pre- and post-TPD regime. For ease of exposition, we normalize the abnormal returns to zero at trading day -41 . Figure 3 shows that the run-up cumulative returns are higher in the post-TPD regime.

Table 8 presents the results of estimating equation (2) using *Run-up* and *Mark-up* as dependent variables. The results reveal that the effect of the TPD on *Target>Returns* is concentrated in the run-up period; the coefficient on *Transparency_Directive* is positive (insignificant) when *Run-up* (*Mark-up*) is the dependent variable. The coefficient is also insignificant when *Pre-run-up* is the dependent variable, corroborating that the return pattern is unique to the specific timing of the takeover.

The substantial run-up documented in Figure 3 and Table 8 highlights the importance of disclosure before the acquisition announcement. In addition, Figure 3 together with Tables 7 and 8 suggests that, under the TPD, average bid prices are higher. This is consistent with the notion that the ownership disclosure requirements introduced by the TPD increase acquisition costs.²⁴

4.2. Acquirers' returns

We next analyze acquirers' returns around the acquisition announcements as an alternative way to gauge whether acquirers' costs increase after the implementation of the TPD. Specifically, we replace *Target>Returns* in equation (2) with *Acquirer>Returns*, computed as the acquirer cumulative abnormal returns over the (-42, +1) day window around the announcement date. In parallel to the previous tests, abnormal returns are computed based on the market model, estimated over the (-253, -127) day window.²⁵

²⁴ Prior research documents a positive association between the premium and the runup (Schwert, 1996). One interpretation of this association is that the runup requires the bidder to mark up the offer price. The existence of a costly feedback loop is called into question by the evidence in Betton et al. (2014). In any case, the potential presence of such effect does not affect our inferences, as the feedback loop would increase even more the disclosure costs borne by the acquirer.

²⁵ Requiring stock price data for the acquirer restricts the sample to transactions in which the acquirer is public. While previous research finds that takeover premiums vary with the target's status as a public or private firm (see Eckbo, 2009 for a review), we do not find that such distinction affects our inferences (when we add an indicator variable for public acquirer in equation (2) the coefficient on *Transparency_Directive* remains positive and significant).

Table 9 presents the results. The number of observations is lower than in Table 7 because a number of acquirers are private firms with no stock price data. The coefficient on *Transparency_Directive* is negative and significant, indicating that acquirers' returns are significantly lower after the regulatory change. This evidence is consistent with the notion that the implementation of the TPD increased acquirers' costs.

We then repeat the analysis replacing public targets with private targets. This analysis serves as a placebo test since private targets were not subject to the TPD. As shown in Table 9, the coefficient on *Transparency_Directive* is no longer significant. Consistent with the placebo tests in Table 3, these findings suggest that the pattern we document is unique to public target firms, and is thus unlikely to reflect economy-wide trends or concurrent shocks.

4.3. Bidder toeholds

As explained by prior literature (e.g., Shleifer and Vishny, 1986; Betton et al., 2008), building a toehold gives the bidder a competitive advantage due to the expected gain from selling the toehold in case of losing the auction (given this expected gain, the acquirer can raise the bid when competing with rival bidders). In this vein, prior literature shows that toeholds are associated with a higher probability that the initial bid succeeds and with a lower winning offer premium (Eckbo, 2014).²⁶

The TPD could increase the cost of building a toehold, as disclosing a substantial toehold would alert competitors and incumbent target managers. Moreover, the share price moves upwards because of the disclosure of an increase in ownership, and concentrating all stock purchases before the triggering of the disclosure requirement is often not possible due to

²⁶ Toehold bidding is relatively infrequent and has declined over time. However, as explained by Eckbo (2009), this does not necessarily speak against the efficacy of toeholds for takeover bidding. First, the distribution of actual toeholds is bimodal, centered on either zero or large toeholds. Second, toeholds are much more common in hostile than in friendly takeovers (according to Eckbo (2009), fifty percent of the initial bidders in hostile contests have toeholds). Finally, the decline in the frequency of toeholds over the 1990s coincides with a general reduction in hostile bids.

market frictions. As such, together with our prior evidence, finding that toeholds are substantially smaller under the TPD would further corroborate that the regulation resulted in an increase of acquisition costs.

We analyze the effect of the TPD on the size of the toehold at the acquisition announcement date by estimating equation (2) replacing *Target>Returns* with *Toehold_Size*, defined as the percentage of shares of the target firm held by the acquirer at the announcement date (the information to compute this variable is collected from SDC Platinum Acquisitions database).²⁷ A large part (61 %) of the average pre-TPD toehold is disclosed at the acquisition announcement, which is consistent with the notion that, before the introduction of the TPD, there could be substantial “hidden” ownership in the target (i.e., ownership that was not disclosed until the takeover announcement).

Table 10 shows the results. The negative and significant coefficient on *Transparency_Directive* suggests that the TPD was followed by a substantial decrease in the size of the toehold held at the announcement date of around 10 percent. This decrease in toehold size supports the idea that the TPD increased the cost of building a toehold.

5. Additional analyses

5.1. Potential concerns

One potential concern regarding our interpretation of our results is that the pattern we document could be driven by antitrust regulatory scrutiny rather than by disclosure regulation. In fact, during our sample period there was a major development in E.U. Merger Regulation 139/2004, which imposed notification to the European Commission of all the mergers with a

²⁷ To compute the size of the toehold, we aggregate all the shares effectively acquired up to the announcement date, including blocks of shares announced at the announcement date. We distinguish these blocks from other (non-toehold) transactions recorded on the announcement date (e.g., tender offers, mergers) by imposing that the effective date of the transaction falls within five days after the announcement date.

“community dimension”.²⁸ Several considerations suggest that this regulatory development is unlikely to affect our inferences. Firstly, this regulation entered into force in 2004 for all E.U. countries, and thus its potential effect is controlled for by our fixed effect structure. Moreover, the large majority of transactions investigated by the Commission did not raise competition concerns. Among those that did, around 90% were cleared following an initial investigation, and the ones that required further action were usually approved with certain conditions or “remedies”.²⁹ In our sample, only 84 (71) out of the 2,873 deals required notification to antitrust regulators in the period before (after) the introduction of the TPD. Out of these, only 12 (6) were not cleared at the initial phase and required further investigation. While antitrust scrutiny could have a preemptive effect on conducting takeovers, the above figures suggest that antitrust regulation affects a reduced number of transactions in our sample, and thus is unlikely to drive our results.

Another potential concern related to the generalizability of our results is that our inferences may not hold for cross-border acquisitions (i.e., our inferences could be specific to domestic acquisitions). To the extent that the TPD harmonizes disclosure requirements across the E.U., it is possible that the regulation facilitates cross-border acquisitions by reducing search costs and by mitigating adverse selection, thus offsetting or subsuming the increase in acquisition costs induced by the ownership disclosure requirements. Evidence in prior research that similar disclosure regulations across countries facilitate cross-border transactions suggests that this offsetting effect is plausible (Rossi and Volpin, 2004; Esrel et al., 2012).

²⁸ A business combination is considered to have a “community dimension” based on its combined aggregate turnover (see Regulation 139/2004 for the specific criteria). The reviewed cases undergo an initial phase of investigation called “Phase I”, with a maximum duration of 25 working days. Failing to clear regulators’ concerns would trigger a second phase of investigation called “Phase II” (see article 6(1)b of Regulation 139/2004).

²⁹ Source: European Commission. (<http://ec.europa.eu/competition/mergers/statistics.pdf>)

Table OB1 in the Online Appendix OB repeats our main analysis distinguishing between domestic and cross-border control acquisitions based on whether the acquirer and the target are from the same country or from a different country. As shown in Table OB5, the implementation of the TPD is associated with a decrease in both the number of cross-border and domestic control acquisitions, and the magnitude of the coefficient on *Transparency_Directive* is similar for both subsamples. As such, this evidence suggests that the informational benefits introduced by the TPD do not offset the higher acquisition costs associated with the tighter ownership disclosure requirements imposed by the regulation.

5.2. Sensitivity to research design choices

We also explore the sensitivity of our results to our research design choices by conducting a battery of robustness tests. The results of these analyses (tabulated in the Online Appendix OB) do not alter our inferences.

First, we replicate our tests in Table 2 using a more granular level of analysis to further control for potential industry effects (Table OB2 in the Online Appendix OB). Specifically, we construct a panel of country-industry-month-year observations and include country-industry fixed effects (i.e., we compute our dependent variable as the number of control acquisitions in a given country, industry, year, and month). We use the industry classification in Campbell (1996).

Second, we replicate our tests in Table 2 using weighted regressions (Table OB3 in the Online Appendix OB). We use as weights the average number of listed firms in the country of the target firm over the pre-TPD period, thus assigning a higher weight to larger countries. Given that our prior tests explicitly control for the number of listed firms in the country, this approach is an additional check that our inferences are not sensitive to the size of the sample countries.

Third, we replicate the analysis in Table 2 using alternative measures of takeover activity (Table OB4 in the Online Appendix OB). First, we measure takeover activity as the logarithm of the total dollar value of the control acquisitions in a country-month-year. Second, we measure takeover activity as the logarithm of the ratio between the number of control acquisitions in a given country-month-year, and the total number of firms listed in the country's stock exchanges in that month-year.

Fourth, we test whether the introduction of the TPD is followed by a decrease in the (firm-specific) probability of being acquired (Table OB5 in the Online Appendix OB). Specifically, we construct a panel including all listed firms over our sample years and define an indicator variable that equals one if the firm is acquired in that year, and zero otherwise. This analysis explores whether our inferences rely on conducting the analysis at the country level.

Fifth, we test whether our main results are robust to alternative ways of clustering standard errors (Table OB6 in the Online Appendix OB). Specifically, we cluster standard errors at the country-month-year level, at the month-year level, and at the year level.

Sixth, we repeat the analysis of target stock returns (Table 7) including additional control variables measuring target firms' characteristics (Table OB7 in the Online Appendix OB). Following prior literature (e.g., Betton et al., 2009), we define a vector of controls, *Target_Controls*, including the following variables measured at the start of the year of the acquisition announcement. *Target_Size* is the logarithm of the target firm's total assets. *Target_LEV* is the ratio between total debt and total equity of the target. *Target_CFO* is the cash flow from operations of the target. *Target_CASH* is the cash balance of the target. We do

not include these controls in Table 7 to avoid sample attrition because the necessary data to construct these variables is not available for all sample firms.

