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THE EFFECTS OF FINANCIAL-REPORTING REGULATION ON MARKET-WIDE RESOURCE ALLOCATION

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Abstract

I investigate the impact of mandatory reporting and auditing of firms' financial statements on industry-wide resource allocation. Using size-based reporting and auditing requirements for limited liability firms in 26 European countries, I document reporting regulation, mandating a greater share of firms in an industry to disclose a full set of financial statements, fosters a competitive and dispersed type of resource allocation in product and capital markets, but does not unambiguously improve the efficiency of resource allocation. By contrast, I find auditing regulation, mandating a greater share of firms to obtain a financial-statement audit, imposes a net fixed cost of operating on firms, deterring entry of smaller firms. I do not find any other effects of auditing regulation on industry-wide resource allocation in my setting. My findings suggest reporting regulation substitutes a transactional type of resource allocation based on public information for a relational one based on private information. This substitution, however, fails to spur economic growth. With respect to firms' auditing, my findings suggest it lacks significant industry-wide externalities compensating for firms' costs of mandatory auditing.

1. Introduction

The regulation of reporting and auditing of firms' financial statements is pervasive (e.g., Healy & Palepu 2001). In the United States, public firms must report audited financial statements. Similar requirements even apply to private firms in the European Union (EU). The desirability of such regulation, however, is an open question and controversially debated.[1] On theoretical grounds, market-wide externalities such as information spillovers from regulated to unregulated firms constitute a prime justification for regulation (e.g., Dye 1990; Admati & Pfleiderer 2000; Leuz 2010; Berger 2011; Shroff 2016). Empirical evidence on market-wide effects of reporting and auditing regulation, however, is scant (e.g., Leuz & Wysocki 2016).

To fill this void, I empirically examine the effects of reporting and auditing regulation on industry-wide resource allocation. I focus on the industry level because informational and competitive (e.g., business-stealing) externalities should be most relevant among firms in the same industry (e.g., Foster 1981; Aghion & Howitt 1992). I specifically investigate how subjecting a greater share of firms in a given industry to reporting or auditing mandates affects the way resources are allocated (also referred to as the "type" of allocation) and the efficiency of the allocation in the entire industry. In contrast to firm-level studies comparing regulated versus unregulated firms, my industry-level approach captures any industry-wide externalities (e.g., spillovers from regulated to unregulated firms) by comparing more versus less regulated industries.

The reporting and auditing regulation prescribed by the EU and implemented by members of the European Economic Area (EEA) provides a suitable setting to examine the

[1] See, for example, Stigler (1964), Benston (1973), Leftwich (1980), Seligman (1983), Coffee (1984), Easterbrook and Fischel (1984), Romano (1998), Fox (1999), Shleifer (2005), Leuz (2010), Donovan et al. (2014), and Minnis and Shroff (2017).

industry-wide effects of financial-reporting regulation (referring to both reporting and auditing regulation).[2] The EU regulation stipulates that limited liability firms—private and public—must prepare and publish a full set of audited financial statements. Exemptions from reporting and auditing requirements are granted to private firms below certain size thresholds. Typically, firms exempted from reporting requirements are allowed to publish highly abbreviated financial statements, and those exempted from auditing requirements are allowed to forgo auditing. The extent of reporting and auditing exemptions and, in particular, the exemption thresholds vary by country. Moreover, the exemption thresholds differ between reporting and auditing exemptions in multiple countries. Some countries exempt more firms from auditing requirements than from reporting requirements, whereas others do the opposite. Irrespective of the reporting and auditing exemptions, firms must typically still disclose at least some information publicly (e.g., an abridged set of statements) and provide a full set of financial statements privately to their shareholders.[3]

The literature extensively discusses the arguments for and against the regulation of reporting and auditing of firms' financial statements (e.g., Leftwich 1980; Leuz & Wysocki 2008; Minnis & Shroff 2017). At its core, the debate revolves around the question of whether the social net benefits of reporting and/or auditing of firms' financial statements exceed firms' private net benefits. Prior theoretical and empirical work suggests that externalities of reporting

[2] I do not investigate the effects of regulating accounting or auditing standards. For research on the regulation/setting of accounting and auditing standards, see, for example, Watts and Zimmerman (1978), Kothari et al. (2010), Brüggemann et al. (2013), Knechel (2013), DeFond and Zhang (2014), Khan et al. (2017), and Bird et al. (2017).

[3] Countries may require financial statement audits even absent an expanded public reporting mandate, for example, to ensure that outsiders obtain credible abridged information publicly, shareholders obtain credible full information privately, and firms obtain external expert advice. Moreover, countries may mandate auditing to fight money laundering or outsource tax enforcement (given the close book-tax correspondence in Europe).

could cause firms' voluntary reporting to fall short of their socially optimal reporting (e.g., Dye 1990; Admati & Pfleiderer 2000; Badertscher et al. 2013; Kurlat & Veldkamp 2015).

The externality argument appears less applicable to firms' auditing (e.g., Donovan et al. 2014). Unlike public reporting, auditing of firms' financial statements per se does not grant outsiders (e.g., potential and existing customers, suppliers, and competitors) the benefit of information access. Accordingly, proponents of auditing mandates invoke an indirect argument: auditing regulation may increase the credibility of firms' reporting, thereby contributing to the externality of firms' reporting (e.g., Lennox & Pittman 2011; DeFond & Zhang 2014). Moreover, some proponents argue that firms may underinvest in auditing because they are unaware of its net benefits (e.g., Bloom et al. 2013; DeFond et al. 2016; ICAEW 2016; Dedman & Kim 2017). Although prior literature provides stronger arguments for reporting regulation compared to auditing regulation, it is ultimately an empirical question whether these regulations help or hurt industry-wide resource allocation (Leuz & Wysocki 2016).

The lack of variation in regulations, however, typically makes it difficult to empirically study financial-reporting regulations. For instance, most financial-reporting regulations prescribe uniform requirements. Moreover, any given country has enacted only a few major reforms, and these reforms are often in response to scandals or crises and coincide with broader changes in the institutional environment and market conditions (e.g., Ball 1980; Leuz 2007; Christensen et al. 2013; Leuz & Wysocki 2016; Hail et al. 2017b). On top of this, market-wide effects of financial-reporting reforms likely take several years to play out, limiting the informativeness of short-run changes right around regulatory reforms. A potential remedy for these challenges is to harness cross-sectional differences in regulation, for example, across

countries. Although cross-country differences in financial-reporting regulation are plentiful, so are other correlated differences.

In my empirical design, I exploit cross-sectional variation in the scopes of reporting and auditing regulation within the same country (and year) across industries and within the same industry (and year) across countries. I make use of the fact that a given country's size-based exemption thresholds have distinct implications for the share of regulated firms—regulatory scope—across industries. For example, a threshold exempting firms below 50 employees from auditing requirements has a markedly different regulatory scope in labor-intensive versus capital-intensive industries. In labor-intensive industries, a greater share of firms will have 50-plus employees and be regulated than in capital-intensive industries for purely technological reasons. My design isolates this country-industry-specific variation in regulatory scopes arising from the interaction of country-level thresholds and industry-specific firm-size distributions, allowing me to control for any confounding factors at the country (e.g., common vs. code law) and industry level (e.g., labor- vs. capital-intensity) via country-year and industry-year fixed effects.

Importantly, I use one standardized firm-size distribution per industry across all countries to calculate the scopes of reporting and auditing regulation. The resulting standardized scopes are purged of endogenous variation related to country-industry-specific differences in firm-size distributions.[4] This approach circumvents, for example, prominent reverse causality (e.g., firm growth causes increases in scopes), correlated measurement (e.g., threshold-avoidance behavior

[4] This design is in the spirit of Currie and Gruber (1996), Rajan and Zingales (1998a), Djankov et al. (2008), and Mahoney (2015), among others. For example, similar to my design, Rajan and Zingales (1998a) exploit the interaction of a fixed (or standardized) industry-level attribute (i.e., the external finance dependence of U.S. industries) and a country-level attribute (i.e., capital market development) to identify the industry-level effects of country-level capital market development. For a description of the construction of standardized firm-size distributions, refer to section 4.2.

distorts firm sizes and decreases scopes), and correlated omitted variable issues (e.g., subsidies affect firm sizes, scopes, and allocative efficiency).

To measure the scopes of financial-reporting regulation and industry-wide resource-allocation outcomes, I combine regulatory reporting and auditing thresholds collected for 26 European countries over the period from 2001 to 2015 with firm-level ownership and financial information on up to 17 (115) million unique limited liability firms (firm-year observations). I separately calculate the scopes of reporting and auditing regulation, applying the respective reporting and auditing thresholds of a given country in a given year to the standardized firm-size distribution of a given industry. To obtain industry-wide resource-allocation outcomes, I aggregate firm-level information up to the country-industry-year level.[5]

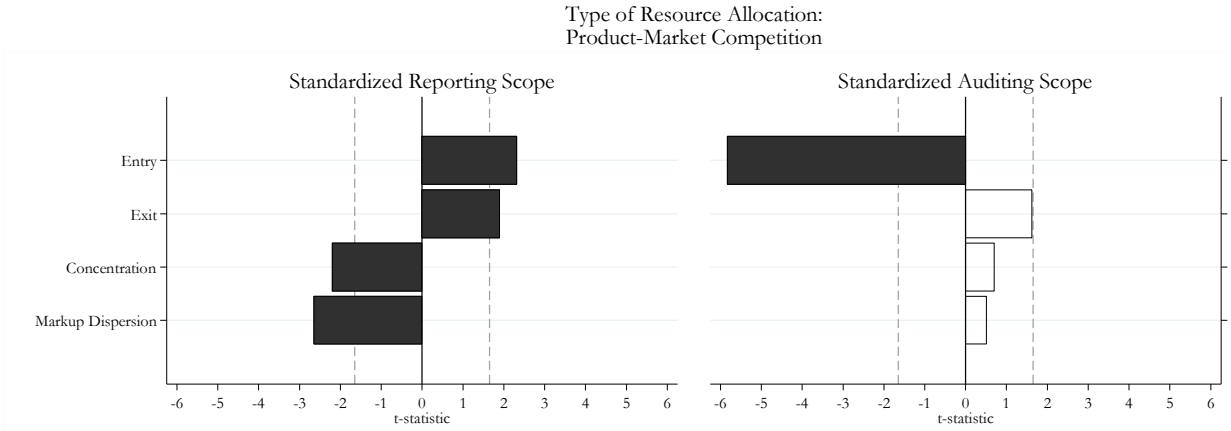
Turning to my empirical results, I first validate the standardized scopes of reporting and auditing regulation. I document that these scopes indeed capture meaningful and separate variation in financial-reporting regulation shaping firms' actual financial reporting. I next assess the correlations of the scopes of financial-reporting regulation with potentially confounding factors. I document that, after accounting for country-year and industry-year fixed effects, the standardized scopes are generally uncorrelated with observable confounders such as endogenous country-industry-specific firm-size differences, supporting the validity of my approach.

Examining the type of resource allocation, I find reporting regulation fosters competitive and dispersed product markets, as shown, for example, by greater entry and exit rates, and lower market-share concentration (Figure 1). Similarly, I find reporting regulation supports the development of dispersed capital markets (consistent with La Porta et al. 2006), as shown, for

[5] I use four-digit NACE industries. NACE industries are the EU counterparts to SIC or NAICS industries in the United States. Four-digit industries represent the finest level of classification consistently coded across European countries.

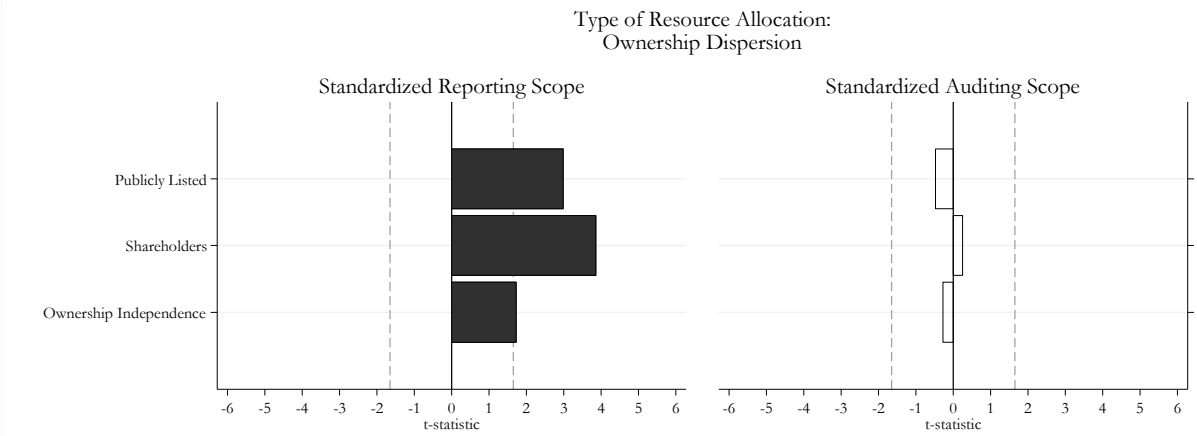
example, by a greater share of publicly listed firms and lower ownership concentration (Figure 2). With a view to the economic magnitudes, my (instrumented) estimates suggest mandating an additional 10% of firms in an industry to publicly disclose full financial statements increases, for instance, the product-market entry rate by 0.75 (1.12) percentage points or 4% (6%) relative to its average.

Figure 1: Effects of financial-reporting regulation on product-market outcomes



Notes: The figure summarizes the effects of reporting and auditing regulation on product-market outcomes. It plots dependent variables on the y-axis and t-statistics of the coefficients on reporting and auditing scopes on the x-axes. The t-statistics for "Entry" and "Exit" are taken from Panel A of Table 3. The t-statistics for "Concentration" are taken from Table 4. The t-statistics for "Markup Dispersion" are taken from Table 5 (averaged across columns 1 and 2 and across Panels A and B). Black bars denote statistically significant coefficients at the 10% level.

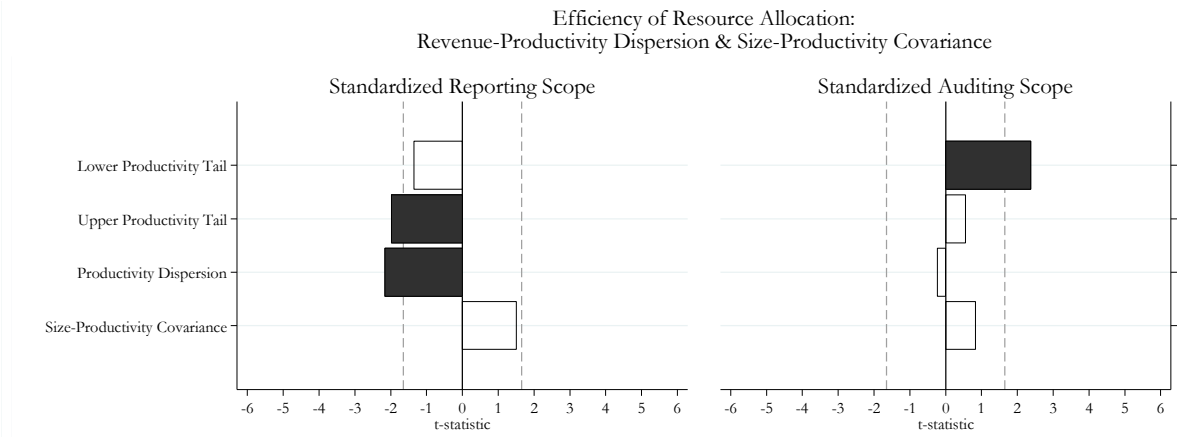
Figure 2: Effects of financial-reporting regulation on capital-market outcomes



Notes: The figure summarizes the effects of reporting and auditing regulation on capital-market outcomes; in particular, ownership dispersion. It plots dependent variables on the y-axis and t-statistics of the coefficients on reporting and auditing scopes on the x-axes. The t-statistics are taken from Panel A of Table 6. Black bars denote statistically significant coefficients at the 10% level.

