Disclosure Enforcement Consequences – Evidence from Germany

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Abstract

In 2006 Germany passed a disclosure enforcement law (EHUG) that strengthened the enforcement of financial statement disclosure in particular for non-listed firms whose compliance before the law was just about 16%. After introducing recurring fines of €2,500 to €25,000 disclosure rates surged to above 90%. We examine the impact of the law on transparency using proprietary data from the Deutsche Bundesbank (German Central Bank). The data covers financial statements of compliers, non-compliers and non-disclosers (firms exempt from disclosure) that received loans from German financial institutions. We find that firms not complying prior to the law were smaller, more profitable, had a lower effective tax rate, were less likely to have a foreigner as owner, were more likely to have a consolidated report, were more likely to be taxed at the individual owners' level and were less likely to have a limited liability legal form. Then, using difference-in-difference models, we document that financial reporting quality of non-compliers, measured as absolute abnormal accruals, declines after the reform, both compared to compliers and compared to non-disclosers. In preliminary analyses, we additionally show that the probability to switch the legal form in order to avoid disclosure increases after the law. Overall, we document that while the law increased disclosure quantity, disclosure quality declined on average.

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1 Introduction

While disclosure standards for publicly listed firms have been increasing and converging globally over the last decade, disclosure regulation and enforcement for private firms still varies substantially between countries. For example, in contrast to the US where private firms are not generally required to disclose financial statements, in Germany they are. However, the enforcement of private firms' disclosure in Germany was weak, so according to our estimates just about 16% of the firms complied. This was until 2006 when Germany passed a disclosure enforcement law (EHUG) in order to comply with EU directives 68/151/EEC, 2001/34/EC, 2003/58/EC and 2004/109/EC that strengthened the enforcement process by introducing repeated non-disclosure fines between €2,500 and €25,000. The law aims at improving the access to company specific financial information for third parties (Gesetzentwurf EHUG BT-Drs. 16/960, p. 1). After the introduction of the fines compliance rates quickly surged to above 90% indicating that the fines were effective (e.g., Ballwieser and Häger 1991, Noack 2002, Theile and Nitsche 2006).

This change in enforcement can be viewed as a large (financial reporting) transparency shock to the private firms of the entire German economy. We examine what factors explain why some firms complied with the disclosure regulation requirements prior to the enforcement reform (compliers) and others did not (non-compliers) and how the reform affected transparency.

We started our analyses with Bureau van Dijk's Amadeus data and document that after the law financial reporting quality measured as absolute abnormal accruals is lower for non-compliers compared to compliers. The drawback of Amadeus data is that we cannot examine whether the law had an effect on financial reporting quality because we do not observe the financial statements of non-compliers prior to the reform. We therefore use a proprietary database by the Deutsche Bundesbank called USTAN that covers annual financial statements of non-financial firms before and after the reform for both compliers and non-compliers that have received a loan by a German financial institution. Since financial institutions use these loans as collateral in refinancing transactions with the Bundesbank, the Bundesbank requires the submission of financial statements for the firms that received loans. To identify compliers and non-compliers, we

submitted a research proposal requesting a match between USTAN and Amadeus, which was approved by The Research Data and Service Centre of the Bundesbank. The matching method is described in Schild et. al (2017).

To answer our first question of why some firms complied and others did not, we run a probit model predicting non-compliance prior to the reform using disclosure determinants that reflect costs and benefits of disclosure. We find that firms that did not comply were smaller, more profitable, had a lower effective tax rate, were less likely to have a foreigner as ultimate owner, were more likely to have a consolidated report, were more likely to be taxed at the individual owners' level, were less likely to have a limited liability legal form and more likely to have submitted tax based financial statements as opposed to GAAP based financial statements. We interpret these findings as initial evidence that non-compliers did not disclose prior to the law not because they were indifferent but because disclosure costs exceeded disclosure benefits.

Next, we assess the impact of the reform on transparency. We assume that if non-compliers were indifferent about disclosure and just didn't care to disclose because they weren't facing any penalties, after the introduction of the penalties, they should disclose without changing the financial reporting quality. If, however, non-compliers did not disclose because they had net costs from disclosure, we expect at least some of them to try strategies to reduce disclosure costs such as reducing financial reporting quality or changing the legal form to avoid disclosure. To examine whether the law lead to a reduction in financial reporting quality or a switch in the legal form, we use difference-in-difference models in which we compare non-compliers as the treatment group to two control groups. The first control are compliers and the second are non-disclosers. Non-disclosers are firms with a certain legal form and size that are exempt from disclosure.

As a proxy for financial reporting quality we use abnormal accruals estimated based on the modified Jones (1991) model. If we use compliers as control we find that non-compliers increase absolute abnormal accruals by about 4% after the law. Using non-disclosers as control non-compliers increase absolute abnormal accruals by 6% to 17%. The effect seems to be driven by non-compliers increasing the magnitude of negative abnormal accruals and only to some extent increasing the magnitude of positive abnormal accruals. Since absolute abnormal accruals are an inverse proxy for financial

reporting quality, our evidence suggests that non-compliers reduce financial reporting quality in response to the law consistent with attempts to reduce disclosure costs.

Another strategy to reduce disclosure costs is to switch the legal form. So far, we have preliminary evidence that firms on average are more likely to switch to a non-limited liability legal form after the law. In a next step, we plan to examine whether non-compliers are more likely to change the legal form compared to compliers.

Prior literature focuses to a large extent on public firms' disclosure and usually assumes that mandatory disclosure and enforcement for publicly listed firms comes at little cost for the individual firms while it benefits the whole economy. For example, Daske et al. (2008) show that market liquidity increases around IFRS adoption. Christensen et al. (2013) find that the main driver of liquidity effects around IFRS were disclosure enforcement changes that several EU countries adopted at the same time at which they adopted IFRS. Another study by Ernstberger et al. (2011) reports declines in earnings management and increases in liquidity after disclosure enforcement reforms for publicly listed firms in Germany in 2004.

In contrast, there is relatively little academic research on private firms' disclosure. Most German studies on EHUG focus on compliance rates (e.g., Ballwieser and Häger 1991, Noack 2002, Theile and Nitsche 2006). These studies document positive effects of the law including increased publication rates and easily accessible financial information online. Beyond that, Bernard (2016) shows that financially constrained firms are more likely to avoid disclosure and Burgstahler et al. (2017) show for a sample of EU firms that firms manage their size to avoid disclosure and audit and Burgstahler et al. (2016) use Amadeus data showing that public firms and voluntarily disclosing private firms have similar financial reporting quality while private mandatory firms have lower financial reporting quality.

We extend this literature exploiting a disclosure enforcement reform in Germany in 2006. We think this is an interesting setting and to our knowledge unmet in the US, allowing us to assess the impact of disclosure enforcement on transparency and to examine unintended consequences of enforcement. We first provide evidence for why most firms did not comply prior to the law. Our findings suggest that non-compliers did not disclose prior to the enforcement law because they were indifferent but because the costs related to disclosure exceeded the benefits. Then we document that while

disclosure quantity and compliance increased, average disclosure quality declined. Finally, we show that firms are more likely to switch the legal form after the law, which indicates disclosure avoidance.

We also contribute to the global policy debate on the consequences of disclosure enforcement. We provide an assessment of the impact of disclosure enforcement on transparency by documenting that while overall transparency increases, since the enforcement did not take into account disclosure quality, firms try to reduce disclosure related costs by reducing financial reporting quality and switching the legal form to avoid disclosure. These findings are also potentially relevant for regulators.

2 The German Financial Statement Disclosure Enforcement Process

Over the last decade, the quality of disclosure standards for publicly listed firms in Germany have increased, closing the gap to the world's highest quality standards by introducing and enforcing IFRS (e.g. BilKoG) and converging towards European accounting rules (BilRiLiG, BilMoG, BilRUG). Yet, in contrast to the US where private firms are not generally required to disclose financial statements, in Germany they are.