Seventh, we compute the takeover premium as the cumulative stock returns of the target over alternative windows around the acquisition announcement date (Table OB8 in the Online Appendix OB). In particular, we use the day-windows $(-42, 0)$, $(-42, +126)$, $(-63, 0)$, $(-63, 1)$, and $(-63, +126)$.

Eighth, we repeat the analysis of target stock returns (Table 7) including month-year-industry fixed effects and country-industry fixed effects (Table OB9 in the Online Appendix OB). As takeover gains tend to be industry-specific (Eckbo, 2014), this analysis further controls for potential industry re-composition effects over the sample period.

6. Conclusion

In this paper, we study the effect of the Transparency Directive (TPD) on takeover activity. The directive enhanced financial reporting and tightened ownership disclosure rules. Using comprehensive data on M&A activity in Europe from 2001 to 2017, we find that the TPD is followed by a substantial decrease in the number of control acquisitions. Our inference that the decrease in takeover activity is attributable to the TPD is confirmed by a battery of tests aimed at sharpening identification, including placebo and short-window analyses.

The decrease in control acquisitions under the TPD is concentrated in countries with fewer legal hurdles to conduct acquisitions, higher regulatory quality, stricter enforcement, lower ownership concentration, and higher institutional ownership. That is, the TPD appears to have decreased takeover activity in countries where the effect of the regulation is expected to be more pronounced.

In addition, we document three patterns consistent with the decrease of takeover activity under the TPD being related to higher acquisition costs. First, target firms' stock returns around the acquisition announcement (i.e., takeover premiums) are higher under the TPD. Second, acquirers' stock returns around the acquisition announcement are lower under the TPD. Third, bidder toeholds are smaller under the TPD.

Overall, the results suggest that the TPD increased the cost of acquiring public firms to the point of reducing takeover activity. The effect appears to be driven by the costs of ownership disclosure, which in this setting outweigh the benefits of enhanced corporate transparency derived by acquirers. The results also indicate that, rather than stimulating less active takeover markets, the disclosure regulation appears to have slowed down more dynamic markets.

Our evidence suggests that international disclosure regulation aimed at increasing transparency in the capital markets can affect the takeover market. Accordingly, this paper extends prior studies on the effect of the TPD on capital markets and reveals that the consequences of disclosure regulation are not necessarily the same across all markets. Our findings also highlight that a complete understanding of the effect of securities regulation on the takeover market requires extending the analysis beyond takeover regulation (i.e., regulation of tender offers and antitakeover defenses). Finally, we call for caution when interpreting our results from a welfare perspective; while a decrease in takeover activity could increase agency costs and/or impair economic productivity; such a decrease could be desirable if it is concentrated in socially suboptimal takeovers.

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Country-level variables:

<i>Takeover_Activity</i>	Logarithm of the number of completed control acquisitions in a country-month-year.
<i>Stock_Market_Size</i>	Logarithm of the main stock exchange's market capitalization in a country-month-year, in millions of euros.
<i>GDP_capita</i>	Logarithm of the country-year GDP (gross domestic product) per capita, in thousands of euros.
<i>Gov_Bond_10yr</i>	10-year yield on government bonds in a country-month-year, in percentage.
<i>Returns_Volatility</i>	Standard deviation of the daily stock market returns of the main stock exchange in a country-month-year, in percentage.
<i>Listed_Firms</i>	Logarithm of the number of listed firms in the main stock exchange in a country-month-year.
<i>Consumption</i>	Final consumption expenditures (seasonally and calendar adjusted) in a country-quarter-year, in constant prices (2010 reference year).
<i>Investment</i>	Gross fixed capital formation (seasonally and calendar adjusted) in a country-quarter-year, in constant prices (2010 reference year).

Transaction-level variables:

<i>Target>Returns</i>	Target firm's abnormal stock returns cumulated over the (-42, +1) trading day window around the acquisition announcement.
<i>Acquirer>Returns</i>	Acquirer firm's abnormal stock returns cumulated over the (-42, +1) trading day window around the acquisition announcement.
<i>Toehold_Size</i>	Size of the toehold <i>held</i> by the bidder at the acquisition announcement date (in percentage of total shares).
<i>Transaction_Value</i>	Logarithm of the all-in value of the transaction paid by the acquirer firm, in millions of euros.
<i>Tender_Offer</i>	Indicator variable that equals one if the acquisition is made through a tender offer, and zero otherwise.
<i>Toehold</i>	Indicator variable that equals one if the acquirer owns a stake in the target firm at the announcement date, and zero otherwise.
<i>Cash</i>	Indicator variable that equals one if the acquisition is paid for only with cash, and zero otherwise.
<i>Shares</i>	Indicator variable that equals one if the acquisition is paid for only with shares, and zero otherwise.
<i>Number_Bidders</i>	Number of bidders entering in the takeover contest.

Regulation variables:

<i>Transparency_Directive</i>	Indicator variable that equals one for the months after the Transparency Directive country's implementation date, and zero otherwise.
<i>TPD_Amendment</i>	Indicator variable that equals one for the period when the disclosure of cash-settled derivatives is in force in that country, and zero otherwise.
<i>Takeover_Directive</i>	Indicator variable that equals one for the months after the Takeover Directive country's implementation date, and zero otherwise.
<i>Market_Abuse_Directive</i>	Indicator variable that equals one for the months after the Market Abuse Directive country's implementation date, and zero otherwise.

Shareholder_Rights_Directive Indicator variable that equals one for the months after the Shareholder rights Directive country's implementation date, and zero otherwise.

Country-level partitioning variables:

Regulatory_Quality Country-specific *Regulatory Quality* index as of 2003 from Kaufmann et al. (2009). This metric is intended to capture the “ability of the government to formulate and implement sound policies and regulations” (Kaufmann et al., 2009). The metric is built by aggregating survey responses from regulators and firms.

Enforcement_Change Indicator variable that equals one if a country increased the level of enforcement at the time of the implementation of the TPD, and zero otherwise (Christensen et al., 2016). This variable has been constructed based on a survey sent to the authority in charge of supervising compliance with accounting standards and the technical departments of PricewaterhouseCoopers, an international audit firm, in each E.U. country.

Control_Provisions Sum of the number of control enhancing mechanisms (CEMs) available in a country (see Appendix D for details).

Ownership_Concentration Country-specific mean of the shares held by the top five shareholders (as % of the total shares outstanding) of the listed firms of the country, measured in the year before the TPD implementation date.

Institutional_Ownership Country-specific mean of the shares held by institutional investors (in % of market capitalization) in a country listed firms in the year before the TPD implementation date.

Prior_Takeover_Activity Average annual number of takeovers during the pre-regulation period scaled by the number of public firms in the country.

Appendix B.1. Summary of the disclosure provisions of Directive 2004/109/EC

This table presents a summary of the disclosure-related provisions introduced by Directive 2004/109/EC (i.e., the “Transparency Directive” or TPD). Sources: EUR-Lex and Moloney (2014).

Issuers’ disclosure (periodic information)

<i>Annual financial reports</i>	The issuer shall make public its annual financial report at the latest four months after the end of each financial year and shall ensure that it remains publicly available for at least five years (Article 4).
<i>Half-yearly financial reports</i>	The deadline for publishing half-yearly financial reports is extended to three months after the end of the reporting period (Article 5).
<i>Interim management statements</i>	The publishing of “quarterly” (the reports need not be strictly issued on quarter end date) interim management statements is required (Article 6).

Ownership disclosure (ongoing information)

<i>Information about major holdings</i>	<p>The home member state shall ensure that, where a shareholder acquires or disposes of shares of an issuer whose shares are admitted to trading on a regulated market and to which voting rights are attached, such shareholder notifies the issuer of the proportion of voting rights of the issuer held by the shareholder because of the acquisition or disposal where that proportion reaches, exceeds or falls below the thresholds of 5%, 10%, 15%, 20%, 25%, 30%, 50%, and 75% (Article 9).^{30,31}</p> <p>The notification requirements also apply to a person or legal entity which holds, directly or indirectly, <i>financial instruments</i> that result in an entitlement to acquire [<i>physically-settled</i>] shares. (Article 13).</p>
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Dissemination and storage of regulated information

The notification and publication deadlines for the investor and issuer is shortened to four and three trading days.

The directive mandates European-wide dissemination as well as public storage of notification (Article 12).

Supervisory regime, enforcement of reporting, and disclosure rules

Designate a competent supervisory authority in charge of monitoring compliance with the reporting and disclosure requirements set out in the directive (Article 24).

Give appropriate powers to this supervisory authority to enforce these requirements, such as the power to suspend and prohibit trading on the issuers’ securities, etc. Member states shall ensure that at least the appropriate administrative measures will be taken or civil and/or administrative penalties imposed in the event of a breach, and that those measures are effective, proportionate, and dissuasive (Article 28).

³⁰ Unlike in the U.S., in most European countries there is no requirement to make a declaration of intent. France, Germany, and Poland are exceptions; in these countries, an investor accumulating a 10% ownership stake is required to disclose whether she intends to acquire more shares in the forthcoming 6 (12) months and whether she intends to acquire the firm.

³¹ For example, when a shareholder’s stake reaches the 5% threshold, the shareholder is required to publicly disclose her ownership. If, subsequently, the shareholder keeps accumulating ownership, reaching the 10% threshold, it would trigger a further disclosure requirement. Falling below the threshold would also trigger a disclosure requirement. Before the TPD, these thresholds were 10%, 20%, 25%, 50%, and 75% (see 2001/34/EC).

Appendix B.2. Summary of the disclosure provisions of Directive 2013/50/EU

This table presents a summary of the disclosure-related provisions introduced by Directive 2013/50/EU, which amended the TPD. Sources: EUR-Lex and Moloney (2014).

Issuers' disclosure (periodic information)

<i>Extractive annual reports</i>	Issuers who have activities in the extractive or logging of primary forest industries should disclose in a separate report, on an annual basis, payments made to governments in the countries in which they operate (Article 5).
<i>Interim management statements</i>	Issuers are no longer obliged to publish interim reports (unless a member state chooses to still impose it as an obligation) (Article 5).