Regarding the efficiency of resource allocation, I find reporting regulation has a mixed effect. I document some evidence of improved resource allocation (Figure 3).[6] Notably, however, I do not find a positive effect of reporting regulation on aggregate productivity growth, a key outcome of efficient resource allocation and measure of welfare (e.g., Basu et al. 2010) (Figure 4). If anything, reporting regulation appears to discourage productivity improvements. One reason could be that the dissipation of firms' proprietary information rents deters incentives to engage in innovative activities (e.g., the discovery of profitable markets and efficient processes).[7]

Figure 3: Effects of financial-reporting regulation on measures of allocative efficiency



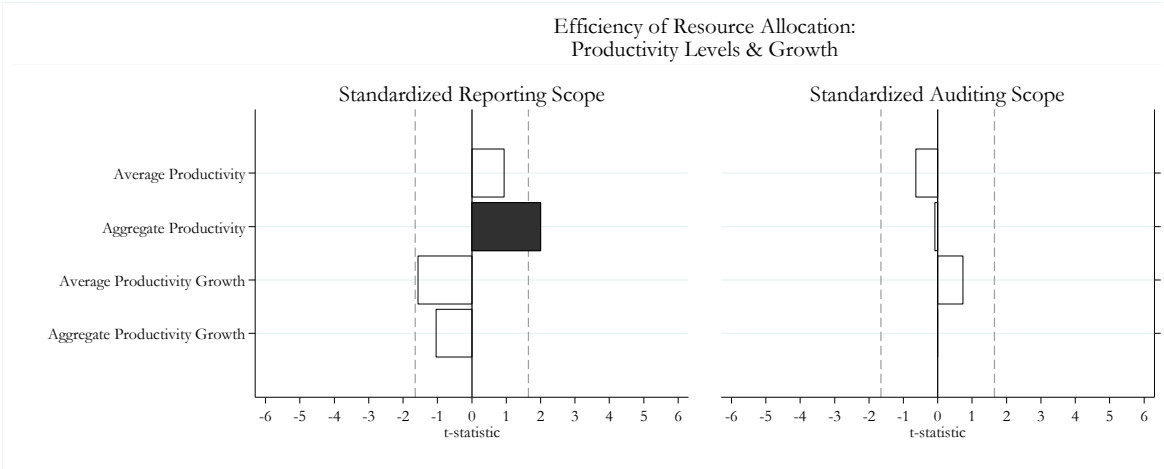
Notes: The figure summarizes the effects of reporting and auditing regulation on measures of allocative efficiency; in particular, the distribution of revenue productivities and the size-productivity covariance. It plots dependent variables on the y-axis and t-statistics of the coefficients on reporting and auditing scopes on the x-axes. The t-statistics for "Lower Productivity Tail" and "Upper Productivity" are taken from Table 7 (averaged across Panels A and B). The t-statistics for "Productivity Dispersion" are taken from Table 7 (averaged across columns 3 and 4 and across Panels A and B). The t-statistics for "Size-Productivity Covariance" are taken from Table 8 (averaged across columns 1 and 2 and across Panels A and B). Black bars denote statistically significant coefficients at the 10% level.

[6] In particular, I find some evidence that reporting regulation reduces revenue-productivity dispersion (a measure of resource misallocation; Hsieh & Klenow 2009), increases the size-productivity covariance (a measure of resource allocation efficiency; Olley & Pakes 1996; Bartelsman et al. 2013), and increases aggregate productivity levels.

[7] This finding echoes the rationale for patent protection. Absent ex post monopoly rents granted by patents, firms lack incentives to engage in innovative activities ex ante (e.g., Arrow 1962; Aghion & Howitt 1992).

With respect to auditing regulation, I find it deters entry; especially entry of smaller firms. Similarly, I find it raises the minimum required level of productivity to operate. I do not find any other effects of auditing regulation on the type or the efficiency of market-wide resource allocation. With a view to the economic magnitudes, my (instrumented) estimates suggest mandating an additional 10% of firms in an industry to obtain a financial-statement audit reduces, for instance, the product-market entry rate by 1.30 (2.07) percentage points or 7% (11%) relative to its average.

Figure 4: Effects of financial-reporting regulation on productivity levels and growth



Notes: The figure summarizes the effects of reporting and auditing regulation on measures of allocative efficiency; in particular, the level and growth of revenue productivities. It plots dependent variables on the y-axis and t-statistics of the coefficients on reporting and auditing scopes on the x-axes. The t-statistics for "Average Productivity" are taken from Panel A of Table 9 (averaged across columns 1 to 4). The t-statistics for "Aggregate Productivity" are taken from Panel B of Table 9 (averaged across columns 1 to 4). The t-statistics for "Average Productivity Growth" are taken from Panel A of Table 10 (averaged across columns 1 to 4). The t-statistics for "Aggregate Productivity Growth" are taken from Panel B of Table 10 (averaged across columns 1 to 4). Black bars denote statistically significant coefficients at the 10% level.

In supplemental tests, I document that the effects of reporting regulation are not contingent on corresponding auditing mandates. This finding allays concerns that my separate assessment of reporting and auditing regulations may miss important interaction effects and may misattribute effects of auditing regulation to those of reporting regulation. I further replicate the

pro-competitive effect of reporting regulation in an alternative single-country setting, exploiting a major enforcement reform in Germany and comprehensive Census data on limited and unlimited liability firms irrespective of their reporting mandate.[8] This replication allays concerns that the results of my main design may be due to time-invariant country-industry-level confounders (e.g., other size-based regulations). It also alleviates concerns that the effects of reporting regulation in my main design may merely reflect changes in the observability of firms (e.g., exempted firms dropping out of the database) rather than changes in real economic activity.

Collectively, my results suggest reporting regulation primarily changes the way firms transact. Reporting regulation appears to substitute a more transactional type of resource allocation based on public information for a relational one based on private information. This substitution, however, does not unambiguously improve resource-allocation efficiency. Regarding auditing regulation, my results suggest mandatory auditing imposes fixed costs of operating on firms without providing substantial compensating externalities.

My paper contributes to the literature in several ways. It provides a first attempt at assessing the net effects of reporting and auditing mandates on resource allocation at the industry level. Evidence of these net effects is relevant for financial-reporting regulators, and has been called for by researchers, practitioners, and regulators (e.g., Buijink 2006; Donovan et al. 2014; ICAEW 2016; Leuz & Wysocki 2016; Minnis & Shroff 2017). Three features of my paper allow me to make progress toward identifying the desired net effects. First, by focusing on industry-wide outcomes, I capture the effects on resource allocation along several margins, including selection into an industry (e.g., entry and exit) and reallocation within the industry (e.g.,

[8] Source: RDC of the Federal Statistical Office and Statistical Offices of the Länder in Germany, Unternehmensregister and Gewerbeanzeigenstatistik, survey years 2003 - 2012, own calculations.

spillovers from regulated to unregulated firms). Second, by focusing on broad resource-allocation outcomes (e.g., aggregate productivity growth), I capture the effects on resource allocation in several markets, including input (e.g., labor and capital) and output (e.g., product) markets. Third, by exploiting a cross-sectional design, I capture long-run (steady-state) effects.

More generally, my paper contributes to the literature concerned with the effects of institutions and regulation on competition, resource allocation, and growth. Numerous studies investigate the effects of business regulation (e.g., labor protection or entry regulation) on competition and resource allocation.[9] I add to these studies by documenting that reporting regulation, unlike most other business regulation, can actually foster rather than weaken competition and resource reallocation (as conjectured by Leuz & Wysocki 2016). In this sense, my findings provide direct evidence for the conjecture of Rajan and Zingales (2003b, 2003b) that transparency-enhancing financial-reporting regulation supports the functioning of competitive and dispersed product and capital markets. My findings, however, also echo prior evidence that institutions, such as financial-reporting regulation, determine the type of private contracting, but not necessarily the long-run growth of economies (e.g., Acemoglu & Johnson 2005; La Porta *et al.* 2008).

Lastly, my paper adds to the burgeoning literature on the measurement (e.g., Hsieh & Klenow 2009; Bartelsman *et al.* 2013) and determinants of resource misallocation (e.g., Syverson 2004; Asker *et al.* 2014; Midrigan & Xu 2014; Kalemli-Ozcan & Sørensen 2016). My evidence documents that (quasi-)rents, arising from informational barriers to competition, contribute to the observed dispersion of revenue productivities within industries. Reporting

[9] See, for example, Hopenhayn and Rogerson (1993), Djankov *et al.* (2002), Glaeser *et al.* (2004), Nicoletti and Scarpetta (2005), Klapper *et al.* (2006), Loayza and Serven (2010), Haltiwanger *et al.* (2014), and Garicano *et al.* (2016).

regulation can reduce such rents and the respective dispersion. The reduced dispersion, however, does not appear to translate into growth. These differential static versus dynamic effects of reporting regulation suggest that revenue-productivity dispersion as a summary measure of resource misallocation may mislabel some dynamically-efficient actions of firms as inefficient (consistent with, e.g., Asker *et al.* 2014; Haltiwanger *et al.* 2017).

2. Conceptual Underpinnings

Information frictions hamper the allocation of resources (e.g., Stigler 1961; Akerlof 1970). By alleviating information frictions, firms' financial reporting can improve the allocation of resources.[10] For example, financial reporting can reduce information asymmetries between market participants. Reduced information asymmetries facilitate the exchange of resources (adverse selection channel; e.g., Bushee & Leuz 2005; Francis et al. 2009; Fuchs et al. 2016) and curb misallocation (moral hazard channel; e.g., Greenstone et al. 2006; Berger & Hann 2007; Hope & Thomas 2008). Similarly, financial reporting can reduce market participants' uncertainty (e.g., about best practices and investment opportunities) through external auditor expertise (e.g., Bloom et al. 2013) and information externalities of related firms' reporting (e.g., Badertscher et al. 2013). Reduced uncertainty accelerates the reallocation of resources (e.g., Dixit & Pindyck 1994; Bloom et al. 2007; Balsmeier et al. 2017) and enhances the allocative efficiency (e.g., Asker et al. 2014).

This role of firms' financial reporting in addressing information frictions and improving the allocation of resources commonly motivates its regulation (e.g., Coffee 1984). Absent regulation, however, information frictions do not remain unaddressed (e.g., Coase 1960; Demsetz 1969; Leftwich 1980). For example, firms' voluntary financial reporting and private information generated and shared within concentrated relationships (e.g., with banks) tend to address information frictions absent regulation, spawning a relational type of resource allocation (e.g., Leuz & Wüstemann 2004).

[10] For extensive reviews of costs and benefits of financial reporting, see Healy and Palepu (2001) and Beyer et al. (2010), and for arguments for and against financial-reporting regulation, see Leuz (2010), Leuz and Wysocki (2016), and Minnis and Shroff (2017). For a non-exhaustive summary of the main channels through which financial-reporting regulation can affect market-wide resource allocation, refer to section "Potential Channels" and Table A3 in the Appendix.

The regulation of firms' financial reporting, by mandating firms to expand their financial reporting above their voluntary levels, is expected to foster a more competitive and dispersed type of market-wide resource allocation (e.g., Rajan & Zingales 2003a). Firms' mandatory financial reporting levels the informational playing field among relationship insiders and outsiders, crowding out the reliance on private information and deteriorating the importance of concentrated relationships (e.g., Leuz & Wysocki 2008). Similarly, firms' mandatory financial reporting reveals proprietary information to potential and existing competitors, increasing the competition for proprietary-information rents and potentially decreasing the incentives to generate proprietary information (e.g., Bhattacharya & Chiesa 1995).

The effect of financial-reporting regulation on the efficiency of market-wide resource allocation is a priori ambiguous. If firms' voluntary financial reporting falls short of the social optimum (e.g., due to externalities; Dye 1990; Admati & Pfleiderer 2000), financial-reporting regulation, by mandating expanded financial reporting, can improve market-wide resource-allocation efficiency. Absent sufficiently positive externalities and/or other reasons for firms' suboptimal financial reporting (e.g., unawareness of its benefits), financial-reporting regulation imposes costs that, by revealed preference, exceed the benefits of expanded financial reporting.

3. Institutional Background

In an attempt to establish a uniform regulatory framework for the common European economic market, the EU (and its predecessors) introduced the Fourth and Seventh Directives (also called "Accounting Directives") in 1978 and 1983. These directives prescribe a set of acceptable accounting practices and formats as well as reporting (comprising preparation and public disclosure) and auditing requirements for limited liability firms to ensure the availability of comparable information across European countries (in particular, members of the EEA). The reporting and auditing requirements stipulate that limited liability firms must prepare and publicly disclose a full set of audited financial statements.[11]

To reduce the regulatory burden for smaller firms, the EU regulation allows substantial exemptions from reporting and auditing requirements for private firms below certain size thresholds (related to firms' total assets, sales, and employees). Although the EU regulation proposes particular exemption thresholds, the ultimate choice and implementation of exemptions and pertaining thresholds is left to the EEA member countries. The country-specific implementation has resulted in notable variation in the extent of exemptions (especially exemption thresholds) across countries, despite the common financial-reporting framework in EEA member countries (e.g., Cna Interpreta 2011; Minnis & Shroff 2017).

Typical reporting exemptions allow smaller firms to publicly disclose highly aggregated balance-sheet and income-statement information (e.g., only showing major asset and liability classes instead of individual accounts), abbreviate notes to the financial statements, omit management reports (e.g., on the competitive position, investment and financing activities, and business risks and opportunities), and file their public disclosures within an extended period

[11] In some countries, a full set of financial statements includes the cash-flow statement, whereas in others it does not.

(ranging up to 13 months).[12] Moreover, smaller firms are typically allowed to omit cash-flow statements in countries otherwise requiring firms to prepare and publicly disclose cash-flow-statement information. In a few countries (e.g., Germany), smaller firms are further allowed to omit income statements from their public disclosures. Typical auditing exemptions allow smaller firms to forgo an audit.

Smaller firms are typically those not exceeding any two of three size thresholds, where the typical thresholds are about 4 million Euros in total assets, 8 million Euros in sales, and 50 employees.[13] Although the thresholds for reporting and auditing exemptions often coincide, in several countries, the thresholds differ for reporting and auditing exemptions (e.g., Croatia, Denmark, France, Finland, Norway, and Sweden).

In this paper, I use the reporting- and auditing-exemption thresholds as a comparable summary measure of countries' extent of reporting and auditing regulation for three reasons. First, the exemption thresholds represent a key provision in countries' financial-reporting framework that is at the core of academic and practitioners' debates and regulators' reforms in Europe (e.g., European Commission 2008; ICAEW 2016; Minnis & Shroff 2017). Second, the exemption thresholds affect a substantial number of firms (typically around 90% of limited liability firms), allowing them to markedly reduce their financial reporting relative to non-exempted firms. Third, the exemption thresholds strongly shape firm-level reporting (e.g., Breuer et al. 2017a; Breuer et al. 2018) and auditing (e.g., Lennox & Pittman 2011; Dedman et

[12] Prior literature suggests the disaggregation of financial-statement disclosures is an important dimension of disclosure quality (e.g., Berger & Hann 2007; Hope & Thomas 2008; Bens et al. 2011; Chen et al. 2015). For examples of exempted and non-exempted firms' reporting, click on the corresponding links (referring to the official publication platform (Companies House) of the United Kingdom) or refer to Table A4 in the Appendix.

[13] The explicit mechanism can vary slightly across countries. For example, some countries require firms to not exceed firm-size thresholds for two consecutive years to qualify for exemptions, use fewer than three size thresholds, or rely on alternative firm-size definitions (e.g., gross profit instead of sales). In my approach to calculating the share of regulated firms, I explicitly adjust the calculation if fewer than three thresholds are defined. All other differences, however, are neglected for simplicity.

al. 2014; Breuer et al. 2017b) according to prior literature.[14] This prior evidence suggests the requirements are on average enforced and lead to substantial differences in firms' information environments. In this vein, prior literature also documents regulatory avoidance around the thresholds (e.g., Bernard et al. 2018) and economic consequences of exceeding exemption thresholds (e.g., Kausar et al. 2016; Breuer et al. 2017b).

[14] Based on confidential data of the official publication platform (Bundesanzeiger) in Germany, Breuer et al. (2017a) document firms' mandatory filings are accessed by a broad range of stakeholders (including competitors). The filings are useful for outsiders because they represent the main source of financial information about otherwise publicly opaque private firms. Besides information on past financial conditions and performance, non-exempted firms' filings provide information on the competitive environment, financing and investing activities, and business risks and opportunities.

4. Empirical Strategy

4.1. Empirical challenge

The empirical study of the effects of financial-reporting regulation on industry-level resource allocation is fraught with challenges. Most notably, a country's reporting and auditing regulation is not independent of its other institutions and economic position (e.g., Greenwood & Jovanovic 1990; Glaeser et al. 2004; Leuz & Wysocki 2016). This endogeneity concern is particularly severe when considering the relation between financial-reporting regulation and outcomes at the market instead of the firm level.

My means of addressing this empirical challenge plaguing cross-country studies is a familiar one: I exploit within-country variation in regulation, which allows me to account for the endogeneity of regulation at the country level. Unlike typical difference-in-differences designs that focus on within-country changes over time, however, I use within-country variation in regulation across industries (similar to Rajan & Zingales 1998a).[15] This cross-industry variation in regulation arises because some industries are naturally more affected by a given size-based regulation than others as a result of systematic differences in firm-size distributions across industries. For instance, a regulation exempting firms below 50 employees from auditing requirements regulates a greater share of firms in labor-intensive industries than in capital-intensive ones.