The German Commercial Code ("Handelsgesetzbuch", HGB) requires private companies with a certain legal form and size to disclose financial statements at the local courts responsible for the company's incorporation. Yet until 2006, these local commercial registers had no adequate monitoring and sanctioning mechanisms against companies that didn't disclose their financial statements. As a consequence, disclosure rates were low (see Ballwieser and Häger 1991, Theile and Nitsche 2006, Henselmann and Kaya 2008, Schlauß 2008).

In 2006 the German government passed a new EU Directive[1] into national law: the Law on the Electronic Registers for Commerce, Companies and Associations ("Gesetz über das elektronische Handelsregister und Genossenschaftsregister sowie das Unternehmensregister", EHUG), coming into force in January 2007 (see BGBl. I 2006 p. 2553). The major objective of the EHUG was to facilitate central access of company specific financial information for third parties as well as to increase the effectiveness of

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[1] On 15th July 2003, the European Parliament and the Council of the European Union passed the Directive 2003/0058/EC amending the Council Directive 1968/0151/EEC.

enforcement (Gesetzentwurf EHUG BT-Drs. 16/960, p. 1). To achieve these goals, the EHUG law included changes in the disclosure process. Firms are now required to hand in their financial statements to a centrally managed electronic commercial register, the "Bundesanzeiger" (German Federal Gazette), which replaced the local registers.

By January 2007, the EHUG became effective **for all fiscal years starting after 31.12.2005**. All firms were required to disclose financial statement within twelve months after each fiscal year end. The Bundesanzeiger verifies the completeness and timeliness of disclosure (§329 Abs. 1 S. 1 HGB). In cases of misconduct, the Federal Office of Justice fines firms depending on the disclosure delay (§ 335 Abs. HGB; see BGBl. I 2006 pp. 3171 ff). For companies ignoring the obligation to disclose, the Federal Office of Justice sets a 6-week grace period to comply during which no fines are imposed. If companies continue to disregard the obligation, the Federal Ministry of Justice and Consumer Protection sets a **fine between 2,500 and 25,000 Euros** accompanied by another six-week time limit to submit the financial statement (see §335 Abs. 1 S. 4 HGB). If the firms pay but still don't comply they continue to be fined.

The EHUG law didn't change the type of firms required to disclose. It also didn't change the type of information required for disclosure. As before the law, large[2] and medium-sized companies must file a balance sheet, income statement, notes, management report and additional documents specific to the legal form (auditor's report, the management report, the report of the supervisory board, the proposed appropriation of profits and the declaration according to § 161 AktG). While medium-sized[3] companies can use reliefs (§327 HGB) regarding the content of individual documents, small[4] companies can use reliefs (§ 326 HGB) restricting disclosure to a balance sheet and notes only.

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[2] A corporation is large according to the commercial code (§ 267 HGB) if it exceeds two of the following three size criteria: sales > €38.5 million, total assets > €19.25 million and employees > 250 (average over the year).

[3] A corporation is medium-sized according to the commercial code (§ 267 HGB) if the firm is not defined as small and at least two of the following three conditions are met: sales ≤ €38.5 million, total assets ≤ €19.25 million and employees ≤ 250 (average over the year).

[4] A corporation is small according to the commercial code (§ 267 HGB) if at least two of the following three conditions are met: sales ≤ €9.68 million, total assets ≤ €4.84 million and employees ≤ 50; See §325 HGB (average over the year).

Along with the new regulations, the financial statements are publicly available for everyone under www.bundesanzeiger.de.

3   Related Literature

Expected utility theory generally predicts that, from the viewpoint of a decision maker, an increase in information available and finer, i.e., more disaggregated information is never detrimental in comparison to less or no information (Blackwell, 1951; Blackwell and Girshik, 1954). Therefore, prescribing mandatory disclosure in financial reporting is often seen as a win-win situation, where firms increase disclosure at little cost and stakeholders (decision makers) unequivocally benefit as a consequence. In addition, higher quality disclosure improves the predictability of cash flows and diversification and therefore influences the cost of capital directly, and indirectly by improving firms' real decisions, for example, enabling efficient contracting and solving coordination problems (Lambert et al., 2000).

The majority of studies on mandatory disclosure and enforcement examine capital market consequences for publicly listed firms. Daske et al. (2008) for example document an increase in stock market liquidity around the introduction of IFRS. Building on this study Christensen et al. (2013) find that while the IFRS adoption had little impact on liquidity, the main driver of the effect is related to improvements in disclosure enforcement that were initiated at that time by five EU countries. This implies that positive capital market effects can only be achieved if the introduction of higher quality financial reporting standards like IFRS is combined with improvements in reporting enforcement.

Consistent with these findings, Ernstberger et al. (2011) investigate financial reporting enforcement reforms for publicly listed firms in Germany in 2004 and find declines in earnings management and increases in market liquidity. Pronobis et al. (2010) examine earnings quality for 688 listed German firms between 1997 and 2006 and document improvements in earnings persistence and predictability, no clear trend in earnings management, a worsening of accruals quality and some improvements in value relevance, timeliness and conservatism.

Another branch of the disclosure literature focuses on mandatory disclosure costs such as direct costs of producing, disseminating and verifying information and indirect

costs arising from revealing proprietary information to competitors (Leuz, 2010; Verrecchia 1983, Wagenhofer, 1990; Feltham et al., 1992) and negative externalities (Fishman and Hagerty, 1989). Our study extends this largely theoretical literature by providing some empirical evidence on costs and unintended consequences of enforcing mandatory disclosure.

Our focus is the 2006 EHUG law in Germany, which was an effort to strengthen financial reporting enforcement but in contrast to laws studied by prior literature this law covers public and all private firms in Germany. So far, most studies examining the EHUG law focus on the extent the law increased disclosure rates. Henselmann and Kaya (2009) investigate about 4000 limited liability firms (GmbH) with fiscal year ends on December 31st 2006 covering three German local courts: Ingolstadt, Kassel and Kiel. They find that publication rates increased to about 70%, and if they had considered all fiscal year ends the number would be close to 100%. Löffelmann (2010) finds that disclosure delays after the law declined indicating that the law was effective in terms of not only increasing publication rates but also their timeliness. Wittmann and Bravidor (2015) examine 720 large private firms and find bigger disclosure delays for firms with higher proprietary costs, e.g., loss reporting firms or family owned firms. So most prior literature focuses on disclosure rates and timing.

Compared to the vast literature on disclosure of publicly listed firms, there is less academic research on private firms' disclosure. Ball and Shivakumar (2005) document that UK private firms' financial reporting quality is lower than UK public firms. Burgstahler et al. (2005) show that private firms in the European Union exhibit lower earnings management than public firms. Kosi and Valentincic (2013) provide evidence of private firms in Slovenia choosing accounting policies that increase tax savings. Watrin et al. (2014) show that Germanys one-book system (book-tax conformity) induces income-decreasing earnings management. Bigus et al. (2016) find that corporations have higher levels of income smoothing and conservatism compared to partnerships and one-person businesses.

The studies closest to our paper are Bernard et al. (2016) and Burgstahler et al. (2016 and 2017). Bernard et al. (2016) shows that prior to EHUG more financially constraint firms were less likely to comply to avoid being driven out of business by competitors, e.g., through price wars. Burgstahler et al. (2017) document for a sample of EU firms that

those close to certain size threshold were more likely to shrink in order to avoid disclosure and audit. Finally, Burgstahler et al. (2016) use Amadeus data showing that public firms and voluntarily disclosing private firms have similar financial reporting quality while private mandatory firms have lower financial reporting quality. Since Amadeus does not include non-compliers' financial statements prior to the law, we extend these studies by documenting how the law affected financial reporting quality and other disclosure cost reducing strategies like switching the legal form.

4   Publication rates, sample selection and descriptive statistics

Publication rates: Prior to EHUG the German disclosure system lacked enforcement and as a consequence disclosure rates were very low (see See Ballwieser and Häger 1991, Noack 2002, Theile and Nitsche 2006). Noack (2002), for instance, estimates publication rates of under 5% for the fiscal year 2001. Theile and Nitsche (2006) determine rates ranging between 10% and 16.2% from 1996 to 2004. After the EHUG law strengthened the enforcement system, publication rates increased substantially. Henselmann and Kaya (2009) find that disclosure rates for small and medium-sized firms (SMEs) in Germany went up to 70% in 2007 and 2008. Eierle (2011) reports rates between 92.1% and 95.2% for SMEs in 2007. Löffelmann and Haller (2010) and Löffelmann (2010) study publication rates and timing of German companies between 2006 and 2009 with similar results.