Ownership disclosure (ongoing information)

<i>Information about major holdings</i>	<p>Notification of major holdings of voting rights should include <i>cash-settlement financial instruments</i> with similar economic effect to holding shares and entitlements to acquire shares (Article 9).</p> <p>Financial instruments with similar economic effects to holding shares and entitlements to acquire shares which provide for cash settlement should be calculated on a delta-adjusted basis (i.e., by multiplying the notional number of underlying shares by the delta of the instrument). Delta indicates how much a financial instrument's theoretical value would move in the event of variation in the underlying instrument's price and provides an accurate picture of the exposure of the holder to the underlying instrument (Article 9).</p> <p>The notification requirements shall also apply to a natural person or a legal entity when the number of voting rights held directly or indirectly by such person or entity, <i>aggregated</i> with the number of voting rights relating to financial instruments held directly or indirectly, reaches, exceeds or falls below the required thresholds (Article 10).</p>
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Dissemination and storage of regulated information

ESMA should develop and operate a web portal serving as a European electronic access point (EEAP) for regulated information (Article 14).

Dissemination of all annual financial reports in the European single electronic reporting format (ESEF) starting in January 2020 (Article 3).

Supervisory regime, enforcement of reporting, and disclosure rules

Without prejudice to the right of member states to provide for and impose criminal sanctions in the event of a breach, competent authorities are now entitled to impose heavier administrative fines on both individuals and legal entities. The fines can even be levied on members of the management, the board of managers or the supervisory board in the case of a legal entity. Along with the heavier fines, the supervisors now explicitly have the power to publish their decisions regarding failures to comply with the transparency regime (Articles 20-23).

Appendix C. Implementation dates

This table reports the implementation dates of the main securities regulations over the sample period.

<i>Country</i>	<i>Transparency Directive</i>	<i>TPD Amendment</i>	<i>Takeover Directive</i>	<i>Market Abuse Directive</i>	<i>Shareholder Rights Directive</i>
Austria	04/20/07	01/01/13	05/20/06	01/01/05	08/01/09
Belgium	09/02/08	10/01/16	04/01/07	09/01/05	01/01/12
Denmark	06/20/07	11/26/15	05/20/06	04/01/05	02/16/10
Finland	02/15/07	11/26/15	07/01/06	07/01/05	08/03/09
France	12/19/07	11/01/09	01/10/06	07/01/05	01/01/11
Germany	01/20/07	02/01/12	07/14/06	10/01/04	07/30/09
Greece	07/01/07	04/08/16	05/30/06	07/01/05	09/24/10
Ireland	06/13/07	11/26/15	05/20/06	07/01/05	08/06/09
Italy	04/24/09	10/10/11	12/28/07	05/01/05	10/31/10
Netherlands	01/01/09	01/01/12	10/10/07	10/01/05	06/30/10
Poland	03/24/09	06/23/16	10/24/05	10/01/05	08/03/09
Portugal	11/01/07	09/09/15	11/02/06	09/01/06	05/19/10
Spain	12/20/07	11/27/15	08/13/07	11/01/05	10/02/11
Sweden	07/01/07	02/01/16	07/01/06	07/01/05	11/01/10
United Kingdom	01/02/07	06/01/09	05/20/06	07/01/07	08/03/09

Appendix D. Control enhancing mechanisms

This table presents the definitions of the control enhancing mechanisms (CEMs) available in E.U. countries. Definitions are based on EC (2007).

<i>CEM</i>	<i>Description</i>
<i>Multiple voting rights shares</i>	Shares issued by a firm giving different voting rights based on an investment of equal value.
<i>Non-voting shares</i>	Shares with no voting rights that carry no special cash-flow rights to compensate for the absence of voting rights.
<i>Non-voting preference shares</i>	Non-voting stock issued with special cash-flow rights (such as preferential dividends) to compensate for the absence of voting rights.
<i>Pyramid structure</i>	This situation occurs when an entity (such as a family or a company) controls a corporation, which in turn holds a controlling stake in another corporation. This process can be repeated a number of times.
<i>Priority shares</i>	Shares that grant their holders specific powers of decision or veto rights in a company, irrespective of the proportion of their equity stake.
<i>Depositary certificates</i>	Negotiable financial instruments issued by a foundation on a local stock exchange that represents the financial ownership of the shares, but lacks the voting rights of the underlying shares.
<i>Voting right ceilings</i>	A restriction prohibiting shareholders from voting above a certain threshold irrespective of the number of voting shares they hold.
<i>Ownership ceilings</i>	A restriction prohibiting investors from taking a participation in a company above a certain threshold.
<i>Supermajority provisions</i>	Provisions of company bylaws requiring a large majority of shareholders to approve certain important corporate changes.
<i>Partnerships limited by shares</i>	A legal structure where there are two different categories of partners (without having two types of shares): the general partners (unlimited liability partners) who run the company, and the limited sleeping partners (limited liability partners), who contribute equity capital but whose control rights are limited.
<i>Cross shareholdings</i>	A situation where company X holds a stake in company Y which, in turn, holds a stake in company X (direct cross-shareholding) or where company X holds a stake in company Y which holds a stake in company Z, which, in turn, holds a stake in company X (circular cross-shareholding).
<i>Shareholders' agreements</i>	Formal and/or informal shareholders alliances.

Appendix E. Summary of the other E.U. main securities regulation

This table presents a brief summary of the other main securities regulations around our sample period.

<i>Regulation</i>	<i>Description</i>
<i>Takeover Directive</i>	The Takeover Directive (2004/25/EC) intends to harmonize E.U. takeover laws and fosters consolidation among E.U. firms through the adoption of a pan-European takeover code modeled after the U.K. Takeover Code. The Takeover Directive establishes general principles that are common to most takeover systems worldwide: equal treatment of target shareholders, ability of target shareholders to make informed decisions on bids, and prohibition of market manipulation or abuse. It introduced a broad framework that is heavily reliant on the mandatory bid rule, effective involvement by national supervisory authorities and, in several cases, board passivity/neutrality (see the Takeover Bids Directive Assessment Report, 2012).
<i>Market Abuse Directive</i>	The Market Abuse Directive (2003/6/EC) aims to prevent insider trading and market manipulation. It contains three key elements: (1) disclosure rules designed to reduce the scope of inside information, (2) ex-post sanctions for insider trading or market manipulation, and (3) tightened enforcement of compliance with insider trading and market manipulation rules (see Moloney, 2014).
<i>Shareholder Rights Directive</i>	The Shareholder Right Directive (2007/36/EC) makes a record-date system mandatory and a fixed 30 days as the maximum time span between the record date and the general meeting (see Moloney, 2014).

Figure 1. Number of ownership disclosure filings around the TPD implementation

This figure plots the average number of ownership disclosure filings (vertical axis) by month and year for our sample of European countries. The horizontal axis indicates the number of months relative to the implementation of the Transparency Directive (TPD) in the country of the target firm. For each month and year relative to the country TPD implementation date, we take the average number of filings notified in that month-year.

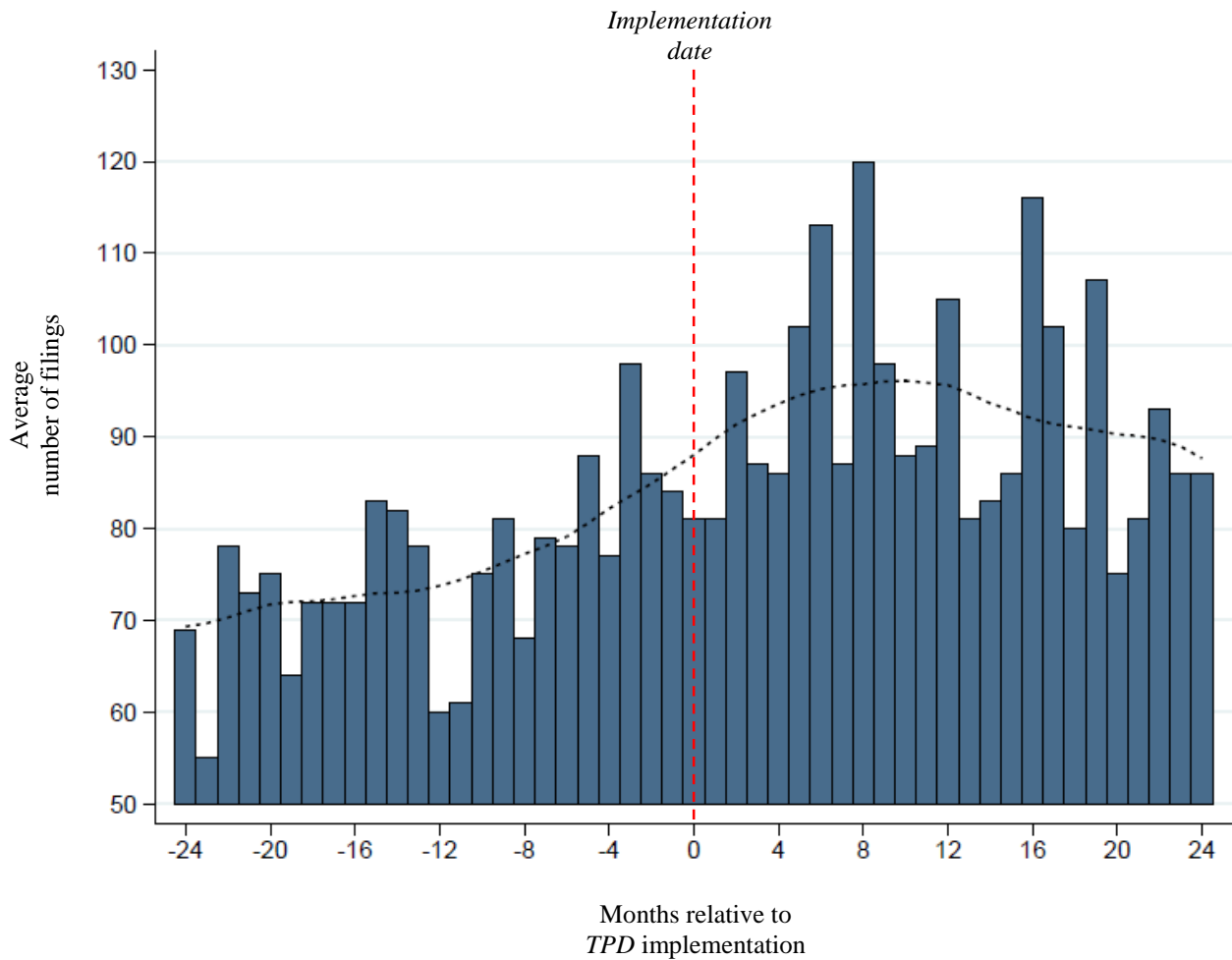


Figure 2. Takeover activity around the TPD implementation

This figure plots the average number of control acquisitions by month and year for our sample of European countries (red dots). The black and grey lines display estimates from non-linear regression (Locally Weighted Scatterplot Smoothing) and the corresponding confidence intervals, respectively. The dotted vertical red line marks the month of the implementation of the Transparency Directive (TPD) in the country of the target firm. The continuous vertical red line marks the average number of months before the initial approval of the TPD at the European level with respect to the implementation date.