[15] For a discussion of the benefits of my cross-sectional approach over alternative time-series approaches, refer to section "Cross-Sectional Design" in the Online Appendix.

4.2.Scopes of reporting and auditing regulation

My measure of financial-reporting regulation captures an intuitive aspect of regulation, namely, its scope in terms of the share of non-exempted ("regulated") firms in an industry.[16] In particular, the scope of reporting regulation captures the share of firms in a given country and industry that must publicly disclose a full set of financial statements, including extensive notes and management reports instead of only highly abbreviated financial information.[17] The scope of auditing regulation captures the share of firms in a given country and industry that must obtain a financial-statement audit.

The key benefit of these scopes of reporting and auditing regulation is that they vary not only at the country level as a result of differences in exemption thresholds, but also at the industry level as a result of differences in firm-size distributions. This feature permits a within-country and within-industry design, allowing me to account for the endogeneity of country-level thresholds (e.g., thresholds tend to be chosen to fit other institutions) and the endogeneity of systematic industry-level firm-size distributions (e.g., capital-intensive industries tend to exhibit greater market-share concentration than labor-intensive industries due to natural barriers to entry).

A remaining issue with the scopes of reporting and auditing regulation, however, is that firm-size distributions, even within the same industry, endogenously differ across countries for

[16] I classify those firms exceeding two out of three size thresholds in a given year as "regulated." As discussed in the institutional background, this classification represents the typical size-class determination rule of the countries in my sample. I do not account for additional variation in the precise determination rule across countries, for example, related to the number of years to look back in making the size determination (e.g., for the German case refer to Breuer et al. 2017b). In case a country only prescribes one or two thresholds, I require that all of these (i.e., one or two) be exceeded to be considered "regulated." I expect that, if anything, using my simplified size-determination rule introduces uncorrelated measurement error in my treatment, resulting in the attenuation of treatment coefficients.

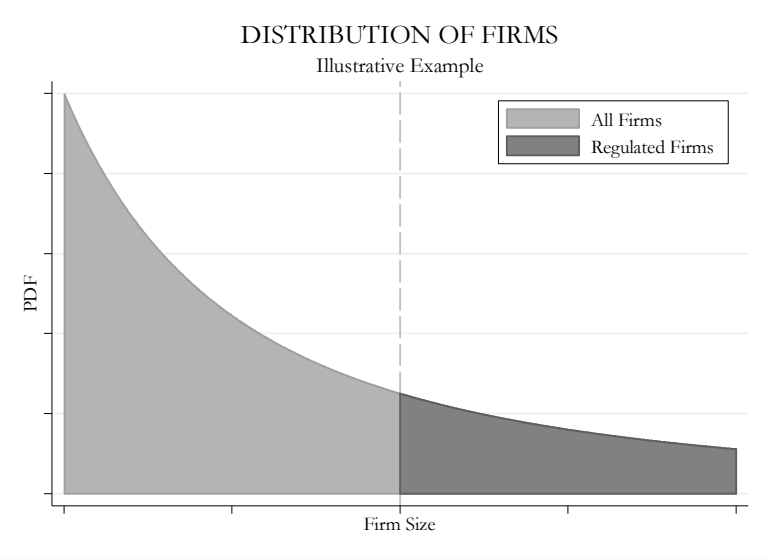
[17] Although the reporting regulation affects the reporting of firms' financial statements at the intensive margin instead of the extensive margin (all or nothing), it closely resembles a regulation mandating the reporting of firms' financial statements at the extensive margin given the stark difference in reporting requirements.

idiosyncratic reasons, such as a country's industrial specialization and industry-specific policies. These idiosyncratic (country-industry-specific) firm-size differences threaten to induce spurious correlations between the scopes of financial-reporting regulation and industry-level outcomes. For example, Germany specializes in the automobile industry. Through industry-specific subsidies and policies, Germany's automobile industry exhibits larger firms (translating into a higher regulatory scope) and greater economic activity than its other industries and the automobile industries in other countries. As a result, the regulatory scope would be spuriously correlated with economic activity, even within the same country and the same industry.

To address this identification threat, I calculate the share of regulated firms applying each country's exemption thresholds to a standardized firm-size distribution per industry (akin to Djankov et al. 2008) (Figure 5). As a result, these standardized scopes of financial-reporting regulation are purged of variation due to idiosyncratic country-industry-specific firm-size differences (e.g., different firm sizes in the automobile industry across countries). The standardized scopes only vary as a result of country-level threshold differences (Figure 6), systematic industry-level differences in firm-size distributions (Figure 7), and the interaction of country-level thresholds and systematic industry-level firm-size distributions.[18] In my estimation (section 4.3), I isolate the latter variation in the standardized scopes of financial-reporting regulation, purging my regulatory variation of any confounding country- and industry-level factors as well as any confounding country-industry-specific differences in firm-size distributions.

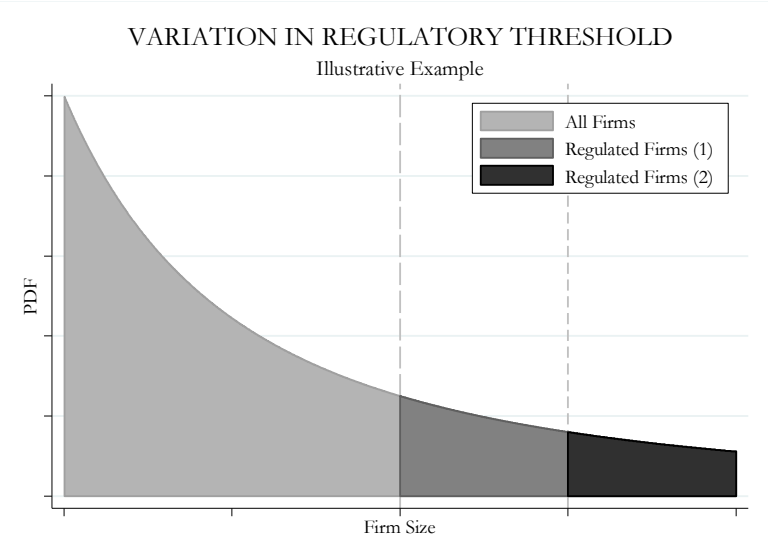
[18] Purging the regulatory scope of country-industry variation in firm-size distributions does not mean I exclude the effect of regulatory scope on firm-size distributions and their subsequent effect on resource allocation. I merely rule out the following reverse causality/omitted variable bias: country-industry variation in firm sizes determining regulatory scope and outcomes, instead of regulatory scope impacting country-industry-level firm sizes and other outcomes.

Figure 5: Distribution of firms



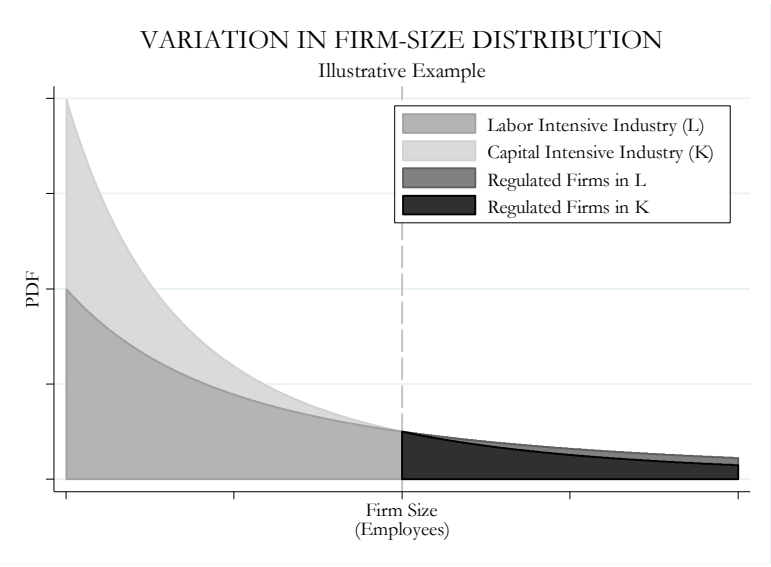
Notes: The figure illustrates my measure of the scope of regulation. It plots (part of) a (Pareto) probability density function (PDF) of a univariate firm-size dimension. The area to the right of the exemption threshold (dashed vertical line) represents the share of regulated (or non-exempted) firms.

Figure 6: Variation in regulatory threshold



Notes: The figure illustrates the within-industry variation in the scope of regulation arising from cross-country differences in exemption thresholds. The greater the exemption threshold (dashed vertical line), the lower the "scope" of regulation.

Figure 7: Variation in firm-size distribution



Notes: The figure illustrates the cross-industry variation in the scope of regulation arising from cross-industry differences in firm-size distributions. The same (employees-related) exemption threshold (dashed vertical line) has different implications for labor- versus capital-intensive industries. The share of regulated firms is larger for labor- than capital-intensive industries, because the (employees) firm-size distribution for the labor-intensive industry exhibits a thicker right tail than for the capital-intensive industry.

I obtain standardized firm-size distributions and compute my standardized scopes of financial-reporting regulation as follows (e.g., Currie & Gruber 1996; Mahoney 2015): I calculate the averages, standard deviations, and pairwise correlations of all three (logged) regulatory firm-size dimensions (i.e., the natural logarithm of total assets, sales, and employees) for each industry using firm-level observations pooled across countries.[19] Based on these industry-specific moments, I randomly draw 100,000 simulated firms characterized by (logged) values for total assets, sales, and employees from a multivariate normal distribution for each

[19] I impose two sample restrictions to obtain the pooled cross-country sample. First, I restrict the sample to countries without a reporting exemption related to income statements. This restriction ensures sales information is available for all firms, not just for non-exempted ones, alleviating concerns over the truncation of the observable firm-size distribution. Second, I restrict the sample to fiscal years 2007 and later to ensure near-complete coverage of firms in my database. Starting from 2007, coverage in Amadeus is substantially more comprehensive for the majority of countries than before due to a coverage expansion in the years leading up to 2007 by Amadeus and increased electronic dissemination of firms' financial statements as a result of EU Directive 2003/58/EC.

industry.[20] For each country-industry combination, I then calculate the share of simulated firms in a given standardized industry exceeding the regulatory thresholds of a given country. (For an example and further explanation, refer to section "Standardized Scope" in the Appendix.)

My approach relies on two necessary conditions. First, I require that significant differences exist across industries in terms of relative total assets, sales, and employees' distributions such that the same exemption thresholds at the country level indeed matter differentially across industries (for my within-country design). Second, I require that these significant cross-industry differences persist across countries, that is, are systematic (for my standardized distribution design). These two conditions are a priori innocuous. For one, prior literature documents significant and systematic differences in firm-size distributions (e.g., consider labor-intensive service vs. capital-intensive manufacturing industries; Rajan & Zingales 1998a; Haltiwanger et al. 2014). For another, the empirical validity of these conditions is testable (refer to section 6.2) and any violation of these conditions works against finding a regulatory effect.[21]

4.3.Specification

I estimate the following regression equation via ordinary least squares:

$$Y_{c,i,t} = \beta_1 Reporting_{c,i,t-1} + \beta_2 Auditing_{c,i,t-1} + \alpha_{c,t} + \delta_{i,t} + \varepsilon_{c,i,t},$$

where $Y_{c,i,t}$ is the outcome variable of interest (e.g., market-share concentration) in country c, industry i (four-digit NACE industry classification), and year t; $Reporting_{c,i,t-1}$ is the

[20] Size distributions in general and firm-size distributions in particular tend to be well approximated by Pareto or log-normal distributions (e.g., Axtell 2001; Fazio & Modica 2015). However, my results do not depend on the log-normality assumption. Using bootstrapped firm-size distributions by industry based on draws from actual firm-level observations (similar to Currie & Gruber 1996; Mahoney 2015) yields virtually identical regulatory scopes.

[21] If no significant firm-size differences exist across industries, no residual variation in scope remains using a within-country design. If significant within-country firm-size differences are purely idiosyncratic across countries, the residual variation in scope, calculated using standardized firm-size distributions across countries, is pure noise.

standardized scope of reporting regulation (i.e., the share of firms exceeding reporting-exemption thresholds) in country c, industry i, and year $t-1$; $Auditing_{c,i,t-1}$ is the standardized scope of auditing regulation (i.e., the share of firms exceeding auditing-exemption thresholds) in country c, industry i, and year $t-1$; $\alpha_{c,t}$ denotes country-year fixed effects; and $\delta_{i,t}$ denotes industry-year fixed effects.[22] The fixed-effects structure accounts for any time-varying factors at the country (e.g., GDP levels and growth) and industry (e.g., technology shocks) levels, isolating variation in reporting and auditing scopes within the same country and year (across industries) and within the same industry and year (across countries).

My specification essentially asks by how much an increase of the standardized scopes of reporting and auditing regulation—from regulating no firms (0%) to all firms (100%) in an industry—affects aggregate outcomes for a typical industry in a typical country and year.[23] Notably, this specification does not compare outcomes of regulated versus unregulated firms within the same country and industry, unlike most prior firm-level regulatory studies. Rather, it compares market-wide outcomes of more versus less regulated industries. This feature allows accounting for externalities and market-wide effects of reporting and auditing regulation, which not only directly affect regulated firms, but also indirectly affect unregulated firms (e.g., Bushee & Leuz 2005; Badertscher et al. 2013; Crépon et al. 2013; Leuz & Wysocki 2016; Breuer et al. 2018).

My empirical design treats the country-industry-year panel data as a repeated cross-section, focusing on variation within a given year rather than over time. To account for the

[22] I lag the reporting and auditing scope by one year because up to a 13-month lag exists between the fiscal year end and the publication date in several countries.

[23] In the results section, I consider a 10% change (which is closer to the within-country and within-industry standard deviation in regulatory scope observed in my sample) in interpreting the coefficient magnitudes (i.e., divide the coefficient estimates by 10).

repeated cross-section in the estimation of standard errors, I cluster standard errors at the country-industry level (where the industry is defined as the one-digit NACE industry classification) and the country-year level.[24] This approach accommodates arbitrary dependence within a given country in a given year and within coarse country-industry blocks across the entire sample period.

For a causal interpretation, my approach relies on the identifying assumption that the scopes of reporting and auditing regulation are uncorrelated with other unobserved factors determining the industry-level resource allocation within a given country-year and industry-year. My approach would be invalid, for example, if countries exhibit other economic policies that differentially affect industry-level outcomes and systematically line up with the relative (within-country-year and within-industry-year) scopes of financial-reporting regulation.

One obvious candidate for such unobserved factor would be product- or labor-market regulations with similar regulatory thresholds at the country level. To the best of my knowledge, no other threshold-based regulations overlap with both reporting and auditing requirements in the majority of my sample countries. The most prominent alternative size-based regulations pertain to labor protection and representation, for example, in France, Germany, and Italy. These labor regulations tend to share the 50-employees size threshold with reporting and auditing regulations. Notably, however, the labor regulations do not share the other size-based thresholds (i.e., related to total assets and sales), cannot explain both reporting and auditing regulation simultaneously, should exhibit a chilling effect on competition and resource reallocation (unlike

[24] The industry-classification level of my observations and fixed effects is substantially finer (four-digit NACE) than the level used for the clustering of standard errors (one-digit NACE). The finer observations and fixed effects enhance precision and reduce bias in my coefficient estimates, whereas the broader clustering (more conservatively) allows for broader cross-sectional and time-series dependence in calculating standard errors.

the potential effects of reporting regulation) (e.g., Haltiwanger et al. 2014), and do not exist or overlap in several countries (e.g., Garicano et al. 2016).

Other industry-specific policies are less likely to line up with the relative scopes of financial-reporting regulation. Such policies allow for targeted interventions at the industry level, tailored to countries' actual firm-size distributions and industrial specialization. The scopes of financial-reporting regulation, instead, can only be adjusted at the country level (due to country-level thresholds), rendering them an ineffective tool for achieving industry-specific policy objectives.[25] Moreover, the standardized scopes are based on common firm-size distributions across all countries, and each industry observation is equally weighted (rather than weighted by its relative importance in a given country). Thus, the within-country-year and within-industry-year variation in the standardized scopes of financial-reporting regulation is unlikely to line up with countries' other industry-specific economic policies.[26] (For an assessment of correlated factors, refer to section 6.3.)

[25] The reduction of firms' regulatory burden is the main motivation for the financial-reporting exemptions. The idea is that, given fixed costs of regulatory requirements, firms below a certain size are excessively burdened, and thus should be exempted. In line with this rationale, the exemptions are tied to firm size and set uniformly across industries. Hence, national regulators do not appear to primarily be concerned with the relative share of regulated firms across industries and use financial-reporting regulation to achieve industry-specific policy objectives.