Data: We use the USTAN ("Unternehmensbilanzen" = Corporate Balance Sheets) database by the Deutsche Bundesbank. USTAN comprises annual financial statements of non-financial firms submitted to the Deutsche Bundesbank. The Deutsche Bundesbank extends refinancing loans to German financial institutions based on a collateral assessment that involves the credits these institutions grant to non-financial firms. To control the collateral, the Bundesbank requires annual financial statements of these non-financial firms. Hence, USTAN comprises non-financial firms that have received credit by a German financial institution, which are used as collateral in refinancing with the Bundesbank. A detailed description of the data is provided by Stöss (2001).

USTAN has a big advantage over using Bureau van Dijk's Amadeus. Amadeus does not contain the non-compliers, i.e., the financial statements of firms that did not comply prior to EHUG, which we need if we want to estimate the effect of the law on the financial reporting behavior of firms. To identify compliers and non-compliers, the Deutsche

Bundesbank provided an interface linking USTAN and Amadeus. The matching method is described in Schild et. al (2017).

Sample selection: The time period we choose is 2002 to 2009 covering enough years prior and after the year 2006 in which the EHUG law became mandatory to compute our financial reporting quality proxies. We exclude financial statements prepared applying IFRS and single entity financial reports that are included in a consolidated report. At the same time, we include statements prepared in accordance with the German tax code (tax balance sheets), because pre-BilMoG German GAAP is sufficiently close to tax accounting. Nonetheless, we control for potential differences with a dummy.

Outlier treatment: We trim the top and bottom 1% of all variables that go into the regressions.

Descriptive statistics: All variables are defined in Table 1. Table 2 presents descriptive statistics for the variables that go into the regressions. With regard to the dependent variables, the mean complier (non-complier) firm has absolute abnormal accruals of 0.128 (0.143), signed accruals of 0.013 (-0.012), negative abnormal accruals of -0.123 (-0.156) and positive abnormal accruals of 0.130 (0.130). With regard to the independent variables, the mean complier (non-complier) firm has €37 million (€24 million) in total assets, 6.8% (8.1%) return on assets, 23% (27%) debt over total assets, 35% (34%) fixed asset over total assets, an effective tax rate of 23% (18%), 78% (82%) are a limited liability corporation such as GmbH and AG, 6.9% (6.6%) have as ultimate owner a foreigner, 8.7% (7.3%) have a consolidated report, the competition dummy is 0.92 (0.92), 78% (45%) are pass-through entities, i.e., not subject to corporate tax but to individual owners' tax and 67% (64%) report a tax balance sheet instead of a GAAP balance sheet.

The comparison shows that compliers have lower absolute abnormal accruals and less negative accruals indicating better reporting quality. In terms of firm characteristics, mean compliers and non-compliers are similar with regard to leverage, capital asset intensity, legal form, foreign ultimate owner, consolidated report, competition and reporting a tax instead of GAAP balance sheet. They differ in the following characteristics: Mean compliers are larger, less profitable, have a higher effective tax rate, and are more often a pass-through entity taxed at the individual owners' level.

5 Disclosure Determinants prior to the Enforcement Reform (H1)

In this section, we identify economic factors reflecting disclosure costs and benefits that explain why some firms complied with the disclosure requirements prior to the enforcement reform and some firms did not.

Non-complier definition: We label firms that disclosed financial statements as required before the new enforcement system was implemented in 2006 *"compliers"* and firms that ignored disclosure requirements and started disclosing after the enforcement process was strengthened in 2006 *"non-compliers"*. To identify non-compliers, we use the Amadeus database by Bureau van Dijk and classify a firm as non-complier if the firm appears in the database in 2006 but does not appear before 2005. We do not consider 2005 because 2006 was the first year in which the EHUG reform was enforced and accounting standards require reporting the prior year statements (2005) together with the current year statements (2006). So many non-compliers first disclosing in 2006 also disclosed 2005 financial statements. About 78% of the firms in the USTAN sample did not disclose financial statements prior to the enforcement reform in 2006.

Hypothesis development and variable measurement: In the following, we identify economic determinants that explain the likelihood of a firm complying with disclosure regulation prior to the enforcement reform. We assume that non-compliers prepared but not disclosed financial statements as required because they were either indifferent about disclosure, i.e., they did not disclose because they were not penalized or that disclosure costs dominated disclosure benefit. Such disclosure related cost can arise from having to release information that competitors can exploit and gain a competitive advantage or information that transaction parties like suppliers, customer or employees can exploit to increase their negotiating power. To predict the decision to disclose prior to the reform, we follow prior literature and use firm specific characteristics such as size, profitability, capital structure and asset structure (see, e.g., Lang and Lundholm 1993, Leuz and Verrecchia 2000, Healy and Palepu 2001, Holmes and Nicholls 1989, Keasey and Short 1990, Buijink 1992, Bollen 1996). In addition, we use determinants that we expect will explain disclosure in our setting well such as legal form, the effective tax rate or whether taxes are levied at the firm or individual level.

H1: The likelihood of a firm not complying with disclosure regulation before the enforcement reform is increasing in disclosure costs and declining in disclosure benefits.

Size (-): Size is associated with voluntary disclosure for several reasons: First, the direct costs of preparing and publishing the information are likely to decrease per unit of firm size (see Leuz 1999). Second, larger firms are typically involved in a higher number of relationships with outside parties such as investors, creditors, suppliers, customers and employees and have higher incentives to reduce information asymmetry between the company and these parties, e.g., to facilitate access to financing. Large companies are also in a better position to hide proprietary information, e.g., by providing more aggregated information. Third, parties interested in financial statements of large firms are numerous and have different needs, while parties involved with small firms may have a more intimate and direct communication to the management and do not necessarily need a publicly disclosed financial statement (see Berger 1995). Consequently, small firms are more likely to communicate directly with involved business partners whereas large firms may prefer and benefit from public disclosure. Taken together net benefits from disclosure should be higher for larger firms. We measure firm size as the natural logarithm of total assets and expect that large firms were less likely not to disclose prior to the enforcement reform.

Financing Needs: Leverage (+/-): In the USTAN database all firms received at least one loan by a German financial institution. We do not have a clear prediction on leverage but include it for completeness. We measure financing needs with leverage and expect that more levered firms were more likely not to disclose prior to the enforcement reform.

Proprietary Costs: Proprietary costs are the cost born by a firm when revealing information to third parties. These costs include the revelation of trade secrets, the disclosure of profitable customers and markets or the exposure of operating weaknesses to competing firms, unions, regulators, investors, customers or suppliers (see Leuz and Wysocki 2008). These costs are suggested to be of significant importance to disclosure and firms often use them to oppose disclosure regulation (see Ettredge et al. 2002). Both, theoretical and empirical studies document that the probability of disclosure decreases with proprietary costs (see Dye 1985 and 1986, Verrecchia 1983 and 1990, Darrough and Stoughton 1990, Wagenhofer 1990, Hayes and Lundholm 1996, Gal-Or 1985, Harris 1998, Berger and Hann 2003, Leuz 2004, and Leuz an Wysocki 2008). To measure proprietary costs among the most popular proxies used by prior literature are firm performance and capital intensity that reflect product market entry barriers (see Monk

2011). **Performance (-/+):** On the one hand, profitable firms with higher profit margins have incentives to disclose good news to set themselves apart from less profitable firms. On the other hand, profitable firms may wish to hide the source of their profits from competitors in order to prevent rival firms from exploiting this information and reducing the competitive advantage. Additionally, proprietary costs may arise from a firm's labor relations. Disclosing high profits could hurt the firm's power in wage negotiations with labor unions (see Scott 1994). We measure performance as return on assets and expect that the effect can go either way: If benefits (costs) from releasing proprietary costs dominated the costs (benefits), we expect that more profitable firms were less (more) likely not to disclose prior to the enforcement reform and vice versa. **Capital Intensity (-):** Capital intensity is a proxy for proprietary costs because it reflects product market entry barriers (see Piotrosky 2003, Cohen 2003, Leuz 2004). Higher barriers to entry into an incumbent market are associated with lower proprietary costs and hence lower costs of disclosure (see Cohen 2003, Darrough and Stoughton 1990, Verrecchia 1983). We measure capital intensity as fixed assets over total assets and expect that firms were less likely not to disclose their financial statements prior to the enforcement reform if entry barriers were relatively high and therefore the threat of new competitors comparably low.