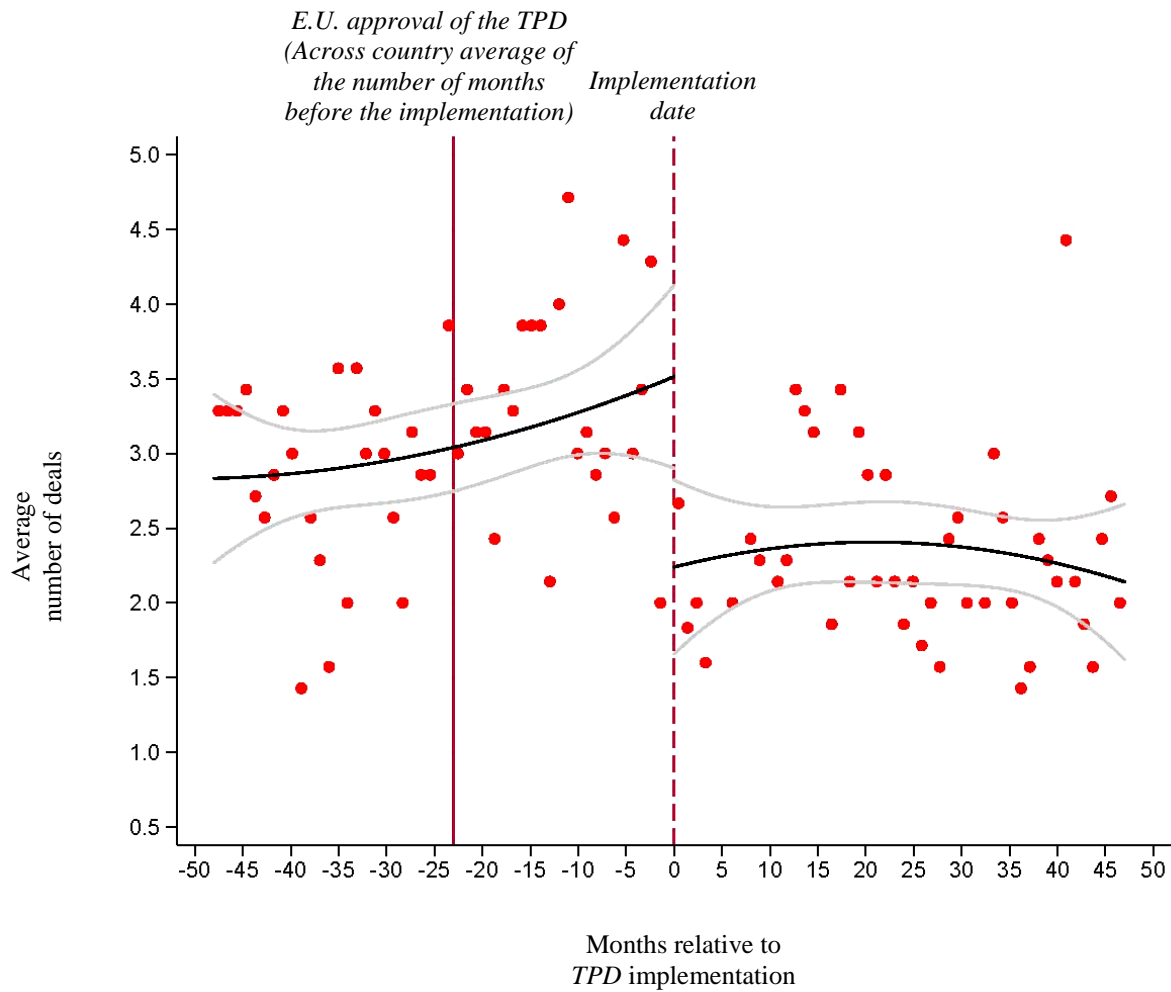


Figure 3. Target returns up to acquisition announcement

This figure plots cumulated abnormal stock returns (CAR) (vertical axis) over the period prior to the announcement of the acquisition. The horizontal axis indicates the number of days before the announcement date (day “0”). Continuous (dotted) lines correspond to the average abnormal stock returns of the deals announced after (before) the implementation of the Transparency Directive (TPD). “Run-up” returns (in black) are cumulated returns over the (-42, -1) day window around the announcement. “Mark-up” returns (in red) are cumulated returns over the (0, +1) day window around the announcement. The grey lines present plots of non-linear regressions for each of the two groups.

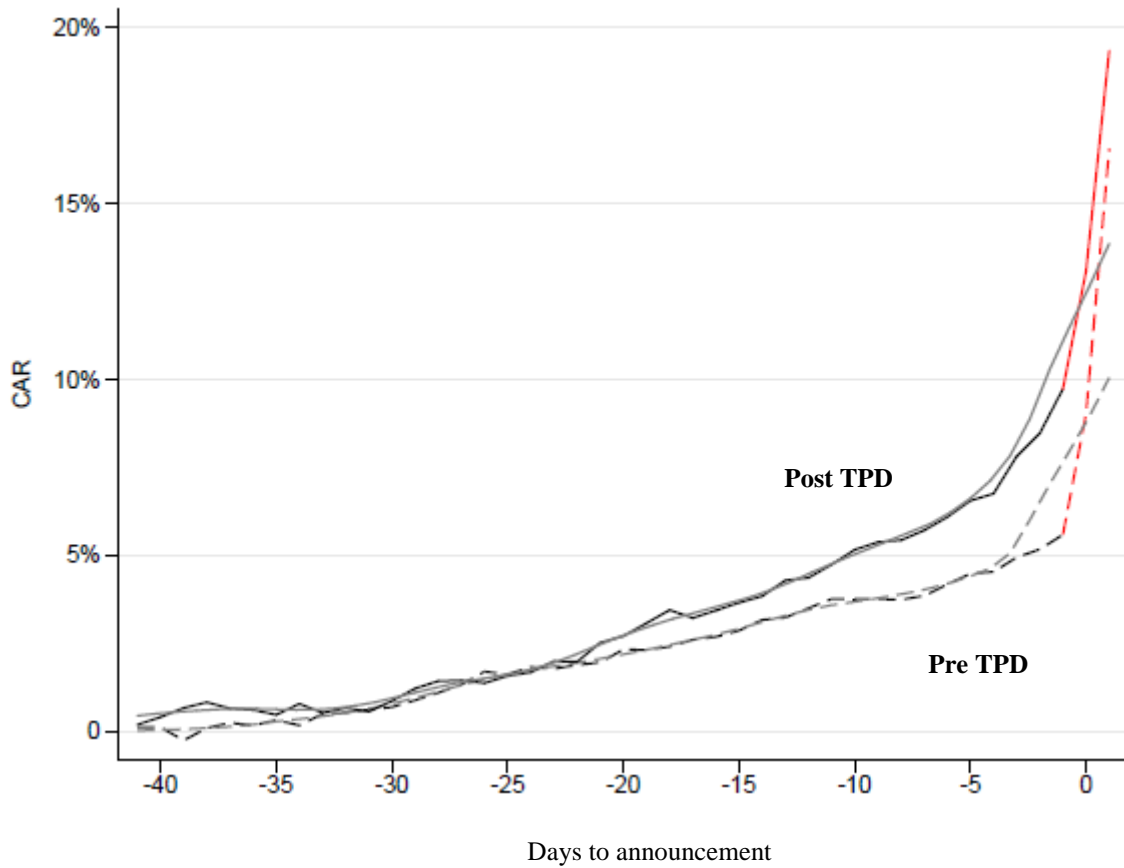


Table 1. Descriptive statistics

This table presents descriptive statistics of the variables used in the analyses. Panel A reports descriptive statistics for the country-level variables. Panel B presents descriptive statistics for the transaction-level variables used in the empirical tests. All variables are defined in Appendix A.