[26] Controlling for the relative within-country importance of industries (e.g., through the inclusion of various industry-size measures) does not significantly affect my estimates and inferences, suggesting economic policies tailored to country-specific industry specializations cannot explain my results presented in section 6.

5. Data

I collect information on reporting and auditing requirements and thresholds for 26 European countries for the years 2000 to 2014 (note: one-year lag relative to sample years in accordance with research design) through research of official legislative documents, consulting and research reports (e.g., Cna Interpreta 2011; Bernard et al. 2018), and a questionnaire administered to knowledgeable parties in the respective countries (e.g., ministries of law and commerce, official publication platforms, associations of accountants, audit firms, and academics).[27]

I construct a firm-level panel of ownership and financial-statement information of limited liability firms combining information from Amadeus discs for years 2005 to 2015 with information downloaded from Amadeus through WRDS in 2016 (following Kalemli-Ozcan et al. 2015).[28] For financial information, I merge historical information from discs 2005, 2008, 2012, and the WRDS download in 2016 to construct a firm-year panel of financial information covering the years 2001 to 2015. This approach circumvents survivorship issues associated with Bureau van Dijk's practice of dropping firms from its database after several years of inaction. My approach increases the underlying sample from about 80 million firm-year observations available with the 2016 WRDS download to about 115 million firm-year observations. For other (static) information items (e.g., auditor, ownership, and legal-form information), I construct a firm-year panel using all discs from 2005 to 2015 and the 2016 WRDS download. This panel construction allows me to investigate non-financial information (e.g., ownership information) in

[27] I only include country-years for which I have been able to find at least one reliable source describing the official reporting and auditing thresholds.
[28] I thank Kalemli-Ozcan et al. (2015) for sharing their NACE correspondence table with me.

the years 2004 to 2015, instead of only in the last available year.[29] (For further data limitations and corresponding robustness tests, refer to sections "Data Limitations" and "Supplemental Results" in the Appendix.)

I translate all monetary values into real US dollars as of 2015 using currency exchange rates and GDP deflators from the World Bank. I abstain from using country-industry-specific deflators for data and conceptual reasons. First, price deflators are not available for most four-digit NACE codes in most sample countries and years. Second, I do not want to purge my data from cross-country-industry differences in price levels and price changes that could be due to, for example, differences in product-market competition induced by financial-reporting regulation. In any case, my empirical strategy estimates the sensitivity of resource-allocation measures to financial-reporting regulation within a given country-year and industry-year rather than compares raw levels of such measures across countries, industries, or years. Therefore, temporal harmonization through country-industry-specific price deflators and—although generally desirable—the exact measurement of deflated levels, for example, of productivity, is not crucial for my study.

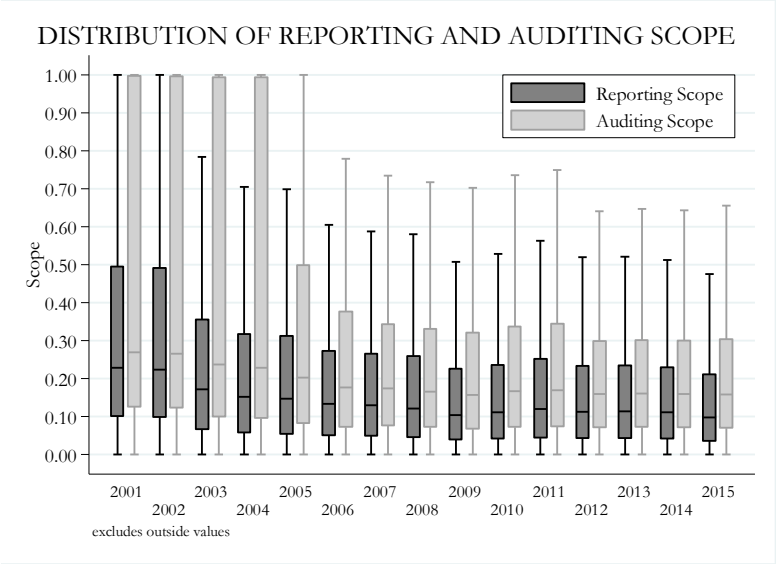
[29] I lag all static items by one year relative to the year of the Amadeus disc (Kalemli-Ozcan et al. 2015). Hence, the sample period for (most) static items ranges from 2004 to 2015.

6. Results

6.1. Financial-reporting regulation across countries, industries, and time

Turning to the data, I first descriptively investigate the available variation in the scopes of reporting and auditing regulation. Figure 8 plots the country-industry variation in these scopes by year. Notable variation exists in a given year for both the scope of reporting regulation and the scope of auditing regulation. By contrast, only limited variation exists in the average scopes of reporting and auditing regulation over time (Figure 9).

Figure 8: Distribution of reporting and auditing scope

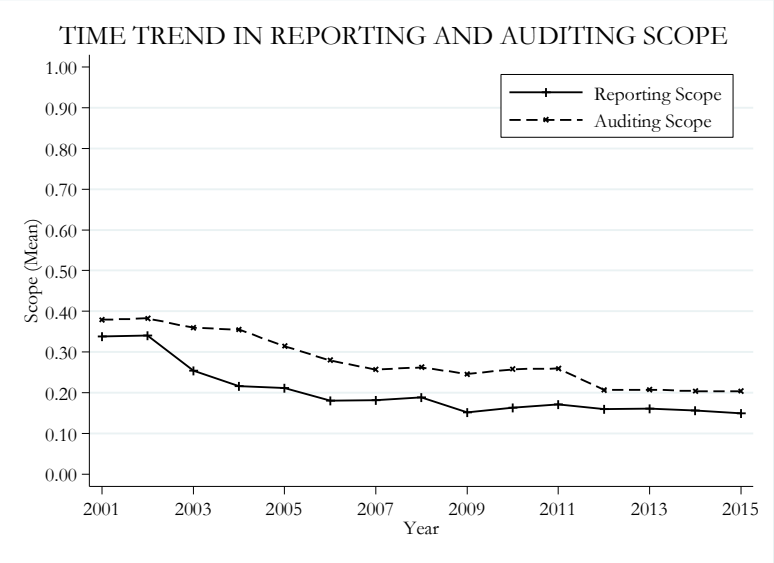


Notes: The figure depicts the distribution of (standardized) reporting and auditing scope for each sample year (pooled across countries and industries) using box plots. The box plots provide the median (horizontal line within the boxes), the 25th and 75th percentile (lower and upper bound of the boxes), and adjacent values (end points of vertical lines/whiskers). Adjacent values are defined as the lowest and highest observations that are still inside the region spanned by the following limits: 25th (75th) percentile – (+) 1.5 × (75th – 25th percentile).

Consistent with significant cross-industry differences in the scopes of reporting and auditing regulation, the left graph of Figure 10 documents a substantial spread in the share of regulated firms across industries (ordered from the least to the most affected industry). The center graph of Figure 10 plots the variation across countries and years in a given industry.

Although the within-industry cross-country variation is plentiful, so are the country-level factors potentially confounding the relation between the scopes of financial-reporting regulation and market-wide outcomes. Accordingly, I focus on the reduced, but arguably less confounded, within-country-year and within-industry-year variation of the scopes of financial-reporting regulation depicted in the right graph of Figure 10 in my subsequent estimation.

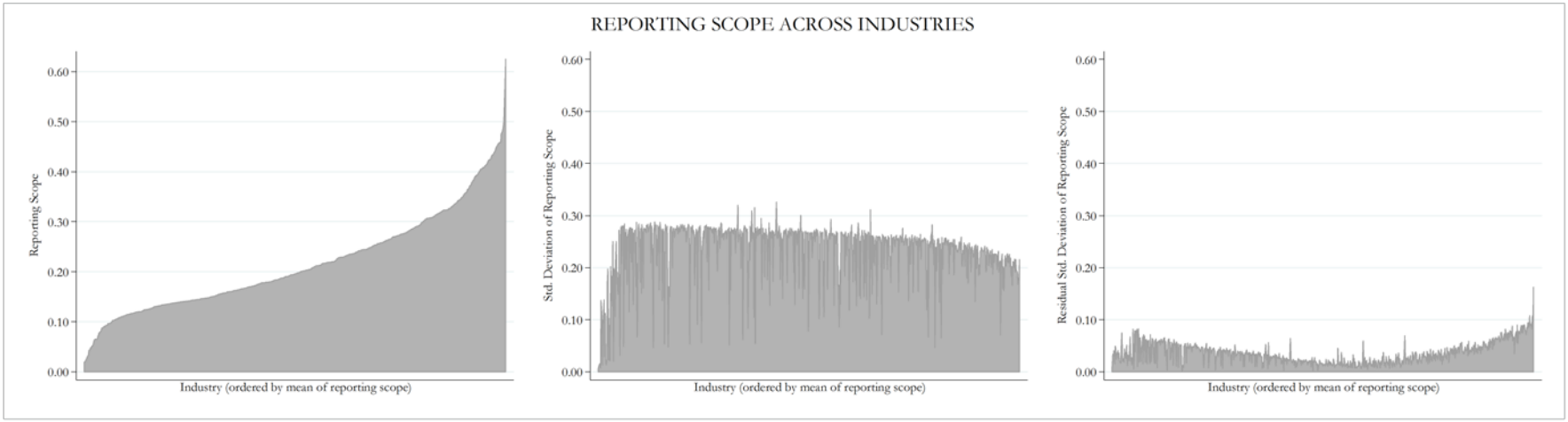
Figure 9: Time trend in reporting and auditing scope



Notes: The figure depicts the average (standardized) reporting and auditing scope (pooled across countries and industries) for each sample year.

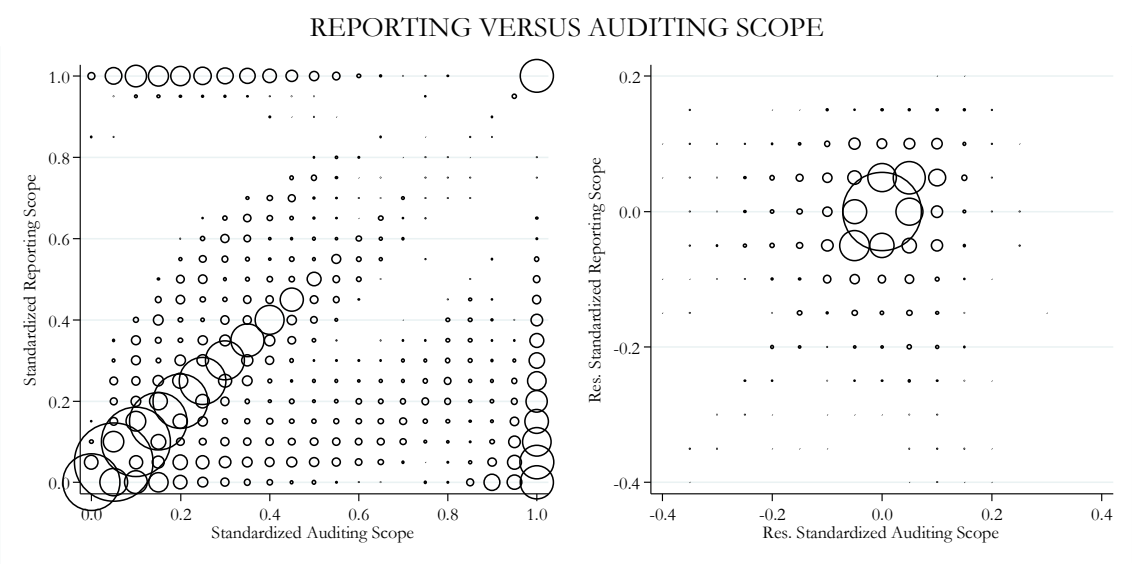
Notably, Figure 11 highlights that useful independent variation exists in the scopes of reporting and auditing regulation (i.e., circles on the off-diagonal), even within the same country-year and industry-year, allowing me to disentangle the effects of reporting and auditing regulation. (For a list of variable definitions and descriptive statistics, refer to Table A1 and Table A2 in the Appendix. For a summary of the scopes of reporting and auditing regulation by country and year and legal sources for the financial-reporting regulations, refer to Table A3 and Table A4 in the Appendix.)

Figure 10: Reporting scope across industries



Notes: The figure depicts the variation in (standardized) reporting scope. The left graph plots the average reporting scope for each industry (pooling across countries and years). The industries are ordered according to their average reporting scope (from lowest to highest average reporting scope), illustrating the cross-industry variation in reporting scope. The center graph plots the variation (in terms of standard deviation) of reporting scope (pooled across countries and years) for each industry. The right graph plots the variation (in terms of standard deviation) of reporting scope (within country and year) for each industry, illustrating the residual variation in reporting scope used in my empirical design.

Figure 11: Reporting versus auditing scope



Notes: The figure depicts the variation in (standardized) reporting and auditing scope before (left graph) and after (right graph) accounting for country-year and industry-year effects. The (residual) variation in reporting and auditing scope is collapsed into a coarse grid, reducing the number of observations for the purpose of clarity. Each circle represents observations within a grid point (quadratic area) of size 0.05 × 0.05. The size of the circles represents the number of observations within each grid point.

6.2.Financial-reporting regulation and firms' actual financial reporting

In a next step, I examine the validity of the standardized financial-reporting scopes as measures of reporting and auditing regulation. To this end, Table 1 presents estimates of regressions of the actual fractions of regulated firms ("Measured Reporting Scope" and "Measured Auditing Scope") and firms' actual auditing behavior ("Audit") on the standardized scopes of reporting and auditing regulation.[30] "Measured Reporting Scope" and "Measured Auditing Scope" are calculated as the fraction of firms exceeding reporting and auditing thresholds, using countries' actual (instead of standardized) firm-size distributions, and "Audit" is calculated as the fraction of firms obtaining a financial-statement audit within a given country, industry, and year.

[30] I truncate the within-country-year and within-industry-year distribution of each variable (using regression-specific samples) at the 1st and 99th percentiles in all regressions to account for extreme values due to potential data errors.

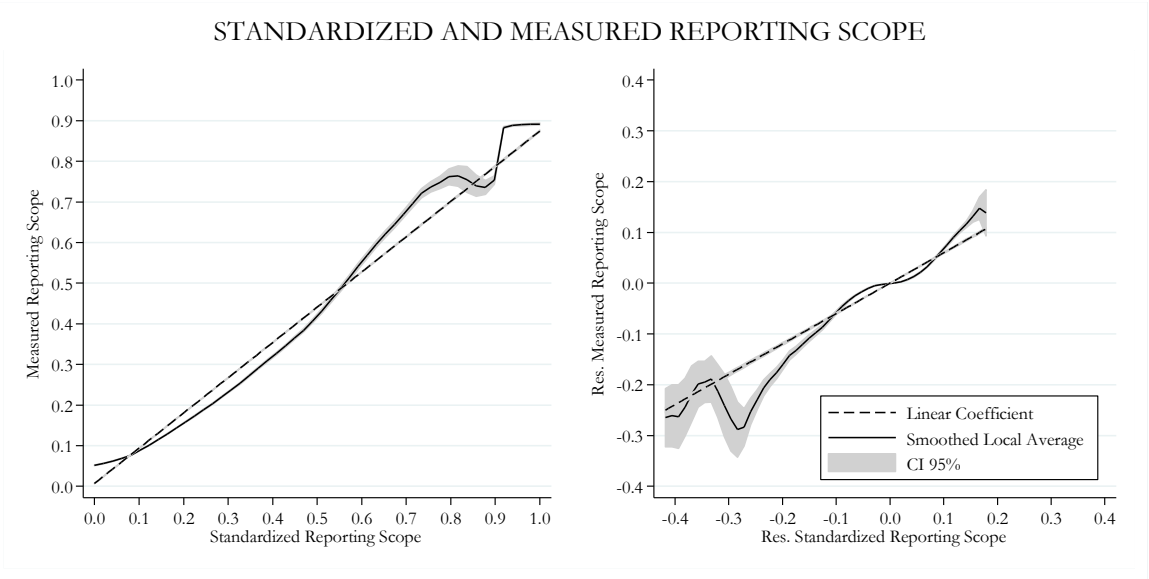
Table 1: Financial-reporting regulation and firms' actual financial reporting

	(1) Measured Reporting Scope	(2) Measured Auditing Scope	(3) Audit
Standardized Reporting Scope	0.476***	-0.095	-0.114
	(0.085)	(0.077)	(0.080)
Standardized Auditing Scope	-0.104**	0.525***	0.201***
	(0.052)	(0.060)	(0.045)
Industry-Year FE (4-Digit)	X	X	X
Country-Year FE	X	X	X
Observations	211,573	211,608	211,571
Clusters (Country-Industry (1-Digit))	260	260	260
Clusters (Country-Year)	387	387	387
Adjusted R-Squared	0.835	0.871	0.877

Notes: The table presents estimates from regressions of measured reporting and auditing scope and actual auditing on standardized reporting and auditing scope. "Measured Reporting Scope" is the share of firms exceeding reporting-related exemption thresholds in a given country, industry, and year. "Measured Auditing Scope" is the share of firms exceeding auditing-related exemption thresholds in a given country, industry, and year. "Audit" is the share of firms providing audited financial statements in a given country, industry, and year. "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Column 1 of Table 1 documents that the scope of reporting regulation is strongly positively associated with the actual fraction of firms non-exempted from reporting requirements (Figure 12).[31] The coefficient of 0.476 (standard error: 0.085) suggests a 10-percentage-point increase in the scope of reporting regulation is associated with about a 4.8-percentage-point increase in the actual fraction of regulated firms. By contrast, the scope of auditing regulation is slightly negatively associated with the fraction of firms non-exempted from reporting requirements.