In addition to these disclosure drivers identified by prior literature, we add the following: **Effective tax rate (-):** Firms can reduce tax rates by applying tax avoidance strategies or creating beneficial tax structures. While tax advantages are beneficial to all firm owners, their social desirability is disputed (e.g. Graham et al., 2013). Disclosing lower than usual tax expenses thus increases reputational risk and, because tax advantages can be replicated, attracts competition. We assume that firms seeking tax benefits at the same time avoid their disclosure; hence firms with higher effective tax rates should be less likely to avoid disclosure prior to the reform. **Limited liability (-):** This dummy is 1 if the firm has a legal form that limits liability, e.g., GmbH, AG, SE or GmbH & Co. KG and zero otherwise. We expect that limited liability firms were less likely not to disclose prior to the reform because they have larger disclosure requirements, e.g., they have to disclose notes and a management discussion and analysis. **Foreign (-/+):** We do not have a clear prediction on whether firms with a foreign ultimate owner are less or more likely not to disclose prior to the reform but include this dummy to test if foreign ownership makes a difference. **Consolidated report (+):** This dummy is one if a

firm has released a consolidated report. We expect that these firms are more likely not to disclose because the proprietary costs of the consolidated statements are higher. This is the case because the consolidated report's major function is to provide information while a major function of unconsolidated reports is taxation. So consolidated reports should be more informative and transparent. **Pass-through (+)**: This dummy indicates a pass-through entity, which is a business structure that is taxed transparently. Examples in Germany are oHG and KG. Pass-through entities are not subject to income taxes at the corporate level. Instead, corporate income is allocated among the owners, and income taxes are only levied at the individual owners' level. We expect that these firms were more likely not to disclose prior EHUG because they are fully liable and because they have lower disclosure requirements. **Tax accounts (+)**: A dummy variable equal to one if tax accounts are the basis for financial reporting to the bank. In this case, income tax regulation (EStG) instead of the commercial code (HGB = German GAAP) govern the recognition and measurement of financial reporting items. We expect that firms with tax accounts were more likely not to disclose because the fact that they did not adjust the tax account to Garman GAAP indicates they don't care about disclosing to the public. We expect only small differences between the tax and the GAAP standards and hence no sizable effect on our results but we control for the difference.

Collectively, we hypothesize:

Prediction summary H1: The likelihood of a firm not complying with disclosure regulation before the enforcement reform is _increasing_ if the firm has released a consolidated report, if the firm is taxed at the individual owners' level vs. at the corporate level and if the firm submits a tax instead of a GAAP report. The likelihood of a firm not complying is _declining_ in size, capital intensity and limited liability. The direction of the effect is _unclear_ and can go either way for profitability, leverage and foreign ownership.

Disclosure model: To test what factors explain firms' non-disclosure prior to the enforcement reform, we estimate the following probit (and alternatively logit) model in the pre enforcement year 2005 (and as a robustness in 2004):

<u>**Equation 1:**</u> Estimated using probit (and logit) with robust standard errors

$non\ compliance_i$ = 1 if firm appears in the Amadeus database in 2006 but does not appear before 2005 and 0 otherwise

$$= \beta_0$$

$+\beta_1 size_i$ = natural logarithm of total assets (-)

$+\beta_2 roa_i$ = operating income (EBIT) divided by total assets (-/+)

$+\beta_3 leverage_i$ = loans plus long-term debt divided by total assets (+)

$+\beta_4 fins_i$ = fixed asset intensity = fixed assets divided by total assets (-)

$+\beta_5 efft_{i,t}$ = tax expenses divided by profit or loss before taxes (-/+)

$+\beta_6 foreign_i$ = 1 if the ultimate owner (majority indirect owner) is non-German (-/+)

$+\beta_7 consolidated\ report_i$ = 1 if the firm submits a consolidated report (+)

$+\beta_8 pass-trhough_i$ = 1 if firm is taxed at the individual owners' level and 0 if the firm is taxed at the corporate level (+)

$+\beta_9 limited\ liability_i$ = 1 if firm has a legal form that limits liability, e.g., GmbH, AG, SE or GmbH & Co. KG and 0 otherwise (-)

$+\beta_{10} tax\ accounts_i$ = 1 if firm submits tax based financial statements (EStG) and 0 if it submits GAAP based financial statements (HGB) (+)

$+industry\ fixed\ effects$ = based on the first two digits of the WZ-2008 classification

$+\varepsilon_i$ = error term

All variables are also defined in Table 1.

The **industry fixed effects** control for factors that are common to the firms in one industry across time, e.g., R&D intensity etc.

Result: Table 3 presents results from a probit (1) and logit (2) estimation of Equation 1 in 2005 and as a robustness in 2004. The results are similar for the probit and logit model as well as for 2005 and 2004. We document that firms that did not disclose prior to the enforcement reform were:

- smaller, consistent with smaller firms having less benefits of public disclosure because they have fewer parties interested in their financial statements and usually directly communicate with them;

- more profitable, consistent with incentives to hide margin related information from competitors and negotiating parties;

- had a lower effective tax rate, consistent with negative reputation effects related to tax avoiding strategies and hiding the tax advantage from competitors;

- more likely not to have a foreigner as ultimate owner;

- more likely to have a consolidated report, consistent with consolidated reports being more informative and transparent than unconsolidated reports and hence providing incentives not to disclose additional information about the company;

- more likely to be taxed at the individual owners' level, consistent with owners not wanting to disclose information related to their income and hence wealth;

- less likely to have a limited liability legal form, consistent with lower disclosure requirements for non-limited liability legal forms and hence a lower hurdle not to disclose;

- more likely to have submitted tax based financial statements as opposed to GAAP based financial statements, consistent with firms that do not make the effort to prepare a GAAP report do not care about public disclosure.

All determinants have the expected effects except leverage and fixed asset intensity both of which are insignificant. Leverage and fixed asset intensity may be insignificant because compliers and non-compliers have a similar mean leverage level (24% vs. 27%) and a similar mean fixed asset intensity level (35% vs. 34%). Regarding the variables without a clear sign prediction, we find that more profitable firms were more likely not to disclose consistent with incentives to hide profitability and its sources and firms with an ultimate owner who is a foreigner were less likely not to disclose. The pseudo R^2

suggests that these factors explain about 15%-20% of the variation in the decision to disclose prior the enforcement reform.

Taken together, these findings provide initial evidence that non-compliers did not disclose prior to the law because they were indifferent but because disclosure cost exceeded disclosure benefits. These economic costs and benefits of disclosure explain about 15%-20% of the variation in the decision to disclose.

6   The Impact of Disclosure Enforcement on Financial Reporting Quality (H2)

Hypothesis development: In the following, we examine whether the enforcement law led to a change in financial reporting quality for non-compliers. If non-compliers did not disclose prior to the reform because they were indifferent, we expect no change in financial reporting quality after the reform. If, however, as our disclosure determinants analysis (H1) suggests, non-compliers didn't disclose because they had net costs from disclosure, then we expect that being forced to disclose may prompt efforts to reduce the transparency of financial statements in order to reduce disclosure costs.