Panel A. Country-level variables

	<i>N</i>	<i>Mean</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>SD</i>
<i>Takeover_Activity</i> (log)	3,060	0.852	0.693	0.693	1.098	0.473
<i>Stock_Market_Size</i> (log)	3,060	12.635	11.738	12.501	13.754	1.216
<i>GDP_capita</i> (log)	3,060	10.521	10.356	10.638	10.773	.409
<i>Gov_Bond_10yr</i>	3,060	3.829	2.452	3.951	4.665	2.402
<i>Returns_Volatility</i>	3,060	32.027	22.376	29.283	38.431	13.481
<i>Listed_Firms</i> (log)	3,060	5.210	4.521	5.192	6.177	1.304
<i>Consumption</i>	3,060	96	92	97	101	7.553
<i>Investment</i>	3,060	105	95	104	112	24.276

Panel B. Transaction-level variables

	<i>N</i>	<i>Mean</i>	<i>p25</i>	<i>p50</i>	<i>p75</i>	<i>SD</i>
<i>Transaction_Value</i> (log)	2,873	4.451	2.957	4.449	5.887	2.082
<i>Cross_Border</i>	2,873	0.336	0	0	1	0.472
<i>Tender_Offer</i>	2,873	0.197	0	0	0	0.398
<i>Toehold</i>	2,873	0.232	0	0	0	0.422
<i>Cash</i>	2,873	0.402	0	0	1	0.490
<i>Shares</i>	2,873	0.067	0	0	0	0.250
<i>Number_Bidders</i>	2,873	1.030	1	1	1	0.221

Table 2. Takeover activity

This table presents results of analyzing takeover activity around the implementation of the Transparency Directive (TPD) in different European countries for a sample of 3,060 country-month-year observations. Panel A presents mean and median values of the number of control acquisitions per country in the months around the implementation of the TPD (t is the month of the implementation of the TPD in the country of the target firm). Control acquisitions are defined as M&A transactions where the acquirer owns less than 50% of the target's shares prior to the acquisition and the acquirer buys at least a 25% stake. Panel B presents multivariate OLS models where the dependent variable is *Takeover_Activity*, defined as the logarithm of the number of control acquisitions in a country-month-year. *Transparency_Directive* is an indicator variable that equals one for the months after TPD entry-in-force date (i.e., after the implementation of the TPD), and zero otherwise. See Appendix A for variable definitions. Standard errors (in brackets) are clustered by country. *, ** and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Panel A. Univariate analysis

<i>Time window (in months)</i>	<i>Number of control acquisitions</i>		<i>Inter-period differences</i>	
	<i>Mean</i>	<i>Median</i>	<i>Diff. in mean (p-value)</i>	<i>Diff. in median (p-value)</i>
($t-24, t-13$)	3.285	3.357	(0.623)	(0.667)
($t-12, t-7$)	3.425	3.071	(0.667)	(0.643)
($t-6, t-1$)	3.285	3.214	(0.015)**	(0.018)**
($t, t+6$)	2.022	2.087	(0.387)	(0.354)
($t+7, t+12$)	2.285	2.285	(0.587)	(0.569)
($t+13, t+24$)	2.690	2.857		

Note: t is the month of the implementation of the TPD in the country of the target firm.

Table 2. Takeover activity (cont'ed)

Panel B. Multivariate analysis

Dependent variable: *Takeover_Activity*

	(1)	(2)	(3)
<i>Transparency_Directive</i>	-0.265*** [0.070]	-0.260*** [0.067]	-0.261*** [0.067]
Country_Controls:			
<i>Stock_Market_Size</i>		0.000 [0.000]	0.000 [0.000]
<i>GDP_capita</i>		1.597* [0.819]	1.598* [0.818]
<i>Gov_Bond_10yr</i>		0.015* [0.009]	0.016* [0.008]
<i>Returns_Volatility</i>		0.001 [0.001]	0.001 [0.001]
<i>Listed_Firms</i>		-0.038 [0.066]	-0.027 [0.060]
<i>Consumption</i>		0.001 [0.005]	0.001 [0.005]
<i>Investment</i>		-0.003 [0.002]	-0.003 [0.002]
Regulation_Controls:			
<i>Takeover_Directive</i>			0.044 [0.054]
<i>Market_Abuse_Directive</i>			0.010 [0.047]
<i>Shareholder_Rights_Directive</i>			0.007 [0.045]
Sample	Public	Public	Public
Country Fixed Effects	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y
Observations	3,060	3,060	3,060
R-squared	0.602	0.629	0.629

Table 3. Falsification tests

This table presents the results from falsification tests of takeover activity around the implementation of the Transparency Directive (TPD) in different European countries (Table 2, panel B). The first set of tests (columns 1-3) replicates the analysis in Table 2, panel B, randomizing the dates of the implementation of the TPD over the sample period. The second set of tests (columns 4-6) replicates the analysis in Table 2, panel B, for control acquisitions where the target firm is not listed in a stock exchange. Columns 1-3 report the average statistics from repeating 100 times the test in Table 2, panel B, each time using a random draw of dates within the sample period. Variable definitions are as in Table 2. Standard errors (in brackets) are clustered by country. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dep. Var.: <i>Takeover_Activity</i>	<i>Random implementation dates</i>			<i>Private firms</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Transparency_Directive</i>	0.001 [0.064]	0.004 [0.047]	0.004 [0.046]	-0.103 [0.096]	-0.098 [0.082]	-0.075 [0.051]
<i>Country_Controls</i>	N	Y	Y	N	Y	Y
<i>Regulation_Controls</i>	N	N	Y	N	N	Y
Sample	Public	Public	Public	Private	Private	Private
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	3,060	3,060	3,060	3,060	3,060	3,060
R-squared	0.572	0.613	0.613	0.867	0.875	0.875

Table 4. Short window analysis

This table replicates the analysis in Table 2, panel B, restricting the sample to the time window spanning over 12 months before and after the TPD implementation in each country. The first set of tests (columns 1-3) shows results using the actual implementation dates. The second set of tests (columns 4-6) replicates the analysis randomizing the dates of the implementation of the TPD. Columns 4-6 report the average statistics from repeating 100 times the test in columns 1-3, each time using a random draw of dates within the 12-month window around the actual implementation date. Variable definitions are as in Table 2. Standard errors (in brackets) are clustered by country. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dep. Var.: <i>Takeover_Activity</i>	<i>Actual implementation dates</i>			<i>Random implementation dates</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Transparency_Directive</i>	-0.176** [0.087]	-0.188** [0.083]	-0.182** [0.085]	0.007 [0.058]	0.003 [0.063]	0.005 [0.063]
<i>Country_Controls</i>	N	Y	Y	N	Y	Y
<i>Regulation_Controls</i>	N	N	Y	N	N	Y
Sample	Public	Public	Public	Public	Public	Public
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	345	345	345	345	345	345
R-squared	0.770	0.768	0.768	0.748	0.755	0.755

Table 5. Cross-sectional analyses

This table presents results of analyzing cross-sectional variation in the results of Table 2, panel B. In panel A, the sample is partitioned based on legal and regulatory characteristics of the country. In panel B, the sample is partitioned based on the ownership structure prevalent in the country. In panel C, the sample is partitioned based on the level of takeover activity in the country prior to the introduction of the TPD. Partition variables are defined in Appendix D. Other variable definitions are as in Table 2, panel B. Standard errors (in brackets) are clustered by country. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively. + and ++ indicate significance at the two-tailed 10% and 5% levels, respectively, for tests of coefficient magnitudes relative to the adjacent column on the left.

Panel A. Partitioning by legal and regulatory characteristics

Dep. var.: <i>Takeover_Activity</i>	<i>Regulatory_Quality</i>		<i>Enforcement_Change</i>		<i>Control_Provisions</i>	
	Low (1)	High (2)	Low (3)	High (4)	Low (5)	High (6)
<i>Transparency_Directive</i>	-0.152*** [0.026]	-0.396***,+ [0.113]	-0.158*** [0.018]	-0.438***,+ [0.032]	-0.322** [0.110]	-0.165**,+ [0.056]
<i>Country_Controls</i>	Y	Y	Y	Y	Y	Y
<i>Regulation_Controls</i>	Y	Y	Y	Y	Y	Y
Sample	Public	Public	Public	Public	Public	Public
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	1,428	1,632	1,836	1,224	1,632	1,428
R-squared	0.700	0.641	0.649	0.710	0.739	0.512

Panel B. Partitioning by ownership structure

Dep. var.: <i>Takeover_Activity</i>	<i>Ownership_Concentration</i>		<i>Institutional_Ownership</i>	
	Low (1)	High (2)	Low (3)	High (4)
<i>Transparency_Directive</i>	-0.363*** [0.133]	-0.150***,+ [0.026]	-0.195*** [0.032]	-0.324***,+ [0.124]
<i>Country_Controls</i>	Y	Y	Y	Y
<i>Regulation_Controls</i>	Y	Y	Y	Y
Sample	Public	Public	Public	Public
Country Fixed Effects	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y
Observations	1,632	1,428	1,428	1,632
R-squared	0.503	0.720	0.678	0.637

Panel C. Partitioning by prior takeover activity

Dep. var.: <i>Takeover_Activity</i>	<i>Prior_Takeover_Activity</i>	
	Low (1)	High (2)
<i>Transparency_Directive</i>	-0.114*** [0.018]	-0.331***,++ [0.126]
<i>Country_Controls</i>	Y	Y
<i>Regulation_Controls</i>	Y	Y
Sample	Public	Public
Country Fixed Effects	Y	Y
Month*Year Fixed Effects	Y	Y
Observations	1,632	1,428
R-squared	0.528	0.697

Table 6. Amendment of the TPD

This table presents results of analyzing takeover activity around the implementation of the TPD amendment. The analysis replicates the test in Tables 2 and 3, replacing the TPD implementation dates with those of the TPD amendment. *TPD_Amendment* is an indicator variable that equals one when the disclosure of cash-settled derivatives is enforced in that country, and zero otherwise. The rest of variables are as in Table 2. Panel A reports the average effect of the implementation of the TPD amendment. Panel B presents the results from falsification tests of takeover activity around the implementation of the TPD amendment. Columns 1-3 of panel B replicate the analysis in panel A randomizing the dates of the implementation of the TPD amendment over the sample period. Columns 4-6 of panel B replicate the analysis in Table 2 for control acquisitions where the target firm is not listed in a stock exchange. Panel C restricts the sample to the time window spanning over 12 months before and after the implementation of the TPD amendment in each country. Columns 1-3 of panel C report results using the actual implementation dates. Columns 4-6 of panel C report the average statistics from repeating 100 times the test in columns 1-3, each time using a random draw of dates within the 12-month window around the actual implementation date. Standard errors (in brackets) are clustered by country. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Panel A. Average effect

Dependent variable: *Takeover_Activity*

	(1)	(2)	(3)	(4)
<i>TPD_Amendment</i>	-0.259*** [0.083]	-0.219*** [0.067]	-0.218*** [0.067]	-0.178** [0.066]
<i>Transparency_Directive</i>				-0.244*** [0.064]
<i>Country_Controls</i>	N	Y	Y	Y
<i>Regulation_Controls</i>	N	N	Y	Y
Sample	Public	Public	Public	Public
Country Fixed Effects	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y
Observations	3,060	3,060	3,060	3,060
R-squared	0.589	0.612	0.612	0.636