Figure 12: Standardized and measured reporting scope



Notes: The figure depicts the relation between measured reporting scope (using countries' actual firm-size distributions) and standardized reporting scope (using a standardized firm-size distribution per industry for all countries). The left graph depicts the linear relation (dashed line) and a locally smoothed average relation (including a point-wise 95% confidence interval) between measured and standardized reporting scope. The right graph depicts the same relations after accounting for country-year and industry year effects.

Column 2 of Table 1 documents the reverse relation for the actual fraction of firms non-exempted from auditing requirements. The scope of reporting regulation is not significantly

[31] In describing my estimation results, I refer to the relation between the dependent variable and the regulatory scopes as associations. Subsequent causal interpretations of the estimated associations are conditional on the validity of my identifying variation. For an assessment of the plausibility of my identifying assumption, refer to section 6.3.

associated with the actual fraction of firms non-exempted from auditing requirements, whereas the scope of auditing regulation is strongly positively associated with it (coefficient: 0.525; standard error: 0.060). Column 3 of Table 1 further documents that this relation even holds for firms' actual auditing behavior. The scope of reporting regulation is not significantly associated with firms' actual auditing behavior, whereas the scope of auditing regulation is strongly positively associated with firms' auditing (coefficient: 0.201; t-standard error: 0.045).

Collectively, the estimates in Table 1 document the (first-stage) relevance of my standardized scopes of reporting and auditing regulation for countries' actual scopes of reporting and auditing regulation and firms' actual financial reporting (F-statistic for "Measured Reporting (Auditing) Scope": 28.13*** (44.63***) following Sanderson & Windmeijer 2016). In particular, the estimates make three important points. First, they show that, even within a given country, my standardized financial-reporting scopes are strongly positively related to the actual scopes, validating the necessary conditions underlying my approach. Second, the estimates suggest the scopes of reporting and auditing regulation indeed capture separate reporting- and auditing-specific variation in countries' financial-reporting regulation. Third, the estimates show the scopes of financial-reporting regulation (in particular, the scope of auditing regulation) affect firms' actual financial reporting, allaying concerns that the financial-reporting regulations are not actually enforced.

6.3.Financial-reporting regulation and other confounding factors

In a last step before turning to my main results, I probe the plausibility of the identifying assumption underlying my approach. In particular, I assess the correlations of the scopes of reporting and auditing regulation with potentially confounding country- and country-industry-

specific factors in Table 2.[32] After accounting for country, industry, and year fixed effects (i.e., the standard fixed effects structure in cross-country panel studies), columns 1 and 2 document that several time-varying country- and country-industry-level variables are associated with both measured and standardized reporting scope, explaining 43.2% and 51.0% of their respective residual variation.

After accounting for country-year and industry-year fixed effects (i.e., my research design's fixed effects structure), time-varying country-level variables cannot explain residual variation in reporting scopes anymore. Yet, column 3 documents that the remaining country-industry-specific factors (e.g., the average size of firms in a given country-industry combination) are still significantly associated with and explain a substantial fraction of the residual variation in measured reporting scope (within-R-squared: 29.3%). By contrast, column 4 documents that these country-industry-specific factors are generally insignificantly associated with and explain only a negligible fraction of the residual variation in standardized reporting scope (within-R-squared: 0.1%).[33]

These results highlight the benefits of my empirical approach and support the plausibility of my identifying assumption. In particular, they document the importance of jointly controlling for country-year and industry-year fixed effects and using standardized scopes of financial-reporting regulation to arrive at plausibly exogenous variation in financial-reporting scopes.

[32] Country-level factors are taken from the World Bank indicators. For a full list of included country-level factors and their coefficient estimates, refer to Table A7 in the Appendix.

[33] The remaining significantly negative associations between standardized reporting scope and average tangible-capital- and product-market concentration are plausibly due to the effect of reporting regulation on these variables rather than a "reverse" effect of, for example, product-market concentration on the measurement of reporting scope. Such a "reverse" effect would yield a positive association between product-market concentration and measured scope, because country-industry combinations with greater concentration exhibit larger firms, resulting in an endogenously higher fraction of regulated firms. In line with this "reverse" effect, product-market concentration is significantly positively associated with measured reporting scope in column 3. This positive association stands in contrast to the theoretically expected pro-competitive effect, highlighting the importance of accounting for endogenous firm-size differences.

Table 2: Financial-reporting regulation and other confounding factors

	(1) Measured Reporting Scope	(2) Standardized Reporting Scope	(3) Measured Reporting Scope	(4) Standardized Reporting Scope
Number of firms	0.001	0.002	-0.001	0.000
	(0.002)	(0.001)	(0.002)	(0.001)
Mean Y (Log)	0.016***	-0.002	0.020***	0.001
	(0.003)	(0.002)	(0.002)	(0.001)
Mean L (Log)	0.051***	0.007**	0.045***	0.000
	(0.005)	(0.003)	(0.003)	(0.001)
Mean K (Log)	0.024***	-0.004***	0.029***	-0.002**
	(0.003)	(0.001)	(0.002)	(0.001)
Concentration (HHI)	0.000***	0.000*	0.000***	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
Time-Varying Country-Level Controls	X	X		
Year FE	X	X		
Industry FE (4-Digit)	X	X		
Country FE	X	X		
Industry-Year FE (4-Digit)			X	X
Country-Year FE			X	X
Observations	205,732	205,732	205,660	205,660
Clusters (Country-Industry)	260	260	260	260
Clusters (Country-Year)	387	387	387	387
R-Squared (Within)	0.432	0.510	0.293	0.001

Notes: The table presents estimates of regressions of measured and standardized reporting scope on a broad set of country and industry-level variables. The number of firms, average sales, average employees, average tangible capital, and market share concentration in a given country, industry, and year are obtained from Bureau van Dijk's Amadeus. Untabulated time-varying country-level controls include EU and EURO indicators, coded based on official information on countries' EU and EURO membership; IFRS, TPD, and MAD indicators, coded based on the work of Christensen et al. (2013) and Christensen et al. (2016); and World Bank indicators. Refer to Table A7 in the Appendix for a comprehensive presentation of the coefficients of all time-varying country-level controls. Columns (1) and (2) include country, industry, and year fixed effects. Columns (3) and (4) include country-year and industry-year fixed effects. Standard errors (in parentheses) are clustered at the county level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

6.4.Financial-reporting regulation and the type of resource allocation

To investigate how reporting regulation and auditing regulation affect the type of resource allocation, I examine the effects of their scopes on measures of dynamism (e.g., entry and exit) and concentration in input (e.g., capital) and output (e.g., product) markets.

6.4.1. Product-market entry and exit

Table 3 presents (reduced-form) estimates of regressions of firms' entry ("Entry") and exit rates ("Exit") on the standardized scopes of reporting and auditing regulation. (For second-stage estimates, refer to Table A8.)[34] I define "Entry" as the fraction of firms founded within the last two years (e.g., Klapper et al. 2006; Messina & Vallanti 2007) and "Exit" as the fraction of firms that became inactive for bankruptcy/illiquidity reasons within a given country, industry, and year. Panel A presents estimates using equally weighted entry and exit rates ("Average"), whereas Panel B presents estimates using market-share-weighted entry and exit rates ("Aggregate").

Column 1 of Table 3 documents that the scope of reporting regulation is positively associated with entry rates, whereas the scope of auditing regulation is negatively associated with entry rates. In particular, a 10-percentage-point increase in reporting scope is associated with a 0.75-percentage-point ($0.75/18.3 \approx 4.1\%$) increase in average entry rates (Panel A: standard error: 0.032) and a 0.80-percentage-point increase in aggregate entry rates (Panel B: standard error: 0.028). The slight difference between average and aggregate entry-rate coefficients

[34] In the following, I discuss reduced-form rather than second-stage estimates, because "Measured Reporting Scope" and "Measured Auditing Scope" only imperfectly capture the fraction of actually regulated firms and are subject to several coverage biases. If, however, these imperfections are uncorrelated with my standardized financial-reporting measures, the second-stage estimates provide a more accurate assessment of the magnitudes of the effects of financial-reporting regulation (i.e., they adjust for attenuation due to using standardized instead of actual firm-size distributions).

suggests that, if anything, reporting regulation appears to facilitate entry marginally more for larger than for smaller firms.

Table 3: Financial-reporting regulation and business dynamism

PANEL A: AVERAGE		
	(1) Entry	(2) Exit
Standardized Reporting Scope	0.075**	0.011*
	(0.032)	(0.006)
Standardized Auditing Scope	-0.130***	0.009
	(0.022)	(0.006)
Industry-Year FE (4-Digit)	X	X
Country-Year FE	X	X
Observations	209,377	167,263
Clusters (Country-Industry (1-Digit))	260	260
Clusters (Country-Year)	387	307
Adjusted R-Squared	0.442	0.602
PANEL B: AGGREGATE		
	(1) Entry	(2) Exit
Standardized Reporting Scope	0.080***	0.001
	(0.028)	(0.003)
Standardized Auditing Scope	-0.069***	0.001
	(0.020)	(0.002)
Industry-Year FE (4-Digit)	X	X
Country-Year FE	X	X
Observations	199,717	159,397
Clusters (Country-Industry (1-Digit))	260	260
Clusters (Country-Year)	387	307
Adjusted R-Squared	0.219	0.118

Notes: The table presents estimates from regressions of entry and exit rates on standardized reporting and auditing scope. "Entry" is the equally (market share) weighted fraction (sum) of firms founded within the least two years in a given country, industry, and year in Panel A (B). "Exit" is the equally (market share) weighted fraction (sum) of firms that turned inactive for bankruptcy/illiquidity reasons in a given country, industry, and year in Panel A (B). "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

By contrast, a 10-percentage-point increase in auditing scope is associated with a 1.30-percentage-point ($1.30/18.3 \approx 7.1\%$) decrease in average entry rates (Panel A: standard error:

0.022) and a 0.69-percentage-point decrease in aggregate entry rates (Panel B: standard error: 0.020). The larger coefficient in the average than the size-weighted aggregate entry-rate specification suggests auditing regulation deters especially entry of smaller firms.

Column 2 of Table 3 documents no significant evidence of associations between the scopes of reporting and auditing regulation and aggregate exit rates, and only weak evidence that the scope of reporting regulation is associated with greater average exit rates (Panel A: coefficient: 0.011; standard error: 0.006). These weak results are likely due to the poor measurement of firm exit in my data.[35]

As a whole, the estimates in Table 3 suggest reporting regulation can foster product-market competition through reduced (informational) barriers to entry, resulting in greater business dynamism. By contrast, the estimates in Table 3 suggest auditing regulation primarily imposes a net (fixed) cost of operating on firms resulting in less entry, especially of smaller firms.

6.4.2. Product-market concentration

Table 4 presents estimates of a regression of product-market concentration ("HHI") on the standardized scopes of reporting and auditing regulation. I calculate the Herfindahl-Hirschman Index ("HHI") as the sum of squared market shares within a given country, industry, and year.

[35] The exit of firms is not systematically recorded in the database, rendering this measure comparably noisy (Klapper et al. 2006).

Table 4: Financial-reporting regulation and product-market concentration

	(1) HHI
Standardized Reporting Scope	-0.216**
	(0.098)
Standardized Auditing Scope	0.056
	(0.079)
Industry-Year FE (4-Digit)	X
Country-Year FE	X
Observations	202,124
Clusters (Country-Industry (1-Digit))	260
Clusters (Country-Year)	385
Adjusted R-Squared	0.503

Notes: The table presents estimates from a regression of market-share concentration on standardized reporting and auditing scope. "HHI" is the sum of squared market shares in a given country, industry, and year. "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regression includes industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Column 1 of Table 4 documents that the scope of reporting regulation is significantly negatively associated with product-market concentration (coefficient: -0.216; standard error: 0.098), whereas the scope of auditing regulation is not significantly associated with product-market concentration. In particular, a 10-percentage-point increase in reporting scope is associated with a $2.16 / 37.7 \approx 5.7\%$ decrease in product-market concentration. In sum, the estimates in Table 4 suggest reporting, but not auditing, regulation spurs product-market competition, resulting in reduced product-market concentration.

6.4.3. Product-market profit margins

Table 5 presents estimates of regressions of profit-margin dispersion on the standardized scopes of reporting and auditing regulation. I calculate the distance (defined as the difference

Table 5: Financial-reporting regulation and profit-margin dispersion

PANEL A: GROSS MARGIN		
	(1) Distance	(2) Dispersion
Standardized Reporting Scope	-0.148**	-0.093**
	(0.063)	(0.040)
Standardized Auditing Scope	0.019	0.029
	(0.049)	(0.034)
Industry-Year FE (4-Digit)	X	X
Country-Year FE	X	X
Observations	186,157	186,362
Clusters (Country-Industry (1-Digit))	260	260
Clusters (Country-Year)	387	387
Adjusted R-Squared	0.362	0.402
PANEL B: EBITDA/SALES		
	(1) Distance	(2) Dispersion
Standardized Reporting Scope	-0.201***	-0.132***
	(0.075)	(0.041)
Standardized Auditing Scope	0.025	0.011
	(0.056)	(0.034)
Industry-Year FE (4-Digit)	X	X
Country-Year FE	X	X
Observations	168,073	168,374
Clusters (Country-Industry (1-Digit))	250	250
Clusters (Country-Year)	372	372
Adjusted R-Squared	0.364	0.389

Notes: The table presents estimates from regressions of markup-dispersion measures on standardized reporting and auditing scope. "Distance" is the difference between the 80th and 20th percentile of the distribution of gross margins defined as sales less wage and material expense or cost of goods sold scaled by sales (EBITDA scaled by sales) in a given country, industry, and year in Panel A (B), normalized by the average margin. "Dispersion" is the standard deviation of the distribution of gross margins defined as sales less wage and material expense or cost of goods sold scaled by sales (EBITDA scaled by sales) in a given country, industry, and year in Panel A (B), normalized by the average margin. "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

between the 80th and the 20th percentile; "Distance") and dispersion (standard deviation; "Dispersion") of "Gross Margin" (defined as $(Y-(M+L))/Y$, where Y denotes sales, M denotes material expense, and L denotes wage expense) and "EBITDA/Sales" as measures of

markup or price dispersion (e.g., Stigler 1961; Boone 2008; Melitz & Ottaviano 2008) within a given country, industry, and year.[36] The dispersion of markups or prices across firms is commonly viewed as a measure of "ignorance" (Stigler 1961) or violation of the "law of one price" (Jensen 2007) due to informational barriers to competition.

Table 5 documents that the scope of reporting regulation is significantly negatively associated with all four measures of markup dispersion, whereas the scope of auditing regulation is not significantly associated with any of the markup-dispersion measures. These estimates again suggest reporting, but not auditing, regulation spurs product-market competition, resulting in reduced markup dispersion.

6.4.4. Capital-market dispersion

Table 6 presents estimates of regressions of measures of capital-market dispersion (in particular, ownership dispersion) on the standardized scopes of reporting and auditing regulation. I use the fraction of publicly listed firms ("Publicly Listed"), the number of shareholders ("Shareholders"; measured as the average of the natural logarithm of the number of shareholders), and ownership/control-rights dispersion ("Independence"; average of value ranging from 0 (concentrated) to 1 (dispersed) based on independence scores provided by Bureau van Dijk) as measures of capital-market dispersion. Panel A presents estimates using equally weighted outcomes ("Average"), whereas Panel B presents estimates using market-share-weighted outcomes ("Aggregate").

[36] To account for differences in scale, the distance and dispersion measures (of profit margins and revenue productivities in later tests) are scaled by the mean of the respective distribution (e.g., Syverson 2004).