Two control groups: To identify the effect of the enforcement reform on financial reporting quality, we use difference-in-difference analyses and compare the financial reporting quality of _non-compliers_ (the treatment group because the reform forced them to disclose financial statements) to two control groups separately. The first control group includes _compliers_, i.e., firms that disclosed their financial statements by complying with disclosure regulation prior to the enforcement reform. The second control group includes _non-disclosers_, i.e., firms that were not required to disclose at any time because they fall under a certain size threshold (PublG §1 does not require disclosure if two of the following criteria are met: total assets < €65 million; sales < €130 million, employees < 5000). If non-compliers were not indifferent about disclosure but didn't disclose because they had net costs related to disclosing, we expect that:

H2: The enforcement reform caused a decline in non-compliers' financial reporting quality compared to compliers and alternatively compared to non-disclosers.

Financial reporting quality proxies: We follow prior literature, e.g., Dechow et al. (2009) and choose absolute abnormal accruals, negative and positive abnormal accruals as proxies for financial reporting quality because they fit our German setting and research

question. We do not focus on total accruals because total accruals per se do not indicate financial reporting quality and instead we examine abnormal accruals. Given strong tax reduction incentives for German private firms, we also disregard smoothing measures. We do not consider financial reporting quality measures that require a longer time-series such as the accruals quality measure by Dechow and Dichev (2001) or earnings persistence and earnings predictability measures because they are less suitable for a diffs-in-diffs analysis. We also do not consider measures that require stock returns such as conservatism and value relevance because most firms in our sample are private.

Accruals quality measurement: Accruals quality proxies aim to measure earnings management. The critical assumption underlying abnormal accruals models is that differences in accruals quality between firms in the same industry-year group reflect managerial opportunism. We use the modified Jones model (see, Jones 1991 and Dechow, Sloan and Sweeny 1995) to estimate firm-year signed and absolute abnormal accruals. Abnormal accruals are the difference between actual accruals and normal accruals scaled by lagged total assets.

$$abnormal\ accruals_{i,t} = accruals_{i,t} \big/ assets_{i,t} - normal\ accruals_{i,t} \qquad (2)$$

The challenge with these measures is to estimate "normal" accruals. To estimate normal accruals, we regress total accruals on one over total assets, the change in sales less the change in accounts receivable over total assets and on property, plant and equipment over total assets.

$$\frac{accruals_{i,t}}{assets_{i,t}}$$

$$= \beta_0 + \beta_1 \left(\frac{1}{assets_{i,t}} \right) + \beta_2 \left(\frac{\Delta sales_{i,t} - \Delta rec_{i,t}}{assets_{i,t}} \right) + \beta_3 \left(\frac{ppe_{i,t}}{assets_{i,t}} \right) + \varepsilon_{i,t} \qquad (3)$$

The regression includes an unscaled intercept and an intercept scaled by total assets to avoid a spurious correlation between cash flow and sales due to variation in total assets (see Roychowdhury 2006). The modified Jones model subtracts the change in trade receivables from the change in sales because it assumes that the change in receivables is subject to managerial discretion. The regression parameters are estimated separately for different industry-year groups requiring a minimum of 8 observations and then used to predict normal accruals.

$$normal\ accruals_{i,t} = \hat{\beta}_0 + \hat{\beta}_1\left(\frac{1}{assets_{i,t}}\right) + \hat{\beta}_2\left(\frac{\Delta sales_{i,t} - \Delta rec_{i,t}}{assets_{i,t}}\right) + \hat{\beta}_3\left(\frac{ppe_{i,t}}{assets_{i,t}}\right) \qquad (4)$$

Then the predicted normal accruals are subtracted from actual accruals as in equation (2) to obtain abnormal accruals. We use the absolute value of abnormal accruals to proxy for accruals quality.

Proxy sign interpretation: Lower financial reporting quality will be reflected in higher absolute abnormal accruals, lower negative abnormal accruals and/or higher positive abnormal accruals. In our German setting we expect substantial tax reduction incentives (Watrin et al., 2014) and therefore income decreasing earnings management that should be reflected in higher absolute abnormal accruals and more negative abnormal accruals.

H2 model: To test whether the enforcement reform led to a decline in the financial reporting quality of non-compliers, we estimate the following difference-in-difference model including firm and year fixed effects for 2002-2009:

Equation 5: Diffs-in-diffs with firm and year fixed effects and robust standard errors clustered on firm.

$accounting\ outcome_{i,t}$ $= \beta_0$	= absolute abnormal accruals or negative abnormal accruals or positive abnormal accruals
$+\beta_1 non\ compliers_{i,t}$	= 1 if firm appears in the Amadeus database in 2006 but does not appear before 2005 and 0 otherwise
$+\beta_2 post_{i,t}$	= 1 if fiscal year is after 2005 and alternatively after 2006
$+\beta_3 non\ compliers * post_{i,t}$	= diffs-in-diffs effect
$+\beta_{4-14} controls_{i,t}$	= size, leverage, fixed asset intensity, effective tax rate, return on assets, foreign, consolidated, passthrough, tax accounts
$+firm\ fixed\ effects_i$	= firm dummies
$+year\ fixed\ effects_t$	= year dummies

$+\varepsilon_{i,t}$ = error term

Control variables: The factors that we use to control for are identical with the disclosure determinants in the probit model of Equation (1). In addition, we control for firm fixed effects, i.e., unobserved firm characteristics that are constant over time such as managerial skill or accounting ethics and year dummies, i.e., unobserved year specific factors that affect all firms within a year in a similar way such as macroeconomic factors like economic downturns.

Prediction summary H2: If the enforcement reform reduces non-compliers' financial reporting quality, we expect that the interaction between the non-compliers dummy and the post dummy is significantly different from zero and has a positive sign for absolute abnormal accruals, potentially a negative sign for negative abnormal accruals and potentially a positive sign for positive abnormal accruals.

Results: The results from estimating Equation 5 using _compliers_ as control are reported in Table 4 and using _non-disclosers_ as control are reported in Table 5. In both tables, the financial reporting quality proxy in Panel A is absolute abnormal accruals, in Panel B negative abnormal accruals and in Panel C positive abnormal accruals. Each panel shows two specifications. In the first specification the post reform dummy equals 1 after 2005 and in the second as a robustness the post reform dummy equals 1 after 2006.

We first discuss the results in Table 4 in which we use _compliers_ as control. Note that the non-complier dummy is omitted because it is collinear with the firm fixed effects. Since we include firm and year fixed effects and one firm and one year are the reference categories absorbed by the intercept, the interpretation of the post variable is not meaningful either, so we focus on the interpretation of the diffs-in-diffs effect, which is given by the interaction non-complience*post. In Panel A, we find a positive and highly significant coefficient 0.0058 for the 2005 specification and 0.0053 for the 2006 specification suggesting that the enforcement reform increased absolute abnormal accruals for non-compliers. Since absolute abnormal accruals are an inverse measure of financial reporting quality the result implies that the reform reduced financial reporting quality for non-compliers. While the diffs-in-diffs coefficients for negative abnormal accruals (Panel B) are negative and significant (-0.0063 and -0.0091), the diffs-in-diffs coefficients for positive abnormal accruals (Panel C) are positive and in one case

significant and in one case insignificant (0.0083 and 0.0027). This suggests that after the reform non-compliers report more negative abnormal accruals, which is consistent with tax reduction incentives and to a limited extent more positive abnormal accruals, which would be consistent with target beating incentives.

Let's turn to the diffs-in-diffs results in Table 5 where instead of compliers we use *non-disclosers* as a control group. The diffs-in-diffs coefficients for absolute abnormal accruals (Panel A) are positive and highly significant (0.0244 and 0.0086) suggesting that the reform reduced financial reporting quality for non-compliers. The diffs-in-diffs coefficients for negative abnormal accruals (Panel B) are negative and significant (-0.0429 and -0.0157). Similarly, the diffs-in-diffs coefficients for positive abnormal accruals (Panel C) are also negative and significant but lower in magnitude and significance (-0.0059 and -0.0076). This suggests that non-compliers reduced both negative and positive abnormal accruals after the reform.

Collectively, both diffs-in-diffs models using compliers as control and alternatively using non-disclosers as control show that after the reform non-compliers reduced financial reporting quality measured as absolute abnormal accruals and this effect seems to driven more strongly by increases in the magnitude of negative abnormal accruals.