Panel B. Falsification tests

Dependent variable: *Takeover_Activity*

	<i>Random implementation dates</i>			<i>Private firms</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TPD_Amendment</i>	-0.014 [0.064]	-0.011 [0.045]	-0.006 [0.045]	0.016 [0.105]	0.057 [0.112]	0.080 [0.101]
<i>Country_Controls</i>	N	Y	Y	N	Y	Y
<i>Regulation_Controls</i>	N	N	Y	N	N	Y
Sample	Public	Public	Public	Private	Private	Private
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	3,060	3,060	3,060	3,060	3,060	3,060
R-squared	0.572	0.613	0.613	0.867	0.875	0.875

Panel C. Short window analysis

Dependent variable: *Takeover_Activity*

	<i>Actual implementation dates</i>			<i>Random implementation dates</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>TPD_Amendment</i>	-0.137** [0.079]	-0.155** [0.072]	-0.158** [0.071]	-0.126 [0.094]	-0.096 [0.059]	-0.086 [0.055]
<i>Country_Controls</i>	N	Y	Y	N	Y	Y
<i>Regulation_Controls</i>	N	N	Y	N	N	Y
Sample	Public	Public	Public	Public	Public	Public
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	345	345	345	345	345	345
R-squared	0.815	0.827	0.827	0.825	0.840	0.840

Table 7. Target returns

This table reports results of analyzing target firms' stock price returns around acquisition announcements. The dependent variable, *Target_Returns*, is defined as the target firm's abnormal returns cumulated over the (-42, +1) day window around the acquisition announcement. In columns 4-6, we code *Target_Returns* as zero if a public firm is not acquired in a given calendar year. *Transparency_Directive* is an indicator variable that equals one for the months after the TPD entry-into-force date (i.e., after the implementation of the TPD), and zero otherwise. See Appendix A for other variable definitions. Columns 1-3 include the 2,873 control acquisitions in our sample. Columns 2-4 include all firm-year observations in our sample. Standard errors (in brackets) are clustered by country-month-year. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dependent variable: <i>Target_Returns</i>	<i>Only acquired firms</i>			<i>Including non-acquired firms</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Transparency_Directive</i>	0.040*** [0.018]	0.048*** [0.017]	0.046** [0.017]	0.006** [0.003]	0.005** [0.002]	0.005** [0.002]
Country Controls:						
<i>Stock_Market_Size</i>		0.000 [0.000]	0.000 [0.000]		0.000 [0.000]	0.000 [0.000]
<i>GDP_capita</i>		0.024 [0.125]	0.036 [0.132]		-0.021 [0.018]	-0.019 [0.021]
<i>Gov_Bond_10yr</i>		0.001 [0.006]	0.001 [0.006]		0.000 [0.000]	0.000 [0.000]
<i>Returns_Volatility</i>		0.001 [0.001]	-0.001 [0.001]		0.000 [0.000]	0.000 [0.000]
<i>Listed_Firms</i>		0.056*** [0.017]	0.056** [0.018]		0.011 [0.008]	0.011 [0.008]
<i>Consumption</i>		0.000 [0.000]	-0.001 [0.001]		0.000 [0.000]	0.000 [0.000]
<i>Investment</i>		0.000 [0.000]	0.000 [0.000]		0.000 [0.000]	0.000 [0.000]
Transaction Controls:						
<i>Transaction_Value</i>		0.009*** [0.002]	0.009*** [0.002]		0.002 [0.002]	0.002 [0.002]
<i>Cross_Border</i>		-0.003 [0.008]	-0.003 [0.008]		0.005 [0.012]	0.004 [0.011]
<i>Tender_Offer</i>		0.056*** [0.010]	0.056*** [0.010]		0.084*** [0.013]	0.084*** [0.014]
<i>Toehold</i>		-0.019** [0.009]	-0.020** [0.010]		-0.019 [0.015]	-0.019 [0.013]
<i>Cash</i>		0.014 [0.008]	0.014 [0.009]		0.028** [0.012]	0.028** [0.012]
<i>Shares</i>		-0.048*** [0.017]	-0.047*** [0.017]		-0.025 [0.021]	-0.025 [0.025]
<i>Number_Bidders</i>		0.056*** [0.010]	0.056*** [0.020]		0.044*** [0.010]	0.044*** [0.010]
Regulation Controls:						
<i>Takeover_Directive</i>			0.001 [0.021]			0.003 [0.003]
<i>Market_Abuse_Directive</i>			-0.003 [0.030]			-0.001 [0.002]
<i>Shareholder_Rights_Directive</i>			-0.035 [0.023]			-0.002 [0.002]
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Industry Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	2,873	2,873	2,873	39,262	39,262	39,262
R-squared	0.133	0.175	0.176	0.085	0.132	0.132

Table 8. Target returns by period

This table analyzes target firms' stock price returns in different sub-periods up to the acquisition announcement. The analysis replicates the test in Table 7's three alternative dependent variables. In column 1, *Pre-Run-up* is defined as the target firm's abnormal returns cumulated over the (-63, -43) day window around the acquisition announcement (i.e., "pre-run-up" period). In column 2, *Run-up* is defined as the target firm's abnormal returns cumulated over the (-42, -1) day window around the acquisition announcement (i.e., the "run-up" period). In column 3, *Mark-up* is defined as the target firm's abnormal returns cumulated over the (0, +1) day window around the acquisition announcement (i.e., the announcement of the transaction). The rest of the variables are as in Table 7. Standard errors (in brackets) are clustered by country-month-year. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively

	Dependent variable		
	<i>Pre-Run-up</i> (1)	<i>Run-up</i> (2)	<i>Mark-up</i> (3)
<i>Transparency_Directive</i>	0.017 [0.011]	0.035** [0.017]	0.007 [0.008]
<i>Country_Controls</i>	Y	Y	Y
<i>Transaction_Controls</i>	Y	Y	Y
<i>Regulation_Controls</i>	Y	Y	Y
Country Fixed Effects	Y	Y	Y
Industry Fixed Effects	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y
Observations	2,873	2,873	2,873
R-squared	0.127	0.187	0.140

Table 9. Acquirer returns

This table analyzes acquirers' stock returns around acquisition announcements. The dependent variable, *Acquirer>Returns*, is defined as the acquirers' abnormal returns cumulated over the (-42, +1) day window around the acquisition announcement. Columns 1-3 ("*Public Targets*") include transactions where the target firm is listed in a regulated stock exchange. Columns 4-6 ("*Private Targets*") include transactions where the target is a private firm. *Transparency_Directive* is an indicator variable that equals one for the period when the TPD is in force in that country (i.e., after the implementation of the TPD), and zero otherwise. See Appendix A for variable definitions. Standard errors (in brackets) are clustered by country-month-year. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dep. var.: <i>Acquirer>Returns</i>	<i>Public Targets</i>			<i>Private Targets</i>		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Transparency_Directive</i>	-0.060*	-0.065*	-0.060*	-0.011	-0.010	-0.012
	[0.036]	[0.035]	[0.035]	[0.008]	[0.009]	[0.009]
Country Controls:						
<i>Stock_Market_Size</i>		0.000	0.000		0.000	0.000
		[0.000]	[0.000]		[0.000]	[0.000]
<i>GDP_capita</i>		-0.012	-0.069		-0.037	-0.046
		[0.253]	[0.252]		[0.069]	[0.069]
<i>Gov_Bond_10yr</i>		0.000	-0.001		0.002	0.002
		[0.010]	[0.010]		[0.003]	[0.003]
<i>Returns_Volatility</i>		-0.001	-0.001		0.000	0.000
		[0.001]	[0.001]		[0.001]	[0.001]
<i>Listed_Firms</i>		0.049	0.057		-0.007	-0.006
		[0.041]	[0.040]		[0.011]	[0.011]
<i>Consumption</i>		-0.001	-0.001		0.000	0.000
		[0.004]	[0.004]		[0.000]	[0.000]
<i>Investment</i>		-0.001	-0.001		0.000	0.000
		[0.001]	[0.001]		[0.000]	[0.000]
Transaction Controls:						
<i>Transaction_Value</i>		-0.004	-0.005*		0.001**	0.001**
		[0.003]	[0.003]		[0.001]	[0.001]
<i>Cross_Border</i>		0.036***	0.035***		0.003	0.003
		[0.012]	[0.012]		[0.003]	[0.003]
<i>Tender_Offer</i>		-0.022	-0.023*		0.004	0.004
		[0.014]	[0.014]		[0.022]	[0.022]
<i>Toehold</i>		-0.009	-0.010		0.014**	0.014**
		[0.019]	[0.019]		[0.007]	[0.007]
<i>Cash</i>		-0.001	-0.002		-0.003	-0.003
		[0.016]	[0.016]		[0.003]	[0.003]
<i>Shares</i>		0.026	0.024		0.012	0.013
		[0.022]	[0.022]		[0.012]	[0.012]
<i>Number_Bidders</i>		0.004	0.004		-0.010	-0.010
		[0.026]	[0.026]		[0.021]	[0.021]
Regulation Controls:						
<i>Takeover_Directive</i>			-0.064**			0.012
			[0.033]			[0.008]
<i>Market_Abuse_Directive</i>			-0.135			-0.021*
			[0.089]			[0.012]
<i>Shareholder_Right_Directive</i>			0.001			0.006
			[0.050]			[0.010]
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Industry Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	705	705	705	13,798	13,798	13,798
R-squared	0.449	0.473	0.480	0.086	0.087	0.087