Table 6: Financial-reporting regulation and ownership concentration

PANEL A: AVERAGE			
	(1) Publicly Listed	(2) Shareholders	(3) Independence
Standardized Reporting Scope	0.008***	0.273***	0.089*
	(0.003)	(0.071)	(0.052)
Standardized Auditing Scope	-0.001	0.012	-0.010
	(0.003)	(0.047)	(0.037)
Country-Industry (4-Digit) FE	X	X	X
Country-Year FE	X	X	X
Observations	169,845	161,385	157,788
Clusters (Country-Industry (1-Digit))	260	260	260
Clusters (Country-Year)	311	311	311
Adjusted R-Squared	0.239	0.819	0.475
PANEL B: AGGREGATE			
	(1) Publicly Listed	(2) Shareholders	(3) Independence
Standardized Reporting Scope	0.056***	0.442***	0.122**
	(0.019)	(0.090)	(0.055)
Standardized Auditing Scope	-0.010	-0.092	-0.035
	(0.019)	(0.084)	(0.041)
Industry-Year FE (4-Digit)	X	X	X
Country-Year FE	X	X	X
Observations	161,720	153,030	149,502
Clusters (Country-Industry (1-Digit))	260	260	260
Clusters (Country-Year)	311	311	311
Adjusted R-Squared	0.208	0.390	0.212

Notes: The table presents estimates from regressions of ownership concentration measures on standardized reporting and auditing scope. "Publicly Listed" is the equally (market share) weighted fraction (sum) of publicly listed firms in a given country, industry, and year in Panel A (B). "Shareholders" is the equally (market share) weighted average (sum) of firms' logarithmic number of shareholders in a given country, industry, and year in Panel A (B). "Independence" is the equally (market share) weighted average (sum) of Bureau van Dijk's independence score encoded to range from 0 to 1 in a given country, industry, and year in Panel A (B). "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Columns 1, 2, and 3 of Table 6 document that the scope of reporting regulation is positively associated with the fraction of publicly listed firms, the average number of shareholders, and ownership dispersion, whereas the scope of auditing regulation is not. The

coefficients on the scope of reporting regulation are larger for market-share-weighted than for equally weighted capital-market outcomes, suggesting reporting regulation allows especially larger firms to spread their ownership more widely. Together with the evidence on product-market competition, the estimates in Table 6 suggest reporting, but not auditing, regulation fosters a competitive and dispersed type of resource allocation in input (e.g., capital) and output (e.g., product) markets.

6.5.Financial-reporting regulation and the efficiency of resource allocation

To investigate how reporting regulation and auditing regulation affect the market-wide efficiency of resource allocation, I examine the effects of their scopes on measures of allocative efficiency established in the literature (i.e., the dispersion of revenue productivities, the size-productivity covariance, and productivity levels and growth rates). Clearly, the measurement of resource-allocation efficiency is challenging and there is no single reduced-form measure perfectly capturing resource-allocation efficiency. Accordingly, I employ several measures and base my inferences on the collective results.[37]

6.5.1. Revenue-productivity dispersion

Table 7 presents estimates of regressions of measures of revenue-productivity dispersion on the standardized scopes of reporting and auditing regulation. I calculate the "Lower Tail" (20^{th} percentile), "Upper Tail" (80^{th} percentile), "Distance" (80^{th} minus 20^{th} percentile), and "Dispersion" (standard deviation) of total factor (revenue) productivity (defined as $\ln(Y) - 0.3\ln(K) - 0.7\ln(L)$ where K is tangible assets, and L is either wage expense or the

[37] Although the measurement of resource-allocation efficiency is generally challenging, I note that this measurement issue is likely less severe in my study. Notably, I do not compare levels of resource-allocation efficiency proxies across countries or industries or over time. Instead, I am interested in the co-movement of allocation efficiency measures with financial-reporting regulation. Thus, any (white) noise in my efficiency measures ends up in the error term. Accordingly, the measurement issue should primarily increase my standard errors rather than attenuate my coefficients of interest.

number of employees; denoted "TFP") in a given country, industry, and year.[38] The lower tail of the revenue-productivity distribution can be interpreted as the minimum required productivity/profitability for firms to operate (Syverson 2004). The dispersion of revenue productivity is commonly viewed as a measure of misallocation (Hsieh & Klenow 2009) or uncertainty (in conjunction with adjustment frictions; Bloom 2009; Asker et al. 2014). The basic idea underlying the revenue-productivity dispersion measure is that frictions in input and output markets sustain dispersion in prices and technical efficiency. For example, market power allows some firms to charge higher prices than others and political connections allow some technically inefficient firms to continue operating. These frictions manifest in the dispersion of observed revenue-productivities, because revenue productivity captures variation in both prices and technical efficiency (Foster et al. 2008). Panel A presents estimates using the distribution of the employees-based "TFP" measure, whereas Panel B presents estimates using the distribution of the wage-expense-based "TFP" measure.

Column 1 of Table 7 documents that the scope of reporting regulation is not significantly associated with the lower tail of the revenue-productivity distribution for both "TFP" measures (Panel A and Panel B), whereas the scope of auditing regulation is significantly positively associated with the lower tail of both measures. Column 2 of Table 7 documents that the scope of reporting regulation is significantly negatively associated with the upper tail of the revenue-

[38] I follow the index approach to calculating total factor productivity (e.g., Syverson 2011). I use typical labor and capital expenditure shares (labor: 0.7, capital: 0.3) uniformly across countries and industries. This simplified approach provides a basic comparison of firms' input-output ratios across countries and industries, circumventing the difficulties associated with the measurement of productivity. I use multiple alternative productivity measures (e.g., labor productivity) to ensure my results do not depend on one approach to measuring productivity.

Table 7: Financial-reporting regulation and revenue-productivity dispersion

	(1) Lower Tail (p20)	(2) Upper Tail (p80)	(3) Distance	(4) Dispersion
PANEL A: TFP (EMPLOYEES)				
Standardized Reporting Scope	-0.769	-2.155**	-0.148*	-0.091*
	(0.536)	(1.085)	(0.078)	(0.049)
Standardized Auditing Scope	0.861**	0.330	-0.030	-0.028
	(0.372)	(0.773)	(0.060)	(0.039)
Industry-Year FE (4-Digit)	X	X	X	X
Country-Year FE	X	X	X	X
Observations	190,097	190,146	173,076	173,083
Clusters (Country-Industry (1-Digit))	260	260	260	260
Clusters (Country-Year)	387	387	384	384
Adjusted R-Squared	0.356	0.558	0.433	0.491
PANEL B: TFP (WAGE)				
	(1) Lower Tail (p20)	(2) Upper Tail (p80)	(3) Distance (p80-p20)	(4) Dispersion
Standardized Reporting Scope	-0.119	-0.398**	-0.260***	-0.145**
	(0.094)	(0.201)	(0.099)	(0.065)
Standardized Auditing Scope	0.155**	0.105	0.007	0.010
	(0.064)	(0.150)	(0.080)	(0.054)
Industry-Year FE (4-Digit)	X	X	X	X
Country-Year FE	X	X	X	X
Observations	179,452	179,484	165,119	165,135
Clusters (Country-Industry (1-Digit))	240	240	240	240
Clusters (Country-Year)	356	356	354	353
Adjusted R-Squared	0.272	0.445	0.263	0.288

Table 7 continued

Notes: The table presents estimates from regressions of revenue-productivity dispersion measures on standardized reporting and auditing scope. "Lower Tail (p20)" is the 20th percentile of the distribution of total factor revenue productivities calculated using employees (wage expense) in a given country, industry, and year in Panel A (B). "Upper Tail (p80)" is the 80th percentile of the distribution of total factor revenue productivities calculated using employees (wage expense) in a given country, industry, and year in Panel A (B). "Distance" is the difference between the 80th and the 20th percentile of the distribution of total factor revenue productivities calculated using employees (wage expense) in a given country, industry, and year in Panel A (B), normalized by the average productivity. "Dispersion" is the standard deviation of the distribution of total factor revenue productivities calculated using employees (wage expense) in a given country, industry, and year in Panel A (B), normalized by the average productivity. "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

productivity distribution for both "TFP" measures (Panel A and Panel B), whereas the scope of auditing regulation is not significantly associated with the upper tail for both measures. Columns 3 and 4 of Table 7 document that the scope of reporting regulation is significantly negatively associated with the distance and dispersion of the revenue-productivity distribution for both measures (Panels A and B), whereas the scope of auditing regulation is not.

This evidence suggests reporting regulation can alleviate resource misallocation through the reduction of information frictions. In particular, the negative association between reporting regulation and the upper tail of the revenue-productivity distribution suggests this improvement in resource allocation (reduction of dispersion) is due to reduced "extreme" revenue productivities. These extremes are likely due to extreme markups/prices rather than technical efficiency. Thus, consistent with the profit-margin-dispersion results, the dispersion in revenue productivities appears to shrink as a result of reduced market power and corresponding markups. By contrast, the estimates in Table 7 suggest auditing regulation imposes a net (fixed) cost of

operating on firms, resulting in a higher minimum (revenue) productivity level ("Lower Tail") required for firms to operate (e.g., Syverson 2004; Syverson 2011).

6.5.2. Size and productivity covariance

Table 8 presents estimates of regressions of the covariance of firm size and productivity on the standardized scopes of reporting and auditing regulation. I calculate the covariance between firm size (in terms of sales) and productivity ("Covariance Y/L and Y" and "Covariance TFP and Y") within a given country, industry, and year. "Y/L" denotes labor (revenue) productivity defined as $\ln(Y / L)$ (where L is either wage expense or the number of employees). "TFP" denotes total factor productivity and is defined as before. The covariance is calculated deducting the average from aggregate productivities in a given country, industry, and year. The size-productivity covariance is a common measure of (across-firm) resource-allocation efficiency. A greater size-productivity covariance indicates more efficient resource allocation (e.g., Olley & Pakes 1996; Bartelsman et al. 2013). The basic idea underlying this measure is that more productive firms should command more inputs and be more successful in output markets, resulting in a positive covariance between firm size and productivity. Panel A presents estimates using the distribution of the employees-based productivity measures, whereas Panel B presents estimates using the distribution of the wage-expense-based productivity measure.

Table 8 documents weak evidence that the scope of reporting regulation is positively associated with the size-productivity covariance. For wage-expense-based productivity measures (Panel B), the coefficient on the scope of reporting regulation is a significant 0.242 (standard error: 0.119) for the covariance of labor productivity and size and a significant 0.202 (standard error: 0.088) for the covariance of total factor productivity and size. By contrast, the scope of auditing regulation is not significantly associated with the size-productivity covariance in any of

Table 8: Financial-reporting regulation and size-productivity covariance

PANEL A: EMPLOYEES		
	(1)	(2)
	Covariance Y/L and Y	Covariance TFP and Y
Standardized Reporting Scope	0.063	0.118
	(0.133)	(0.097)
Standardized Auditing Scope	0.014	0.066
	(0.106)	(0.073)
Industry-Year FE (4-Digit)	X	X
Country-Year FE	X	X
Observations	177,451	172,978
Clusters (Country-Industry (1-Digit))	260	260
Clusters (Country-Year)	384	384
Adjusted R-Squared	0.421	0.379
PANEL B: WAGE		
	(1)	(2)
	Covariance Y/L and Y	Covariance TFP and Y
Standardized Reporting Scope	0.242**	0.202**
	(0.119)	(0.088)
Standardized Auditing Scope	0.085	0.122
	(0.111)	(0.080)
Industry-Year FE (4-Digit)	X	X
Country-Year FE	X	X
Observations	166,505	165,097
Clusters (Country-Industry (1-Digit))	240	240
Clusters (Country-Year)	354	354
Adjusted R-Squared	0.336	0.339

Notes: The table presents estimates from regressions of size-productivity covariance measures on standardized reporting and auditing scope. "Covariance Y/L and Y" is the difference between the market share weighted sum and the equally weighted average of labor revenue productivity calculated using employees (wage expense) in a given country, industry, and year in Panel A (B). "Covariance TFP and Y" is the difference between the market share weighted sum and the equally weighted average of total factor revenue productivity calculated using employees (wage expense) in a given country, industry, and year in Panel A (B). "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

the specifications. The estimates in Table 8 suggest that, if at all, reporting, but not auditing, regulation contributes to an improved (across-firm) resource allocation.[39]

6.5.3. Average and aggregate productivity

Table 9 presents estimates of regressions of average and aggregate productivity levels on the standardized scopes of reporting and auditing regulation. Panel A presents estimates using equally weighted productivities ("Average"), whereas Panel B presents estimates using market-share-weighted productivities ("Aggregate").

Table 9 documents only weak evidence that the scope of reporting regulation is positively associated with average productivity, and slightly stronger evidence that the scope of reporting regulation is positively associated with aggregate productivity. Consistent with the size-productivity covariance results, the significant associations are concentrated in the specifications using wage-expense rather than employees-based productivity measures (columns 2 and 4 in Panel B). The scope of auditing regulation is neither significantly associated with average nor aggregate productivity in any of the specifications.

The estimates in Table 9 suggest that, if at all, reporting, but not auditing, regulation appears to improve aggregate (revenue) productivity. Note, however, that the association between reporting regulation and average/aggregate revenue-productivity measures conflates the potentially distinct effects of reporting regulation on price and quantity-based productivity. My prior results suggest reporting regulation reduces market power and associated markups. This negative association with price attenuates any potentially positive association of the scope of reporting regulation with average/aggregate quantity-based productivity when measuring

[39] I caution that the size-productivity and aggregate productivity level results (see next subsection) are susceptible to important biases. For corresponding robustness tests, refer to section "Supplemental Results: Robustness to research-design choices" in the Online Appendix.

Table 9: Financial-reporting regulation and revenue productivity

PANEL A: AVERAGE				
	(1) Y/L (Employees)	(2) Y/L (Wage)	(3) TFP (Employees)	(4) TFP (Wage)
Standardized Reporting Scope	-0.001	0.123	0.103	0.174*
	(0.149)	(0.119)	(0.112)	(0.096)
Standardized Auditing Scope	-0.151	-0.126	-0.013	0.008
	(0.114)	(0.108)	(0.094)	(0.085)
Industry-Year FE (4-Digit)	X	X	X	X
Country-Year FE	X	X	X	X
Observations	193,245	180,585	190,059	179,505
Clusters (Country-Industry (1-Digit))	260	240	260	240
Clusters (Country-Year)	387	356	387	356
Adjusted R-Squared	0.860	0.615	0.801	0.598
PANEL B: AGGREGATE				
	(1) Y/L (Employees)	(2) Y/L (Wage)	(3) TFP (Employees)	(4) TFP (Wage)
Standardized Reporting Scope	0.076	0.393***	0.198	0.402***
	(0.142)	(0.143)	(0.123)	(0.128)
Standardized Auditing Scope	-0.143	-0.071	0.046	0.105
	(0.123)	(0.125)	(0.104)	(0.108)
Industry-Year FE (4-Digit)	X	X	X	X
Country-Year FE	X	X	X	X
Observations	193,232	180,572	190,031	179,473
Clusters (Country-Industry (1-Digit))	260	240	260	240
Clusters (Country-Year)	387	356	387	356
Adjusted R-Squared	0.757	0.603	0.703	0.562

Table 9 continued

Notes: The table presents estimates from regressions of productivity measures on standardized reporting and auditing scope. "Y/L (Employees)" is the equally (market share) weighted average (sum) of labor revenue productivity calculated using employees in a given country, industry, and year in Panel A (B). "Y/L (Wage)" is the equally (market share) weighted average (sum) of labor revenue productivity calculated using wage expense in a given country, industry, and year in Panel A (B). "TFP (Employees)" is the equally (market share) weighted average (sum) of total factor revenue productivity calculated using employees in a given country, industry, and year in Panel A (B). "TFP (Wage)" is the equally (market share) weighted average (sum) of total factor revenue productivity calculated using wage expense in a given country, industry, and year in Panel A (B). "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

productivity using revenues instead of physical output (Foster et al. 2008). Consistent with such downward bias, I find the relation between the scope of reporting regulation and revenue-based productivity measures turns negative when additionally accounting for intermediate inputs. As revenue-productivity measures that account for intermediate inputs in addition to labor and capital closely approximate profit margins/profitability measures, the price effect becomes more important and the association with the scope of reporting regulation becomes negative (consistent with my profit-margin results).

6.5.4. Productivity growth

Table 10 presents estimates of regressions of revenue-productivity growth on the standardized scopes of reporting and auditing regulation. Panel A presents estimates using equally weighted year-over-year productivity changes ("Average"), whereas Panel B presents estimates using year-over-year changes of market-share-weighted productivities ("Aggregate").