Take away: These results are generally consistent with the explanation that non-compliers were not indifferent regarding disclosure and being forced to disclose after the EHUG law they reduced financial reporting quality, which is consistent with the attempt to reduce disclosure related costs such as proprietary costs by engaging in earnings management.

7 The Impact of Disclosure Enforcement on Legal Form Changes to Avoid Dislosure (H3)

Above we document that non-compliers reduce financial reporting quality as a reaction to the enforcement reform, which is consistent with the attempt to reduce disclosure costs. In the following, we examine whether the reform encouraged firms to avoid disclosure altogether by changing their legal form. If firms change their legal form from a limited liability corporation like AG, GmbH and GmbH & Co. KG to a proprietorship like oHG, KG and GbR they are exempt from disclosure if they also fall below a certain size threshold (HGB § 325a and PublG §1). More specifically they need to meet two of the

following criteria for two subsequent years: total assets < €65 million; sales < €130 million, employees < 5000 (PublG §1). So small limited liability corporations could have avoided disclosure by changing their legal form to a proprietorship.

H3 model: To test whether firms avoid disclosure after the reform by changing their legal form, we estimate the following probit and alternatively logit model.

Equation 6: Probit/logit based on a balanced sample (we include only firms in the post period for which we have observations for each year in the pre period) and we use robust standard errors clustered on firm.

$proprietorship_{i,t}$ $= \beta_0$	= 1 if firm is a proprietorship (oHG, KG, GbR) and 0 otherwise
$+\beta_1 post_{i,t}$	= 1 if fiscal year is after 2005 and alternatively after 2006
$+\beta_{2-12} controls_{i,t}$	= size, leverage, fixed asset intensity, effective tax rate, return on assets, foreign, consolidated, competition, passthrough, tax accounts
$+year\ fixed\ effects_t$	= year dummies
$+\varepsilon_{i,t}$	= error term

Control variables: The controls are identical with the disclosure determinants in Equation (1). In addition, we control for year fixed effects capturing unobserved year specific factors that affect all firms within a year in a similar way such as macroeconomic factors like recessions. We do not include industry fixed effects because we expect that legal forms are correlated with certain industries and we don't want to eliminate the between industry variation in legal forms.

H3: If after the enforcement reform firms are more likely to change from a legal form with an obligation to disclose to a legal form with a disclosure exemption, we expect the post dummy to have a positive and significant coefficient.

Results and take away: Table 6 reports the results for two specifications. In the first specification the post period starts in 2005 and as a robustness in the second specification it starts in 2006. As predicted we find a positive and significant coefficient

on the post dummy (0.1712 if the post period starts in 2005 and 0.0962 if the post period starts in 2006). These findings indicate that with the introduction of the EHUG law, the probability of a firm to be a proprietorship has increased. Since we use a balanced panel this effect is not driven by newly founded firms but reflects legal form switches consistent with disclosure avoidance strategies after the enforcement reform.

Next, we will extend this analysis with a difference-in-difference design to see whether non-compliers were more likely to switch the legal form compared to compliers after the law.

8   Conclusion

The reforms of the German financial reporting framework since the 2000s, in particular BilKoG, EHUG and BilMoG, can be understood as an intent to move gradually from a relationship-based 'insider' system orientation towards an 'outsider' system orientation (for a characterization of these systems see Leuz, 2010; Franks and Mayer, 1994; Berglöf, 1997; Schmidt and Tyrell, 1997; Rajan and Zingales, 1998; Allen and Gale, 2000). Among the gains of the EHUG disclosure enforcement law are a record level of firm disclosure in Germany and the ease to access and monitor German firms' financial statements online at a central register as opposed to decentralized courts.

Leuz (2010) and Ross (1979) argue that, as long as the benefits from disclosure are larger than the costs, firms have incentives to disclose without being regulated. Hence, net benefits of voluntary disclosure do not justify mandating disclosure. Ross (1979) concludes that mandating disclosure is meaningful if almost all firms are willing to provide disclosure voluntarily. Our analysis suggests that this was not the case for non-listed firms in Germany. About 84% of the firms refrained from disclosing prior to the disclosure enforcement law in 2006 and our disclosure determinants analysis indicates that non-compliers abstained from disclosure prior to the reform not because they were indifferent but because they had net disclosure costs. This result is further strengthened by the finding that non-compliers reduce financial reporting quality after they are forced to comply and that firms are more likely to change their legal form after the law, consistent with strategies to reduce disclosure costs and hide proprietary information.

Regulators could consider that hiding information can produce costs even for private firms, for example, the risk of enforcement actions and shareholder litigation if it is

detected and even if earnings management remains undetected, reversals of earnings management are costly and audit costs increase (Marquardt and Wiedman, 2004, Dye, 2002; Ewert and Wagenhofer, 2005). The literature so far finds that improvements in disclosure, enforcement and mandatory disclosure increase the predictability of cash flows, which enhances diversification and reduces risk premia. The results in our study however indicate that mandatory disclosure for all firms imposes earnings management and associated costs of 'masking' economic performance of non-listed firms, while the benefits documented in the literature most probably arise for capital market oriented firms only. This consequence of regulating mandatory disclosure for all firms can also be interpreted as a negative externality of disclosure (Fishman and Hagerty, 1989).

So next to increasing disclosure quantity, we provide evidence that the law imposed disclosure costs for many firms that responded with avoidance strategies reducing average disclosure quality.

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Appendix

Table 1 Variable Definitions

Dependent variables	
Signed abnormal accruals	Abnormal Accruals are calculated using the modified Industry-Jones Model. The Jones Model is specified as $TA = \alpha + \beta_1 * \frac{1}{total\ assets_{t-1}} + \beta_2 * \frac{PPE}{total\ assets_{t-1}} + \beta_3 * \frac{(\Delta sales - \Delta receivables)}{total\ assets_{t-1}} + \varepsilon$ on an industry year basis. Industries are provided by the (German national) WZ2003 classification.
Absolute abnormal accruals	Absolute Abnormal Accruals are calculated as absolute values of the abnormal accruals.
Independent variables	
non compliance	Dummy=1 if firm does not appear in the AMADEUS database before 2005 and 0 otherwise.
kPers	Dummy=1 if small and medium-sized proprietorship (total assets < 65 Mio)
treated	Dummy for all firms that are not kPers.
size	Size is defined as the natural logarithm of total assets.
leverage	Leverage is calculated as loans plus long-term debt divided by total assets.
capins	Capital intensity is calculated as total assets divided by sales.
fins	Fixed asset intensity is defined as fixed assets divided by total assets.
efft	The effective tax rate is calculated as tax expenses divided by profit or loss before taxes.
roa	Return on assets is defined as operating income (EBIT) divided by total assets.
foreign	Foreign is a dummy variable indicating that the firm reported to the Bundesbank that > 50% of its voting capital are owned by foreigners.
consolidated	Consolidated is a dummy variable indicating if the report submitted to the Bundesbank was the consolidated financial report, thus the value is zero if the financial report is for a single-entity
competition	Competition is a dummy variable that takes the value 1 if the Herfindahl-Hirsch-Index (as calculated by 3-digit WZ2008 industry classification) is below 1.000

passthrough	This dummy indicates a pass-through entity, which is a business structure that is taxed transparently. Examples in Germany are oHG, KG and GmbH & Co. KG. Pass-through entities are not subject to income taxes at the corporate level. Instead, corporate income is allocated among the owners, and income taxes are only levied at the individual owners' level.
limitedliability	This dummy variable indicates all firms where, following German corporate law, liability is limited to the amount invested or promised to the firm (incorporated firms). This includes e.g. GmbH, AG, SE, but also GmbH & Co. KG.
tax accounts	A dummy variable indicating whether the tax accounts are the basis for financial reporting to the bank. In this case, income tax regulation (EStG) instead of the commercial code (HGB = German GAAP) govern the recognition and measurement of financial reporting items. Because the sample period is prior to BilMoG (2010), we expect that differences between both standards are too small to influence results significantly but we control for the difference.