Table 10: Bidder toeholds

This table analyzes the effect of the TPD on the size of the toehold stake held by the bidder at the announcement date. The dependent variable, *Toehold_Size*, is the percentage of shares held by the bidder at the announcement date. *Transparency_Directive* is an indicator variable that equals one for the period when the TPD is in force in that country (i.e., after the implementation of the TPD), and zero otherwise. See Appendix A for variable definitions. Standard errors (in brackets) are clustered by country-industry. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dependent variable: <i>Toehold_Size</i>			
	(1)	(2)	(3)
<i>Transparency_Directive</i>	-7.714*	-8.287**	-9.120**
	[4.433]	[4.280]	[4.490]
Country Controls:			
<i>Stock_Market_Size</i>		0.000	0.000
		[0.000]	[0.000]
<i>GDP_capita</i>		-5.722	-5.589
		[19.729]	[19.223]
<i>Gov_Bond_10yr</i>		-1.068	-0.822
		[1.334]	[1.357]
<i>Returns_Volatility</i>		-0.037	-0.050
		[0.078]	[0.081]
<i>Listed_Firms</i>		1.206	1.069
		[4.109]	[4.043]
<i>Consumption</i>		0.077	-0.053
		[0.196]	[0.271]
<i>Investment</i>		0.003	-0.024
		[0.079]	[0.057]
Transaction Controls:			
<i>Transaction_Value</i>		-2.587***	-2.583***
		[0.342]	[0.342]
<i>Cross_Border</i>		0.167	0.325
		[1.745]	[1.783]
<i>Tender_Offer</i>		-9.038***	-9.192***
		[2.406]	[2.389]
<i>Cash</i>		-5.266***	-5.315***
		[1.611]	[1.566]
<i>Shares</i>		-17.659***	-17.675***
		[2.470]	[2.522]
<i>Number_Bidders</i>		-8.712***	-8.653***
		[2.475]	[2.456]
Regulation Controls:			
<i>Takeover_Directive</i>			-5.711
			[5.253]
<i>Market_Abuse_Directive</i>			-1.857
			[8.266]
<i>Shareholder_Right_Directive</i>			-1.848
			[4.455]
Country Fixed Effects	Y	Y	Y
Industry Fixed Effects	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y
Observations	2,873	2,873	2,873
R-squared	0.150	0.228	0.228

Appendix OA. Examples of ownership disclosure under different regulatory regimes

This appendix includes examples of regulatory filings containing ownership disclosures in the E.U. in three different periods. Panel A reproduces the content of a form reported before the implementation of Directive 2004/109/EC (TPD). Panel B reproduces the content of a form reported under Directive 2004/109/EC. Panel C reproduces the content of a form reported under Directive 2013/50/EU (amendment of the TPD). The three examples correspond to form TR-1 for notifications of major holdings in the U.K. Due to formatting issues, we do not include the actual forms, but we fully reproduce their content (a link to the original forms is included under each example).

Panel A. Example of ownership disclosure before the implementation of Directive 2004/109/EC

1. Name of Company:	Framlington Second Dual Trust PLC
2. Name of shareholder having a major interest:	Credit Lyonnais Securities
3. Name of the registered holder(s) and, if more than one holder, the number of shares held by each of them:	Credit Lyonnais Securities
4. Number of shares acquired:	Not advised
5. Percentage of issued class acquired:	Not advised
6. Number of shares disposed:	Not advised
7. Percentage of issued class disposed:	Not advised
8. Class of security:	Ordinary income shares of 5p each
9. Date of transaction:	Not advised
10. Date company informed:	23 April 2004
11. Total holding following this notification:	3,785,080
12. Total percentage holding of issued class following this notification	7.3%
13. Any additional information:	
14. Name of contact and telephone number for queries	Eleanor Cranmer 020 7330 6680
15. Name of authorized official responsible for making this notification	Eleanor Cranmer
16. Date of notification:	23 April 2004

Source: <https://www.investegate.co.uk/ArticlePrint.aspx?id=20040423165841P19E0>

Appendix OA. Examples of ownership disclosure under different regulatory regimes (cont'ed)

Panel B. Example of ownership disclosure under Directive 2004/109/EC

1. Identity of the issuer or the underlying issuer of existing shares to which voting rights are attached:		InterContinental Hotels Group PLC			
2. Reason for the notification (please state Yes/No):					
An acquisition or disposal of voting rights:		Yes			
An acquisition or disposal of financial instruments which may result in the acquisition of shares already issued to which voting rights are attached:		Yes			
An event changing the breakdown of voting rights:		No			
Other (please specify):		No			
3. Full name of person(s) subject to the notification obligation:		Morgan Stanley (Institutional Securities Group and Global Wealth Management)			
4. Full name of shareholder(s) (if different from 3.):		N/A			
5. Date of the transaction (and date on which the threshold is crossed or reached if different):		18 April 2008			
6. Date on which issuer notified:		23 April 2008			
7. Threshold(s) that is/are crossed or reached:		to below 4%			
8. Notified details:					
A: Voting rights attached to shares:					
<i>Situation previous to the triggering transaction</i>					
Class/type of shares	Number of shares	Number of voting rights			
ISIN: GB00B1WQCS47	3,871,945	3,871,945			
Ordinary Shares of 13 29/47 pence each					
<i>Resulting situation after the triggering transaction</i>					
Class/type of shares	Number of shares	Number of voting rights		% of voting rights	
		Direct	Indirect	Direct	Indirect
ISIN: GB00B1WQCS47	1,954,373	1,954,373		0.66%	
Ordinary Shares of 13 29/47 pence each					
B: Financial instruments:					
<i>Resulting situation after the triggering transaction</i>					
Type of Financial Instrument	Expiration Date	Exercise Period / Conversion Date	Number of voting rights that may be acquired if the instrument is exercised/converted		% of voting rights
Physically settled long call option	18.04.2008		1,359,544		0.46%
Physically settled long call option	16.05.2008		6,356,400		2.17%
Total (A+B): Number of voting rights		% of voting rights			
9,670,317		3.29%			
9. Chain of controlled undertakings through which the voting rights and/or the financial instruments are effectively held, if applicable:					
Morgan Stanley Securities Limited			7,224,428		2.46%
Morgan Stanley & Co Incorporated			718		0.00%
Bank Morgan Stanley AG			93,415		0.03%
Morgan Stanley & Co International Plc			2,351,756		0.80%

Source: <https://www.investegate.co.uk/ArticlePrint.aspx?id=200804231519419736S>

Appendix OA. Examples of ownership disclosure under different regulatory regimes (cont'ed)

Panel C. Example of ownership disclosure under Directive 2013/50/EC

1. Identity of the issuer or the underlying issuer of existing shares to which voting rights are attached:		Tesco Plc					
2. Reason for the notification (please tick the appropriate box or boxes):							
An acquisition or disposal of voting rights:							
An acquisition or disposal of financial instruments which may result in the acquisition of shares already issued to which voting rights are attached:							
An acquisition or disposal of instruments with similar economic effect to qualifying financial instruments							
x							
An event changing the breakdown of voting rights:							
Other (please specify):							
3. Full name of person(s) subject to the notification obligation:							
Berkshire Hathaway Inc.							
4. Full name of shareholder(s) (if different from 3.):							
The following indirect wholly-owned subsidiaries of Berkshire Hathaway Inc. hold voting rights: Government Employees Insurance Company; General Reinsurance Corporation; General Reinsurance AG; National Fire & Marine Insurance Company; National Indemnity Insurance Company; U.S. Underwriters Insurance Company; and Medical Protective Company.							
5. Date of the transaction (and date on which the threshold is crossed or reached if different):							
16 October 2013							
6. Date on which issuer notified:							
18 October 2013							
7. Threshold(s) that is/are crossed or reached:							
4%							
8. Notified details:							
A: Voting rights attached to shares:							
Class/type of shares	Situation previous to the triggering transaction		Resulting situation after the triggering transaction				
	Number of Shares	Number of Voting Rights	Number of shares	Number of voting rights:		% of voting rights	
			Direct	Direct	Indirect	Direct	Indirect
GB0008847096	257,443,328	257,443,328	257,443,328	257,443,328	0	3.18	0
B: Qualifying Financial Instruments:							
Resulting situation after the triggering transaction							
Type of Financial Instrument	Expiration Date	Exercise Period / Conversion Date	Number of voting rights that may be acquired if the instrument is exercised/converted			% of voting rights	
C: Financial Instruments with similar economic effects to Qualifying Financial Instruments:							
Resulting situation after the triggering transaction							
Type of financial instrument	Exercise price	Expiration date	Exercise period	Number of voting rights instrument refers to		% of voting rights	
Cash Settled Equity Swap	\$4.5732 (US Dollars) per share	16 January 2015	N/A	64,034,283		Nominal 0.80	Delta 0.80
Total (A+B+C): Number of voting rights				% of voting rights			
321,477,611				3.98%			
9. Chain of controlled undertakings through which the voting rights and/or the financial instruments are effectively held:							
The following indirect wholly-owned subsidiaries own shares with voting rights: Government Employees Insurance Company (90,000,000); General Reinsurance Corporation (72,862,000); General Reinsurance AG (30,136,328); National Fire & Marine Insurance Company (30,606,000); National Indemnity Company (22,883,000); U.S. Underwriters Insurance Company (5,807,000) Medical Protective Company (5,149,000). In addition, National Indemnity Company holds financial instruments with similar economic effect to qualifying financial instruments related to 64,034,283 voting rights.							

Source: <https://www.investgate.co.uk/ArticlePrint.aspx?id=201310211016469627Q>

Appendix OB. Additional Robustness Tests

This appendix performs additional robustness tests to explore the sensitivity of our results to our research design choices. The findings are discussed in the Section 5 of the paper.

Table OB1. Takeover activity – Cross-Border versus domestic acquisitions

This table reports OLS estimates of the effect of the implementation of the Transparency Directive (TPD) on takeover activity for our sample of 3,060 country-month-year observations, distinguishing between cross-border and domestic control acquisitions. In column (1) (“*Cross_Border Acquisitions*”), *Takeover_Activity* is computed as the logarithm of the number of control acquisitions where the acquirer is from a different country than the target. In column (2) (“*Domestic Acquisitions*”), *Takeover_Activity* is computed as the logarithm of the number of control acquisitions where the acquirer is from the same country as the target. *Transparency_Directive* is an indicator variable that equals one for the months after the TPD implementation date (i.e., after the implementation of the TPD), and zero otherwise. See Appendix A for variable definitions. Standard errors (in brackets) are clustered by country. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dependent variable: <i>Takeover_Activity</i>	<i>Cross-Border Acquisitions</i> (1)	<i>Domestic Acquisitions</i> (2)
<i>Transparency_Directive</i>	-0.171** [0.062]	-0.237** [0.065]
<i>Country_Controls</i>	Y	Y
<i>Regulation_Controls</i>	Y	Y
Sample	Public	Public
Country Fixed Effects	Y	Y
Month*Year Fixed Effects	Y	Y
Observations	3,060	3,060
R-squared	0.614	0.627