Table 10 documents some weak evidence that the scope of reporting regulation is negatively associated with average and (partially) aggregate productivity growth. By contrast, I

find no evidence that the scope of auditing regulation is associated with productivity growth. To corroborate that the (weak) negative association between the scope of reporting regulation and productivity growth is not merely due to biased measures of productivity growth (e.g., as a result of the various time-series issues of my data), I estimate regressions of aggregate revenue-productivity growth on the number of firms (and its squared term) as a measure of competition in a given country, industry, and year.

Aghion et al. (2005) argue that aggregate innovation and the associated aggregate productivity growth exhibit a concave relationship with respect to industry-level competition. Consistent with their argument, I find strong evidence of a concave relationship between aggregate productivity growth and competition measured by the number of firms (Table 11). This evidence allays concerns that the (weak) negative association between reporting regulation and productivity growth is merely due to mismeasurement of productivity growth.[40] Moreover, this evidence suggests competition induced through reporting regulation has a notably different association with productivity growth than firm-density-related competition.[41] A potential reason for the absence of a positive growth effect is that reporting regulation, by facilitating the dissipation of ex post proprietary information rents, stifles ex ante incentives to engage in productivity improvements (e.g., Arrow 1962; Bhattacharya & Chiesa 1995; Zingales 2009).

[40] This result further allays concerns that the nonexistent or negative effect of reporting regulation on the growth of aggregate revenue productivity is due to a negative effect of competition on price changes (in addition to price levels).

[41] The number of firms as a measure of competition is positively associated with entry, exit, the size-productivity covariance, and aggregate productivity, and negatively associated with market-share concentration, profit-margin dispersion, and revenue-productivity dispersion (Table A9 in the Appendix). Notably, these associations, unlike the growth results, align with the associations documented for reporting regulation, corroborating my inference that reporting regulation indeed fosters a competitive and dispersed type of resource allocation (but not productivity growth).

Table 10: Financial-reporting regulation and revenue-productivity growth

PANEL A: AVERAGE				
	(1) ΔY/L (Employees)	(2) ΔY/L (Wage)	(3) ΔTFP (Employees)	(4) ΔTFP (Wage)
Standardized Reporting Scope	-0.046**	-0.024	-0.037*	-0.016
	(0.022)	(0.019)	(0.019)	(0.018)
Standardized Auditing Scope	0.024	-0.004	0.022	0.008
	(0.018)	(0.015)	(0.017)	(0.014)
Industry-Year FE (4-Digit)	X	X	X	X
Country-Year FE	X	X	X	X
Observations	187,519	176,496	183,326	175,245
Clusters (Country-Industry (1-Digit))	260	240	260	240
Clusters (Country-Year)	387	354	387	354
Adjusted R-Squared	0.840	0.119	0.748	0.125
PANEL B: AGGREGATE				
	(1) ΔY/L (Employees)	(2) ΔY/L (Wage)	(3) ΔTFP (Employees)	(4) ΔTFP (Wage)
Standardized Reporting Scope	-0.066*	-0.029	-0.029	-0.010
	(0.036)	(0.034)	(0.028)	(0.025)
Standardized Auditing Scope	0.032	-0.003	-0.007	-0.015
	(0.030)	(0.025)	(0.026)	(0.022)
Industry-Year FE (4-Digit)	X	X	X	X
Country-Year FE	X	X	X	X
Observations	174,154	162,928	171,003	161,871
Clusters (Country-Industry (1-Digit))	260	240	260	240
Clusters (Country-Year)	387	354	387	354
Adjusted R-Squared	0.525	0.068	0.420	0.065

Table 10 continued

Notes: The table presents estimates from regressions of productivity growth measures on standardized reporting and auditing scope. "ΔY/L (Employees)" is the equally weighted average of labor revenue productivity growth calculated using employees in a given country, industry, and year in Panel A. "ΔY/L (Wage)" is the equally weighted average of labor revenue productivity calculated using wage expense in a given country, industry, and year in Panel A. "ΔTFP (Employees)" is the equally weighted average of total factor revenue productivity calculated using employees in a given country, industry, and year in Panel A. "ΔTFP (Wage)" is the equally weighted average of total factor revenue productivity calculated using wage expense in a given country, industry, and year in Panel A. The aggregate productivity growth measures in Panel B are calculated as the first difference in market share weighted productivities in a given country, industry, and year. "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table 11: Firm-density and aggregate revenue-productivity growth

	(1) ΔY/L (Employees)	(2) ΔY/L (Wage)	(3) ΔTFP (Employees)	(4) ΔTFP (Wage)
Number of firms	0.014***	0.010***	0.009***	0.007***
	(0.003)	(0.003)	(0.002)	(0.002)
Number of firms (squared)	-0.001***	-0.001***	-0.001***	-0.001***
	(0.000)	(0.000)	(0.000)	(0.000)
Industry-Year FE (4-Digit)	X	X	X	X
Country-Year FE	X	X	X	X
Observations	175,485	164,163	172,304	163,100
Clusters (Country-Industry (1-Digit))	260	240	260	240
Clusters (Country-Year)	387	354	387	354
Adjusted R-Squared	0.525	0.068	0.418	0.067

Notes: The table presents estimates from regressions of aggregate productivity growth measures on the number of firms and its squared term (as a measure of endogenous competition). "ΔY/L (Employees)" is the first difference in the market share weighted sum of labor revenue productivity calculated using employees in a given country, industry, and year. "ΔY/L (Wage)" is the first difference in the market share weighted sum of labor revenue productivity calculated using wage expense in a given country, industry, and year. "ΔTFP (Employees)" is the first difference in the market share weighted sum of total factor revenue productivity calculated using employees in a given country, industry, and year. "ΔTFP (Wage)" is the first difference in the market share weighted sum of total factor revenue productivity calculated using wage expense in a given country, industry, and year. "Number of firms" is the log number of firms in a given country, industry, and year. "Number of firms (squared)" is the squared log number of firms in a given country, industry, and year. The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

7. Robustness

My main findings are robust to a variety of different sample-composition and research-design choices (see section "Supplemental Results" in the Appendix). In supplemental tests, I specifically address three important concerns. The first concern relates to the interpretation of my estimates. Although I estimate separate effects of reporting and auditing regulation, reporting regulation may actually only matter in industries with corresponding auditing regulation. Similarly, auditing regulation may substantially contribute to the documented effects of (expanded) reporting regulation. To clarify the interpretation of my estimates, I examine how reporting and auditing regulation interact. I find similar effects of reporting regulation in industries with and without a corresponding auditing mandate. Likewise, I find similar effects of auditing regulation in industries with and without a corresponding (expanded) reporting mandate. Although these results do not conclusively rule out that auditing regulation may strengthen the effects of reporting regulation, they at least document that auditing regulation is not a necessary prerequisite for the effects of reporting regulation in my setting (e.g., due to alternative mechanisms ensuring regulatory compliance and credibility of firms' financial statements).[42] This finding supports the separate assessment and interpretation of the effects of reporting and auditing regulation in my main tests.

[42] Consistent with this finding, EEA members are required to ensure credible financial reporting through appropriate penalties if they allow auditing exemptions (European Commission 1996). Moreover, McLeay (1999) and Bernard (2016) argue that the credibility of firms' financial reporting is largely not contingent on financial-statement audits in my setting, due to the alignment of book and tax reporting and the corresponding enforcement of tax authorities (Beck et al. 2014). In a similar vein, firms' ability to distort their financial reports to the respective audience (e.g., banks, shareholders, competitors) is limited through the public disclosure to multiple audiences, reinforcing the credibility of firms' public financial reporting even absent an audit mandate (e.g., Farrell & Gibbons 1989; Newman & Sansing 1993). Supporting these arguments, respondents to the survey of Minnis and Shroff (2017) state that (expanded) reporting mandates rather than auditing mandates increase the benefits derived from competitors' financial reporting.

The remaining two concerns relate to potentially confounding other regulations and data limitations. In particular, my cross-sectional research design is susceptible to time-invariant country-industry-specific confounders such as other size-based regulations with similar thresholds (e.g., labor regulation). Moreover, my data are restricted to information publicly reported by limited liability firms. Thus, my results may reflect changes in the observability of firms (e.g., reporting regulation may affect the availability of firms' information and their legal form choice) rather than changes in real economic activity. To address these concerns, I turn to an alternative single-country setting in Germany. This setting allows me to account for time-invariant country-industry-specific confounders using a long-window (time-series) difference-in-differences design around a substantial enforcement reform. Additionally, this setting allows me to observe virtually all limited and unlimited liability firms irrespective of their reporting mandate through confidential Census data access. Consistent with my main results, I document increased entry and exit and reduced product-market concentration as a result of firms' mandatory reporting. These findings alleviate concerns about my cross-sectional research design and data.

8. Discussion

8.1. Evidence on reporting regulation

Collectively, my empirical evidence suggests reporting regulation shifts the way resources are allocated from a relational toward a more transactional type. This shift is consistent with reporting regulation reducing search costs, especially for relationship outsiders. As a result, reporting regulation fosters business dynamism (entry and exit), reduces market-share concentration, diminishes dispersions in profit margins and revenue productivities, and facilitates reallocation of resources to more productive firms (e.g., Stigler 1961; Jensen 2007; Allen 2014). Customers and suppliers, for example, can allocate their business toward low-cost/low-risk producers identified based on comparable public financial statement information among a potentially large pool of producers. Absent mandatory reporting, customers and suppliers instead tend to allocate their business toward a limited number of incumbent firms known as a result of previous business relationships or their reputation. Similarly, producers can use their competitors' public financial statements to benchmark their cost structure and spot profitable markets. Absent mandatory reporting, producers with valuable proprietary information on their cost structures, profitability, or investment opportunities tend to abstain from public reporting, hampering their competitors' learning (e.g., Verrecchia & Weber 2006; Bens et al. 2011; Li et al. 2017).

Interestingly, the shift from a relational toward a more transactional type of resource allocation, however, does not translate into economic growth. Primarily, the shift seems to reallocate (quasi-)rents from relationship insiders to outsiders (e.g., increasing customers' bargaining power) rather than enhance the growth of economic activity. A potential explanation for the "missing" growth effect may lie in the adverse effects of competitors' free-riding on

firms' incentives to discover profitable markets, products, or processes. More generally, the absence of a positive growth effect echoes earlier work on differences in investment horizons and innovative activity between market- and relationship-based systems (e.g., Dewatripont & Maskin 1995; Rajan & Zingales 1998b).

Overall, the mixed evidence on the effects of reporting regulation on the efficiency of resource allocation is consistent with reporting regulation primarily crowding out alternative information sources (e.g., private information) and contracting approaches (e.g., concentrated relationships) instead of unambiguously improving economic efficiency (e.g., Gonedes 1980; Leftwich 1980; Leuz & Wüstemann 2004; Kurlat & Veldkamp 2015; Goldstein & Yang 2017).[43] This finding is in line with Winston (2006) who argues that regulations addressing information frictions frequently fail to enhance economic efficiency, because market solutions already limit the adverse impact of information frictions on allocative efficiency. Interestingly, the impact of information regulations on allocative efficiency contrasts with the one of new information technologies. Advances in information technologies often enhance allocative efficiency (e.g., Brown & Goolsbee 2002; Jensen 2007; Dittmar 2011; Steinwender 2018). In contrast to information regulations, these advances tend to markedly reduce (total) information costs rather than merely reallocate the incidence of these costs (e.g., from outsiders to insiders).

8.2.Evidence on auditing regulation

My empirical evidence suggests mandatory auditing imposes fixed costs of operating on firms without providing substantial compensating externalities. Reduced entry rates, especially among smaller firms, and elevated minimum levels of productivity required for firms to operate

[43] For example, reporting regulation can reduce banks' incentives to acquire private information through monitoring (e.g., Breuer et al. 2017b) and firms' incentives to discover proprietary information through innovative activities (e.g., Arrow 1962; Bhattacharya & Ritter 1983; Bhattacharya & Chiesa 1995).

in a given industry are indicative of mandatory auditing imposing a fixed cost (e.g., Syverson 2004). I do not find any other impact of mandatory auditing on industry-wide resource allocation. Notably, the absence of significant other effects does not mean auditing has no value. Prior work clearly documents firms frequently obtain voluntary audits because they expect to benefit from external third-party verification (e.g., Watts & Zimmerman 1983; Buijink 2006; Jamal & Sunder 2008; Lennox & Pittman 2011; Minnis 2011; Minnis & Shroff 2017; Vanstraelen & Schelleman 2017). In supplemental tests, I also find voluntary auditing is strongly positively associated with external financing and growth at the industry level.[44] Therefore, my evidence suggests uniform auditing mandates do not improve over and above firms' voluntary audit choice in my setting.[45]

8.3.Institutional and research-design influences

A number of institutional and research-design features contribute to the specific findings of my paper. These features are to be considered in interpreting and generalizing my findings. First, my paper focuses on reporting and auditing regulation pertaining to private firms. Public firms' reporting and auditing requirements are not affected by the exemption thresholds. Accordingly, my evidence first and foremost speaks to the effects of reporting and auditing mandates for private firms on industry-wide outcomes (comprising private and public firms' outcomes).

[44] In contrast to mandatory auditing, I find that the share of firms with voluntary audits is positively associated with competition (e.g., the number of firms and dispersed product-market share), external financing (e.g., the share of public firms and the number of shareholders), and resource-allocation efficiency (e.g., aggregate productivity growth) in an industry. Although these associations between voluntary auditing and resource-allocation outcomes are clearly not causal, they are consistent with auditing being an efficient private contracting institution demanded in growing industries and supporting resource-allocation efficiency (e.g., Watts & Zimmerman 1983; Hope et al. 2011; Minnis 2011). For a summary of the voluntary auditing results, refer to Table A16 in the Appendix.

[45] Regulators may impose auditing regulation for reasons other than improved industry-wide resource-allocation efficiency (e.g., to prevent money laundering or outsource tax enforcement; European Commission 1996). Hence, the absence of positive industry-wide resource-allocation effects of auditing regulation does not necessarily imply that auditing mandates are superfluous.

Second, the EU regulation typically requires firms to prepare a full set of financial statements and provide it to their shareholders, irrespective of any public reporting exemptions. As a result, the effects of reporting regulation in this paper neglect any costs and benefits of mandating firms to internally produce financial statements (e.g., Cheng et al. 2013b) and to disclose these statements to their existing shareholders (e.g., Greenstone et al. 2006).[46]

Third, institutional and research-design features of my study favor the detection of competitive effects of financial-reporting regulation over the detection of information-externality effects. In my setting, the largest private firms are subject to full reporting requirements in all sample countries. Accordingly, the marginal firms affected by the cross-country differences in exemption thresholds are small and mid-sized firms (around 8 million Euros in sales and less). These firms may not be expected to provide substantial positive information externalities.

In my research design, I further use the equally- rather than output-weighted share of regulated firms as my measure of regulatory scope. This scope measure emphasizes the more plentiful variation among small and mid-sized firms. Similarly, I use equally- rather than output-weighted country-industry-year observations in my (OLS) regressions. This approach emphasizes smaller country-industries comprised of few firms and dominated by mid-sized firms.[47] Competition in these country-industries can be expected to be more strongly affected by

[46] Unlike information externalities, (manager-shareholder) agency conflicts do not constitute an obvious argument for reporting regulation if the ultimate goal is allocative efficiency. Mandating firms' reporting to alleviate (manager-shareholder) agency conflicts would only improve market-wide allocative efficiency if shareholders cannot privately contract and enforce the desired level of reporting and other firms cannot fully exploit investment opportunities foregone due to some firms' agency conflicts (e.g., Beyer et al. 2010; Leuz 2010). Besides this conceptual point, the empirical importance of the manager-shareholder channel can be expected to be limited in my setting, because most private firms exhibit little separation between ownership and control.

[47] A benefit of this approach is that small and mid-sized (private) firms tend to operate in a single industry and country. For these firms, (four-digit) country-industries plausibly capture the relevant output market. In line with this argument, I find (in untabulated results) that a broadening of the market definition (e.g., using two or three digit industries) does not alter my inferences. Accordingly, my main specification does not appear to neglect significant competitive or informational spillovers by focusing on narrow country-industries.

the variation in reporting requirements for small and mid-sized firms than competition in country-industries comprised of many large firms.

Besides these institutional and research-design features, however, there are also important economic arguments why one would expect reporting mandates to primarily yield competitive rather than information-externality effects. Uniform reporting mandates mainly increase the reporting of two types of firms: firms with low benefits of public reporting (e.g., small firms with few stakeholders; Breuer et al. 2017a) and firms with high cost of public reporting (e.g., high proprietary-information cost firms; Verrecchia 1983). Increasing these firms' reporting is likely to foster competition, but less likely to generate substantial information externalities.