Table 2 Descriptive Statistics

Panel A Compliers

	count	mean	sd	p10	p50	p90
|abn. accruals|	22,520	0.1287	0.12	0.02	0.0931	0.29
abn. accruals	22,520	0.0125	0.17	-0.19	0.0152	0.22
neg. abn. accruals	10,252	-0.1276	0.12	-0.30	-0.0871	-0.01
pos. abn. accruals	12,268	0.1295	0.11	0.02	0.0978	0.28
total assets	22,520	36.5425	88.96	1.47	8.1265	86.22
size	22,520	9.1664	1.56	7.29	9.0029	11.36
leverage	22,520	0.2371	0.21	0.00	0.2010	0.55
fixed asset intensity	22,520	0.3537	0.27	0.05	0.2942	0.78
effective tax rate	22,520	0.2267	0.21	0.00	0.2337	0.44
return on assets	22,520	0.0682	0.09	-0.01	0.0488	0.19
foreign	22,520	0.0563	0.23	0.00	0.0000	0.00
consolidated	22,520	0.0243	0.15	0.00	0.0000	0.00
competition	22,520	0.9125	0.28	1.00	1.0000	1.00
passthrough	22,520	0.2371	0.43	0.00	0.0000	1.00
limitedliability	22,520	0.9883	0.11	1.00	1.0000	1.00
tax accounts	22,520	0.5319	0.50	0.00	1.0000	1.00

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2002-2009, own calculations.

Notes: ^{M} variable defined in million EUR.

Panel B Non-compliers

	count	mean	sd	p10	p50	p90
|abn. accruals|	81,903	0.1427	0.15	0.02	0.0983	0.32
abn. accruals	81,903	-0.0119	0.21	-0.24	0.0005	0.21
neg. abn. accruals	40,835	-0.1551	0.18	-0.36	-0.1002	-0.02
pos. abn. accruals	41,068	0.1304	0.12	0.02	0.0962	0.29
total assets	81,903	23.7126	72.11	0.53	3.8650	46.74
size	81,903	8.4097	1.73	6.27	8.2597	10.75
leverage	81,903	0.2662	0.23	0.00	0.2323	0.61
fixed asset intensity	81,903	0.3364	0.26	0.04	0.2793	0.76
effective tax rate	81,903	0.1844	0.20	0.00	0.1538	0.41
return on assets	81,903	0.0810	0.11	-0.02	0.0562	0.22
foreign	81,903	0.0691	0.25	0.00	0.0000	0.00
consolidated	81,903	0.0869	0.28	0.00	0.0000	0.00
competition	81,903	0.9205	0.27	1.00	1.0000	1.00
passthrough	81,903	0.5026	0.50	0.00	1.0000	1.00
limitedliability	81,903	0.7839	0.41	0.00	1.0000	1.00
tax accounts	81,903	0.6672	0.47	0.00	1.0000	1.00

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2002-2009, own calculations.

Notes: ^{M} variable defined in million EUR.

Panel C All firms: Compliers and Non-compliers

	count	mean	sd	p10	p50	p90
|abn. accruals|	104,423	0.1397	0.14	0.02	0.0970	0.32
abn. accruals	104,423	-0.0067	0.20	-0.23	0.0035	0.21
neg. abn. accruals	51,087	-0.1495	0.17	-0.35	-0.0975	-0.02
pos. abn. accruals	53,336	0.1302	0.12	0.02	0.0966	0.29
total assets	104,423	26.4795	76.25	0.62	4.6120	55.22
size	104,423	8.5729	1.72	6.43	8.4364	10.92
leverage	104,423	0.2599	0.23	0.00	0.2256	0.59
fixed asset intensity	104,423	0.3401	0.26	0.04	0.2823	0.76
effective tax rate	104,423	0.1935	0.20	0.00	0.1655	0.42
return on assets	104,423	0.0783	0.11	-0.02	0.0545	0.21
foreign	104,423	0.0663	0.25	0.00	0.0000	0.00
consolidated	104,423	0.0734	0.26	0.00	0.0000	0.00
competition	104,423	0.9187	0.27	1.00	1.0000	1.00
passthrough	104,423	0.4453	0.50	0.00	0.0000	1.00
limitedliability	104,423	0.8279	0.38	0.00	1.0000	1.00
tax accounts	104,423	0.6380	0.48	0.00	1.0000	1.00

Notes: [M] variable defined in million EUR.

Table 3 Non-complience Determinants: Probit and Logit Models

Table 1   Panel A 2004

	expected sign	non-compliance			
		probit 2004		logit 2004	
size	-	-0.1717***	(0.00)	-0.2927***	(0.00)
return on assets	+/-	0.4351***	(0.00)	0.7824***	(0.00)
leverage	+	0.0768	(0.19)	0.1258	(0.21)
fixed asset intensity	-	-0.0707	(0.15)	-0.1391*	(0.09)
effective tax rate	-	-0.3543***	(0.00)	-0.5979***	(0.00)
foreign	+/-	-0.1256**	(0.03)	-0.2270**	(0.02)
consolidated	+	1.3486***	(0.00)	2.4543***	(0.00)
passthrough	+	0.3873***	(0.00)	0.6830***	(0.00)
limitedliability	-	-1.0870***	(0.00)	-2.3740***	(0.00)
tax balance sheet	+	0.0898***	(0.00)	0.1527***	(0.00)
_cons		2.9152***	(0.00)	5.4349***	(0.00)
industry fixed effects		yes		yes	
N		16477		16477	
Pseudo R^2		0.2130		0.2142	

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2004, own calculations.

Notes: P-values in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Panel A 2005

	expected sign	non-compliance			
		probit 2005		logit 2005	
size	-	-0.1623***	(0.00)	-0.2755***	(0.00)
return on assets	+/-	0.4048***	(0.00)	0.7223***	(0.00)
leverage	+	-0.0199	(0.76)	-0.0540	(0.63)
fixed asset intensity	-	-0.0551	(0.30)	-0.0979	(0.28)
effective tax rate	-	-0.2245***	(0.00)	-0.3909***	(0.00)
foreign	+/-	-0.0890	(0.15)	-0.1760*	(0.10)
consolidated	+	1.2984***	(0.00)	2.3426***	(0.00)
passthrough	+	0.3847***	(0.00)	0.6708***	(0.00)
limitedliability	-	-1.1160***	(0.00)	-2.4271***	(0.00)
tax balance sheet	+	0.1367***	(0.00)	0.2292***	(0.00)
_cons		2.3877***	(0.00)	4.5793***	(0.00)
industry fixed effects		yes		yes	
N		14329		14329	
Pseudo R^2		0.2100		0.2110	

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2005, own calculations.

Notes: P-values in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Table 4 Diffs-in-diffs Using Complier as Control

Panel A Absolute Abnormal Accruals

	|abn. accruals|		|abn. accruals|	
non-compliance	0.0000	(.)	0.0000	(.)
non-compliance * post2005	**0.0058***	**(0.01)**		
non-compliance * post2006			**0.0053***	**(0.01)**
post2005	-0.0177***	(0.00)		
size	0.0197***	(0.00)	0.0197***	(0.00)
leverage	0.0132*	(0.07)	0.0132*	(0.07)
fixed asset intensity	-0.0125	(0.20)	-0.0125	(0.20)
effective tax rate	-0.0089***	(0.00)	-0.0089***	(0.00)
return on assets	0.0396***	(0.00)	0.0395***	(0.00)
foreign	-0.0106**	(0.02)	-0.0106**	(0.02)
consolidated	0.0702***	(0.00)	0.0703***	(0.00)
competition	-0.0028	(0.11)	-0.0028	(0.12)
passthrough	0.0104	(0.13)	0.0104	(0.13)
tax balance sheet	-0.0020	(0.16)	-0.0020	(0.16)
post2006			-0.0173***	(0.00)
_cons	-0.0622**	(0.02)	-0.0621**	(0.02)
firm fixed effects	yes		yes	
year fixed effects	yes		yes	
N	86,457		86,457	
R^2 within	0.1020		0.1019	

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2002-2009, own calculations.