Table OB2. Takeover activity – Industry level analysis

This table presents results of replicating Table 2, panel B, at the country-industry-month level. The sample includes 39,720 country-industry-month-year observations. We use the Campbell (1996) industry classification. Standard errors (in brackets) are clustered by country-industry. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dependent variable: <i>Takeover_Activity</i>	(1)	(2)	(3)
<i>Transparency_Directive</i>	-0.153*** [0.048]	-0.150*** [0.046]	-0.150*** [0.046]
<i>Country_Controls</i>	N	N	Y
<i>Regulation_Controls</i>	N	Y	Y
Sample	Public	Public	Public
Country Fixed Effects	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y
Observations	39,720	39,720	39,720
R-squared	0.845	0.846	0.846

Appendix OB. Additional Robustness Tests (cont'ed)

Table OB3. Takeover activity – Weighting by stock market size

This table presents results of replicating Table 2, panel B, using a weighted OLS model. The OLS models are weighted by the average number of listed firms in the target firm country in the pre-treatment period. See Appendix A for variable definitions. Standard errors (in brackets) are clustered by country. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dependent variable: *Takeover_Activity*

	(1)	(2)	(3)
<i>Transparency_Directive</i>	-0.376*** [0.074]	-0.290*** [0.075]	-0.297*** [0.074]
<i>Country_Controls</i>	N	N	Y
<i>Regulation_Controls</i>	N	Y	Y
Sample	Public	Public	Public
Country Fixed Effects	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y
Observations	3,060	3,060	3,060
R-squared	0.733	0.766	0.766

Table OB4. Alternative measures of takeover activity

This table presents results of replicating Table 2, panel B, using alternative definitions of the dependent variable, *Takeover_Activity*. In columns 1-3, *Takeover_Activity* is defined as the logarithm of the total dollar value of the control acquisitions in a country-month-year. In columns 4-6, *Takeover_Activity* is defined as the logarithm of the number of control acquisitions in a country-month-year over the total number of listed firms in that country-month-year. See Appendix A for variable definitions. Standard errors (in brackets) are clustered by country. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dep. var.: <i>Takeover_Activity</i>	Log (Total value of control acquisitions)			Log (Number of deals / total number of listed firms)		
	(1)	(2)	(3)	(4)	(5)	(6)
<i>Transparency_Directive</i>	-0.004** [0.002]	-0.004** [0.001]	-0.004*** [0.001]	-0.002*** [0.001]	-0.002** [0.001]	-0.002** [0.001]
<i>Country_Controls</i>	N	Y	Y	N	Y	Y
<i>Regulation_Controls</i>	N	N	Y	N	N	Y
Sample	Public	Public	Public	Public	Public	Public
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	0.463	0.464	0.465	0.493	0.609	0.609
R-squared	Public	Public	Public	Public	Public	Public

Appendix OB. Additional Robustness Tests (cont'ed)

Table OB5. Probability of being taken over

This table analyses the firm-specific probability of being acquired around the introduction of Directive 2004/109/EC (TPD). We sample all firm-year observations in our sample where the firm is listed. The dependent variable, *Target*, equals one if the firm is taken over in that year, and zero otherwise. *Transparency_Directive* is an indicator variable that equals one for the period when the TPD is in force in that country (i.e., after the implementation of the TPD), and zero otherwise. See Appendix A for other variable definitions. Standard errors (in brackets) are clustered by country-industry. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dependent variable: <i>Target</i>	(1)	(2)	(3)	(4)
<i>Transparency_Directive</i>	-0.037** [0.016]	-0.027** [0.012]	-0.027** [0.012]	-0.026** [0.014]
Country Controls:				
<i>Stock_Market_Size</i>		0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
<i>GDP_capita</i>		0.052** [0.026]	0.046* [0.026]	0.049** [0.021]
<i>Gov_Bond_10yr</i>		0.000 [0.000]	-0.001 [0.000]	-0.001** [0.000]
<i>Returns_Volatility</i>		0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
<i>Listed_Firms</i>		-0.002 [0.005]	0.002 [0.005]	0.000 [0.007]
<i>Consumption</i>		0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
<i>Investment</i>		0.000 [0.000]	0.000 [0.000]	0.000 [0.000]
Transaction Controls:				
<i>Transaction_Value</i>		0.145*** [0.013]	0.145*** [0.013]	0.142*** [0.014]
<i>Cross_Border</i>		0.003 [0.003]	0.003 [0.003]	0.003 [0.003]
<i>Tender_Offer</i>		0.055*** [0.017]	0.055*** [0.017]	0.061*** [0.012]
<i>Toehold</i>		0.158*** [0.017]	0.158*** [0.017]	0.151*** [0.016]
<i>Cash</i>		0.126*** [0.021]	0.126*** [0.021]	0.132*** [0.023]
<i>Shares</i>		0.143*** [0.030]	0.143*** [0.030]	0.145*** [0.029]
<i>Number_Bidders</i>		0.670*** [0.031]	0.670*** [0.031]	0.666*** [0.043]
Regulation Controls:				
<i>Takeover_Directive</i>			-0.015* [0.009]	-0.015* [0.007]
<i>Market_Abuse_Directive</i>			-0.001 [0.005]	-0.002 [0.004]
<i>Shareholder_Rights_Directive</i>			-0.002 [0.005]	-0.002 [0.002]
Country Fixed Effects	Y	Y	Y	N
Industry Fixed Effects	Y	Y	Y	N
Month*Year Fixed Effects	Y	Y	Y	N
Month*Year*Industry Fixed Effects	N	N	N	Y
Country*Industry Fixed Effects	N	N	N	Y
Observations	39,093	39,093	39,093	39,093
R-squared	0.530	0.902	0.902	0.908

Appendix OB. Additional Robustness Tests (cont'ed)

Table OB6. Takeover activity – Alternative clustering strategies

This table presents results of replicating the analysis in Table 2, panel B, using alternative ways of clustering standard errors. In column 1, standard errors are clustered by country-month-year. In column 2, standard errors are clustered by month-year. In column 3, standard errors are clustered by year. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively

Dep. var.: <i>Takeover_Activity</i>	<i>Clustering by</i>		
	<i>country-month-year</i>	<i>month-year</i>	<i>year</i>
	(1)	(2)	(3)
<i>Transparency_Directive</i>	-0.261*** [0.017]	-0.261*** [0.018]	-0.261*** [0.033]
<i>Country_Controls</i>	Y	Y	Y
<i>Regulatory_Controls</i>	Y	Y	Y
Sample	Public	Public	Public
Country Fixed Effects	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y

Table OB7. Target returns – Additional controls

This table presents results of replicating Table 7 including additional control variables. The vector of additional control variables, *Target_Controls*, includes the following variables. *Target_Size* is the logarithm of the target firm's total assets at the fiscal year-end prior to the announcement date. *Target_LEV* is the ratio between total debt and total equity of the target at the fiscal year-end prior to the announcement date. *Target_CFO* is the cash flow from operations of the target at the fiscal year-end prior to the announcement date. *Target_CASH* is the cash balance of the target at the fiscal year-end prior to the announcement date. Standard errors (in brackets) are clustered by country-month-year. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dependent variable: <i>Target>Returns</i>	<i>Only</i>	<i>Including</i>
	<i>acquired target firms</i>	<i>non-acquired target firms</i>
	(1)	(2)
<i>Transparency_Directive</i>	0.050** [0.021]	0.004** [0.002]
<i>Target_Controls:</i>		
<i>Target_Size</i>	-0.001 [0.003]	0.000 [0.000]
<i>Target_LEV</i>	-0.000 [0.000]	0.000 [0.000]
<i>Target_CFO</i>	0.000 [0.001]	0.000 [0.001]
<i>Target_CASH</i>	-0.014 [0.027]	0.001 [0.002]
<i>Country_Controls</i>	Y	Y
<i>Transaction_Controls</i>	Y	Y
<i>Regulatory_Controls</i>	Y	Y
Country Fixed Effects	Y	Y
Industry Fixed Effects	Y	Y
Month*Year Fixed Effects	Y	Y
Observations	2,417	38,700
R-squared	0.201	0.143

Appendix OB. Additional Robustness Tests (cont'ed)

Table OB8. Target returns – Alternative windows

This table presents results of replicating Table 7 using alternative windows for the computation of the dependent variable, *Target>Returns*. The notation (X, Y) indicates that returns are accumulated from day X to day Y, measured in reference to the acquisition announcement date. For example, (-42, +126) means that returns are accumulated from 42 days before the acquisition announcement date to 126 days after the acquisition announcement date. Standard errors (in brackets) are clustered by country-month-year. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dep. Var.: <i>Target>Returns</i>	<i>Day-window around the announcement date</i>					
	(-42, +1) (1)	(-42, 0) (2)	(-42, +126) (3)	(-63, +1) (4)	(-63, 0) (5)	(-63, +126) (6)
<i>Transparency_Directive</i>	0.046** [0.017]	0.047** [0.018]	0.032** [0.018]	0.054** [0.030]	0.057** [0.027]	0.034** [0.013]
<i>Country_Controls</i>	Y	Y	Y	Y	Y	Y
<i>Transaction_Controls</i>	Y	Y	Y	Y	Y	Y
<i>Regulation_Controls</i>	Y	Y	Y	Y	Y	Y
Country Fixed Effects	Y	Y	Y	Y	Y	Y
Industry Fixed Effects	Y	Y	Y	Y	Y	Y
Month*Year Fixed Effects	Y	Y	Y	Y	Y	Y
Observations	2,873	2,873	2,873	2,873	2,873	2,873
R-squared	0.176	0.173	0.272	0.224	0.193	0.272

Table OB.9. Target returns– Additional Fixed Effects

This table presents results of replicating Table 7 including additional fixed effects. In particular, the specifications include month-year-industry and country-industry fixed effects. Standard errors (in brackets) are clustered by country-month-year. *, **, and *** denote statistical significance at the 10%, 5%, and 1% (two-tail) levels, respectively.

Dependent variable: <i>Target>Returns</i>	<i>Only acquired companies</i> (1)	<i>Including non-acquired companies</i> (2)
<i>Transparency_Directive</i>	0.043** [0.021]	0.003* [0.002]
<i>Country_Controls</i>	Y	Y
<i>Transaction_Controls</i>	Y	Y
<i>Regulation_Controls</i>	Y	Y
Month*Year*Industry Fixed Effects	Y	Y
Country*Industry Fixed Effects	Y	Y
Observations	2,873	39,262
R-squared	0.264	0.170