Notes: P-values in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Panel B Negative Abnormal Accruals

	neg. abn. accruals		neg. abn. accruals	
non-compliance	0.0000	(.)	0.0000	(.)
non-compliance * post2005	**-0.0063***	**(0.09)**		
non-compliance * post2006			**-0.0091***	**(0.01)**
post2005	0.0271***	(0.00)		
size	-0.0144***	(0.01)	-0.0145***	(0.01)
leverage	0.1503***	(0.00)	0.1505***	(0.00)
fixed asset intensity	-0.0912***	(0.00)	-0.0911***	(0.00)
effective tax rate	0.0206***	(0.00)	0.0206***	(0.00)
return on assets	0.0128	(0.41)	0.0127	(0.42)
foreign	0.0063	(0.49)	0.0062	(0.50)
consolidated	-0.1768***	(0.00)	-0.1767***	(0.00)
competition	0.0042	(0.17)	0.0041	(0.17)
passthrough	-0.0080	(0.44)	-0.0080	(0.44)
tax balance sheet	0.0030	(0.20)	0.0031	(0.19)
post2006			0.0291***	(0.00)
_cons	-0.0058	(0.90)	-0.0057	(0.90)
firm fixed effects	yes		yes	
year fixed effects	yes		yes	
N	41,084		41,084	
R^2 within	0.1039		0.1040	

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2002-2009, own calculations.

Notes: P-values in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Panel C Positive Abnormal Accruals

	pos. abn. accruals		pos. abn. accruals	
non-compliance	0.0000	(.)	0.0000	(.)
non-compliance * post2005	**0.0083***	**(0.00)**		
non-compliance * post2006			**0.0027**	**(0.29)**
post2005	-0.0057*	(0.09)		
size	0.0187***	(0.00)	0.0186***	(0.00)
leverage	0.1732***	(0.00)	0.1734***	(0.00)
fixed asset intensity	-0.1335***	(0.00)	-0.1334***	(0.00)
effective tax rate	-0.0019	(0.63)	-0.0020	(0.61)
return on assets	0.0929***	(0.00)	0.0926***	(0.00)
foreign	-0.0194***	(0.00)	-0.0194***	(0.00)
consolidated	0.0404	(0.19)	0.0409	(0.18)
competition	-0.0046*	(0.06)	-0.0046*	(0.06)
passthrough	0.0071	(0.47)	0.0070	(0.47)
tax balance sheet	-0.0007	(0.70)	-0.0006	(0.74)
post2006			-0.0017	(0.59)
_cons	-0.0787**	(0.01)	-0.0783**	(0.02)
firm fixed effects	yes		yes	
year fixed effects	yes		yes	
N	45,373		45,373	
R^2 within	0.1523		0.1520	

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2002-2009, own calculations.

Notes: P-values in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 5 Diffs-in-diffs Using Non-discloser as Control

Panel A Absolute Abnormal Accruals

	|abn. accruals|		|abn. accruals|	
treated	-0.0091	(0.13)	0.0004	(0.95)
post2005	-0.0269***	(0.00)		
treated * post2005	**0.0244***	**(0.00)**		
size	0.0138***	(0.00)	0.0147***	(0.00)
leverage	-0.0011	(0.90)	-0.0014	(0.86)
fixed asset intensity	-0.0106	(0.31)	-0.0104	(0.32)
effective tax rate	-0.0079**	(0.02)	-0.0084**	(0.02)
return on assets	0.0193*	(0.06)	0.0191*	(0.07)
foreign	-0.0041	(0.45)	-0.0030	(0.58)
consolidated	0.0423	(0.11)	0.0421	(0.12)
competition	0.0001	(0.95)	0.0001	(0.98)
passthrough	0.0081	(0.26)	0.0081	(0.25)
tax balance sheet	-0.0016	(0.33)	-0.0020	(0.21)
post2006			-0.0145***	(0.00)
treated * post2006			**0.0086***	**(0.00)**
_cons	0.0039	(0.90)	-0.0104	(0.74)
firm fixed effects	yes		yes	
year fixed effects	yes		yes	
N	81,903		81,903	
R^2 within	0.0960		0.0950	

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2002-2009, own calculations.

Notes: P-values in parentheses: * p<0.1, ** p<0.05, *** p<0.01

Panel B Negative Abnormal Accruals

	neg. abn. accruals		neg. abn. accruals	
treated	0.0173*	(0.07)	0.0012	(0.90)
post2005	0.0452***	(0.00)		
treated * post2005	**-0.0429***	**(0.00)**		
size	-0.0022	(0.72)	-0.0040	(0.52)
leverage	0.1342***	(0.00)	0.1355***	(0.00)
fixed asset intensity	-0.0866***	(0.00)	-0.0871***	(0.00)
effective tax rate	0.0190***	(0.00)	0.0197***	(0.00)
return on assets	0.0276	(0.11)	0.0278	(0.11)
foreign	-0.0162*	(0.09)	-0.0176*	(0.07)
consolidated	-0.0967	(0.20)	-0.0971	(0.22)
competition	0.0010	(0.77)	0.0013	(0.69)
passthrough	0.0058	(0.62)	0.0052	(0.65)
tax balance sheet	0.0029	(0.30)	0.0039	(0.16)
post2006			0.0245***	(0.00)
treated * post2006			**-0.0157***	**(0.00)**
_cons	-0.1337**	(0.01)	-0.1078**	(0.04)
firm fixed effects	yes		yes	
year fixed effects	yes		yes	
N	40,835		40,835	
R^2 within	0.1168		0.1140	

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2002-2009, own calculations.

Notes: P-values in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Panel C Positive Abnormal Accruals

	pos. abn. accruals		pos. abn. accruals	
treated	0.0135*	(0.06)	0.0136*	(0.05)
post2005	0.0080**	(0.04)		
treated * post2005	**-0.0059***	**(0.09)**		
size	0.0204***	(0.00)	0.0206***	(0.00)
leverage	0.1596***	(0.00)	0.1595***	(0.00)
fixed asset intensity	-0.1372***	(0.00)	-0.1371***	(0.00)
effective tax rate	-0.0015	(0.75)	-0.0017	(0.71)
return on assets	0.0856***	(0.00)	0.0857***	(0.00)
foreign	-0.0345***	(0.00)	-0.0343***	(0.00)
consolidated	0.0281	(0.29)	0.0276	(0.31)
competition	-0.0025	(0.35)	-0.0024	(0.35)
passthrough	0.0127	(0.21)	0.0128	(0.21)
tax balance sheet	-0.0001	(0.98)	-0.0001	(0.94)
post2006			0.0093**	(0.02)
treated * post2006			**-0.0076***	**(0.02)**
_cons	-0.1018***	(0.00)	-0.1035***	(0.00)
firm fixed effects	yes		yes	
year fixed effects	yes		yes	
N	41,068		41,068	
R^2 within	0.1440		0.1440	

Source: Research Data and Service Centre (RDSC) of the Deutsche Bundesbank, USTAN, 2002-2009, own calculations.

Notes: P-values in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$

Table 6 Legal Form Management

	Proprietorship		Proprietorship	
post2005	**0.1712*** **	**(0.00)**		
leverage	2.1437***	(0.00)	1.1854***	(0.00)
fixed asset intensity	0.8177***	(0.00)	0.4519***	(0.00)
effective tax rate	-5.0186***	(0.00)	-2.6829***	(0.00)
return on assets	6.1545***	(0.00)	3.3894***	(0.00)
foreign	1.5200***	(0.00)	0.8658***	(0.00)
consolidated	-0.5971***	(0.01)	-0.2433**	(0.02)
competition	0.0195	(0.74)	0.0209	(0.52)
tax balance sheet	1.5022***	(0.00)	0.7561***	(0.00)
post2006			**0.0962*** **	**(0.00)**
_cons	-3.6907***	(0.00)	-2.0332***	(0.00)
N	56325		56325	
Pseudo R²	0.2444		0.2405	
year fe	yes		yes	

Notes: P-values in parentheses: * $p<0.1$, ** $p<0.05$, *** $p<0.01$