8.4.Policy implications

With the caveats about institutional and research-design particularities in mind, my findings at least suggest a number of policy implications. They appear to broadly support recent efforts of the EU commission to deregulate smaller ("micro") firms' financial reporting through Directive 2013/34/EU. Following this Directive, EU member states are supposed to exempt the smallest 60–65 percent of limited liability firms from all but minimal record-keeping requirements. In total, these exemptions are expected to reduce the regulatory burden on firms by several billion Euros (European Commission 2011).

With respect to the regulation of financial reporting in the United States, my findings suggest an extension of reporting mandates to larger private firms could foster business dynamism and competition. Given recent trends of slowing dynamism and increasing market-share concentration among U.S. firms (e.g., Haltiwanger 2014; Barkai 2017; De Loecker & Eeckhout 2017; Grullon et al. 2017), this outcome may be desirable (e.g., Decker et al. 2014).

My paper, however, also suggests such extended reporting regulation is unlikely to yield the ultimately desired outcome of dynamism and competition: economic growth.

Lastly, my findings suggest a role of financial-reporting regulation in explaining and addressing the "missing" IPOs in the United States (e.g., Gao et al. 2013; De Fontenay 2017; Doidge et al. 2017). Several studies find expanded regulation of public firms' financial reporting has increased the burden of a public listing (e.g., Engel et al. 2007; Leuz et al. 2008), contributing to the recent drought in IPOs. Although this evidence is often used to argue for a reduction of public firms' financial-reporting burden (e.g., IPO Task Force Report 2011; Keating 2012; Chaplinsky et al. 2017; Gustafson & Iliev 2017), my evidence suggests IPOs can also be fostered by increasing private firms' financial-reporting burden. Making private firms' financial-reporting regulation more similar to the one for public firms reduces the relative competitive disadvantage of a public listing, increasing the attractiveness of IPOs.[48]

[48] At the 2017 SEC-NYU Dialogue on Securities Market Regulation on "Reviving the U.S. IPO Market," Roni Michaely, for example, suggested introducing financial-reporting requirements for U.S. private firms to reduce the regulatory gap between private and public firms and, thereby, increase the attractiveness of IPOs (Conference website: https://www.sec.gov/dera/announcement/deraevent-051017reviving-us-ipo-market-0.)

9. Conclusion

In this paper, I investigate the industry-wide effects of reporting and auditing regulation on resource allocation. I exploit the fact that European countries prescribe size-based financial-reporting regulations, exempting smaller firms from reporting and auditing requirements. The size-based exemptions generate useful within-country variation in the scopes of reporting and auditing regulation as a result of natural firm-size differences across industries, allowing me to estimate the industry-wide effects of reporting regulation and auditing regulation for almost the entire population of limited liability firms in a large sample of countries, controlling for confounding country- and industry-level factors.

I find reporting regulation fosters a competitive and dispersed type of resource allocation in product and capital markets, but does not unambiguously improve the efficiency of industry-wide resource allocation. With respect to auditing regulation, I find it imposes a net fixed cost of operating on firms, deterring entry of smaller firms. I do not find any other effects of auditing regulation on industry-wide resource allocation in my setting. My findings suggest reporting regulation substitutes a transactional type of resource allocation based on public information for a relational one based on private information. This substitution, however, fails to spur economic growth. With respect to firms' auditing, my findings suggest it lacks significant industry-wide externalities compensating for firms' costs of mandatory auditing.

My findings provide a potential explanation for the survival of remarkable differences in regulatory approaches to financial reporting around the world (e.g., ICAEW 2016; Minnis & Shroff 2017): greater scopes of financial-reporting regulation neither clearly improve nor deteriorate the efficiency of market-wide resource allocation. Thus, the scopes of financial-reporting regulation tend to be chosen to fit a country's other institutions and interest group

preferences (e.g., Rajan & Zingales 1998b; Leuz & Wüstemann 2004; Leuz 2010), sustaining the observed variety of regulatory approaches around the world.

My paper's findings are subject to several caveats. Notably, my paper cannot directly speak to country-level effects of reporting and auditing regulation. My research design explicitly purges my estimation of any country-level effects due to concerns about correlated omitted variables, strengthening my identification but also preventing me from learning about country-level effects. Moreover, my paper does not speak to the optimal scope of reporting and auditing regulation, and, in particular, does not suggest more financial-reporting regulation is "always" better (e.g., Ball & Foster 1982). Rather, my paper supports the existence of a trade-off between ex post informational efficiency/competitiveness of markets and ex ante investment incentives (e.g., Kanodia & Sapra 2016). I leave the investigation of country-level effects and the optimal scope of financial-reporting regulation to future research.

References

Acemoglu, D., Johnson, S., 2005. Unbundling Institutions. Journal of Political Economy 113, 949-995

Admati, A.R., Pfleiderer, P., 2000. Forcing Firms to Talk: Financial Disclosure Regulation and Externalities. Review of Financial Studies 13, 479-519

Aghion, P., Bloom, N., Blundell, R., Griffith, R., Howitt, P., 2005. Competition and Innovation: An Inverted-U Relationship. Quarterly Journal of Economics 120, 701-728

Aghion, P., Howitt, P., 1992. A Model of Growth Through Creative Destruction. Econometrica 60, 323-351

Akerlof, G.A., 1970. The Market for "Lemons": Quality Uncertainty and the Market Mechanism. Quarterly Journal of Economics 84, 488-500

Allen, T., 2014. Information Frictions in Trade. Econometrica 82, 2041-2083

Arrow, K., 1962. Economic Welfare and the Allocation of Resources for Invention. In: The Rate and Direction of Inventive Activity: Economic and Social Factors. National Bureau of Economic Research, pp. 609-626.

Asker, J., Collard-Wexler, A., De Loecker, J., 2014. Dynamic Inputs and Resource (Mis)allocation. Journal of Political Economy 122, 1013-1063

Axtell, R.L., 2001. Zipf Distribution of U.S. Firm Sizes. Science 293, 1818-1820

Badertscher, B., Shroff, N., White, H.D., 2013. Externalities of public firm presence: Evidence from private firms' investment decisions. Journal of Financial Economics 109, 682-706

Baginski, S.P., Hinson, L.A., 2016. Cost of Capital Free-Riders. Accounting Review 91, 1291-1313

Ball, R., 1980. Discussion of Accounting for Research and Development Costs: The Impact on Research and Development Expenditures. Journal of Accounting Research 18, 27-37

Ball, R., Foster, G., 1982. Corporate Financial Reporting: A Methodological Review of Empirical Research. Journal of Accounting Research 20, 161-234

Balsmeier, B., Doherr, T., Vanhaverbeke, S., 2017. Mandatory Financial Statement Disclosure and Credit Ratings. Working paper

Barkai, S., 2017. Declining Labor and Capital Shares. Working paper

Bartelsman, E., Haltiwanger, J., Scarpetta, S., 2013. Cross-Country Differences in Productivity: The Role of Allocation and Selection. American Economic Review 103, 305-334

Basu, S., Pascali, L., Schiantarelli, F., Serven, L., 2010. Productivity, Welfare and Reallocation: Theory and Firm-Level Evidence. Working paper; Available at SSRN: www.ssrn.com/abstract_id=1565987

Becht, M., Mayer, C., Wagner, H.F., 2008. Where do firms incorporate? Deregulation and the cost of entry. Journal of Corporate Finance 14, 241-256

Beck, T., Lin, C., Ma, Y., 2014. Why Do Firms Evade Taxes? The Role of Information Sharing and Financial Sector Outreach. Journal of Finance 69, 763-817

Bens, D.A., Berger, P.G., Monahan, S.J., 2011. Discretionary Disclosure in Financial Reporting: An Examination Comparing Internal Firm Data to Externally Reported Segment Data. Accounting Review 86, 417-449

Benston, G.J., 1973. Required Disclosure and the Stock Market: An Evaluation of the Securities Exchange Act of 1934. American Economic Review 63, 132-155

Berger, P.G., 2011. Challenges and opportunities in disclosure research—A discussion of 'the financial reporting environment: Review of the recent literature'. Journal of Accounting and Economics 51, 204-218

Berger, P.G., Hann, R.N., 2007. Segment Profitability and the Proprietary and Agency Costs of Disclosure. Accounting Review 82, 869-906

Bergner, S.M., Heckemeyer, J.H., 2016. Simplified Tax Accounting and the Choice of Legal Form. European Accounting Review, 1-21

Bernard, D., 2016. Is the risk of product market predation a cost of disclosure? Journal of Accounting and Economics 62, 305-325

Bernard, D., Burgstahler, D., Kaya, D., 2018. Size Management by European Private Firms to Avoid Audit and Disclosure Costs. Journal of Accounting and Economics Forthcoming

Beyer, A., Cohen, D.A., Lys, T.Z., Walther, B.R., 2010. The financial reporting environment: Review of the recent literature. Journal of Accounting and Economics 50, 296-343

Bhattacharya, S., Chiesa, G., 1995. Proprietary Information, Financial Intermediation, and Research Incentives. Journal of Financial Intermediation 4, 328-357

Bhattacharya, S., Ritter, J.R., 1983. Innovation and Communication: Signalling with Partial Disclosure. Review of Economic Studies 50, 331-346

Bird, A., Karolyi, S.A., Ruchti, T.G., 2017. Regulating Information. Working paper; Available at SSRN: www.ssrn.com/abstract_id=2901650

Blechinger, D., 2009. Die neue Rechtsform der Unternehmergesellschaft (haftungsbeschränkt): Eine erste Zwischenbilanz [The new legal form of UG: A first evaluation]. Statistische Analysen und Studien NRW 62

Bloom, N., 2009. The Impact of Uncertainty Shocks. Econometrica 77, 623-685

Bloom, N., Bond, S., Van Reenen, J., 2007. Uncertainty and Investment Dynamics. Review of Economic Studies 74, 391-415

Bloom, N., Eifert, B., Mahajan, A., McKenzie, D., Roberts, J., 2013. Does Management Matter? Evidence from India. Quarterly Journal of Economics 128, 1-51

Boone, J., 2008. A New Way to Measure Competition. Economic Journal 118, 1245-1261

Braun, R., Eidenmüller, H., Engert, A., Hornuf, L., 2011. Does Charter Competition Foster Entrepreneurship? A Difference-in-Difference Approach to European Company Law Reforms. Working paper; Available at SSRN: www.ssrn.com/abstract_id=1990189

Braun, R., Eidenmüller, H., Engert, A., Hornuf, L., 2013. Does Charter Competition Foster Entrepreneurship? A Difference-in-Difference Approach to European Company Law Reforms. Journal of Common Market Studies 51, 399-415

Breuer, M., Hombach, K., Müller, M.A., 2017a. The Economics of Firms' Public Disclosure: Theory and Evidence. Working paper; Available at SSRN: www.ssrn.com/abstract_id=3037002

Breuer, M., Hombach, K., Müller, M.A., 2017b. How does financial reporting regulation affect firms' banking? Review of Financial Studies 31, 1265-1297

Breuer, M., Hombach, K., Müller, M.A., 2018. When you talk, I remain silent: Spillover effects of peers' mandatory disclosures on firms' voluntary disclosures. Working paper; Available at SSRN: www.ssrn.com/abstract_id=2820209

Brown, J.R., Goolsbee, A., 2002. Does the Internet Make Markets More Competitive? Evidence from the Life Insurance Industry. Journal of Political Economy 110, 481-507

Brüggemann, U., Hitz, J.-M., Sellhorn, T., 2013. Intended and Unintended Consequences of Mandatory IFRS Adoption: A Review of Extant Evidence and Suggestions for Future Research. European Accounting Review 22, 1-37

Buijink, W., 2006. Evidence-based financial reporting regulation. Abacus 42, 296-301

Bushee, B.J., Leuz, C., 2005. Economic consequences of SEC disclosure regulation: evidence from the OTC bulletin board. Journal of Accounting and Economics 39, 233-264

Bushman, R.M., Smith, A.J., 2001. Financial accounting information and corporate governance. Journal of Accounting and Economics 32, 237-333

Carpenter, C., Dobkin, C., 2011. The Minimum Legal Drinking Age and Public Health. Journal of Economic Perspectives 25, 133-156

Chaplinsky, S., Hanley, K.W., Moon, S.K., 2017. The JOBS Act and the Costs of Going Public. Journal of Accounting Research 55, 795-836

Chen, S., Miao, B.I.N., Shevlin, T., 2015. A New Measure of Disclosure Quality: The Level of Disaggregation of Accounting Data in Annual Reports. Journal of Accounting Research 53, 1017-1054

Cheng, L., Liao, S., Zhang, H., 2013a. The Commitment Effect versus Information Effect of Disclosure—Evidence from Smaller Reporting Companies. Accounting Review 88, 1239-1263

Cheng, M., Dhaliwal, D., Zhang, Y., 2013b. Does investment efficiency improve after the disclosure of material weaknesses in internal control over financial reporting? Journal of Accounting and Economics 56, 1-18

Choi, J.H., 2017. Accrual Accounting and Resource Allocation: A General Equilibrium Analysis. Working paper

Christensen, H.B., Hail, L., Leuz, C., 2013. Mandatory IFRS reporting and changes in enforcement. Journal of Accounting and Economics 56, 147-177

Christensen, H.B., Hail, L., Leuz, C., 2016. Capital-Market Effects of Securities Regulation: Prior Conditions, Implementation, and Enforcement. Review of Financial Studies 29, 2885-2924

Cna Interpreta, 2011. Study on Accounting requirements for SMEs. Directorate-General for Enterprise and Industry

Coase, R.H., 1960. The Problem of Social Cost. Journal of Law and Economics 3, 1-44

Cochrane, J.H., 2012. A Brief Parable of Over-Differencing. Research note; Available online: https://faculty.chicagobooth.edu/john.cochrane/research/papers/overdifferencing.pdf

Coffee, J.C., 1984. Market Failure and the Economic Case for a Mandatory Disclosure System. Virginia Law Review 70, 717-753

Crépon, B., Duflo, E., Gurgand, M., Rathelot, R., Zamora, P., 2013. Do Labor Market Policies have Displacement Effects? Evidence from a Clustered Randomized Experiment. Quarterly Journal of Economics 128, 531-580

Currie, J., Gruber, J., 1996. Saving Babies: The Efficacy and Cost of Recent Changes in the Medicaid Eligibility of Pregnant Women. Journal of Political Economy 104, 1263

Darrough, M.N., Stoughton, N.M., 1990. Financial Disclosure Policy in an Entry Game. Journal of Accounting and Economics 12, 219-243

De Fontenay, E., 2017. The Deregulation of Private Capital and the Decline of the Public Company. Hastings Law Journal 68, 445-502

De Loecker, J., Eeckhout, J., 2017. The Rise of Market Power and the Macroeconomic Implications. Working paper; Available online: http://www.janeeckhout.com/wp-content/uploads/RMP.pdf

Decker, R., Haltiwanger, J., Jarmin, R., Miranda, J., 2014. The Role of Entrepreneurship in US Job Creation and Economic Dynamism. Journal of Economic Perspectives 28, 3-24

Dedman, E., Kausar, A., Lennox, C., 2014. The Demand for Audit in Private Firms: Recent Large-Sample Evidence from the UK. European Accounting Review 23, 1-23

Dedman, E., Kim, J., 2017. The hidden costs of audit exemption. Working paper

DeFond, M., Lennox, C., Zhang, J., 2016. Some Controversies in the Auditing Literature. Working paper

DeFond, M., Zhang, J., 2014. A review of archival auditing research. Journal of Accounting and Economics 58, 275-326

Demsetz, H., 1969. Information and Efficiency: Another Viewpoint. Journal of Law and Economics 12, 1-22

Dewatripont, M., Maskin, E., 1995. Credit and Efficiency in Centralized and Decentralized Economies. Review of Economic Studies, 541

Diamond, D.W., 1985. Optimal Release of Information by Firms. Journal of Finance 40, 1071-1094

Dittmar, J.E., 2011. Information Technology and Economic Change: The Impact of The Printing Press. Quarterly Journal of Economics 126, 1133-1172

Dixit, A.K., Pindyck, R.S., 1994. Investment under uncertainty. Princeton, N.J. : Princeton University Press.

Djankov, S., Hart, O., McLiesh, C., Shleifer, A., 2008. Debt Enforcement around the World. Journal of Political Economy 116, 1105-1149

Djankov, S., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2002. The Regulation of Entry. Quarterly Journal of Economics 117, 1-37

Dobbins, L., Jacob, M., 2016. Do corporate tax cuts increase investments? Accounting and Business Research 46, 731-759

Doidge, C., Karolyi, G.A., Stulz, R.M., 2017. The U.S. listing gap. Journal of Financial Economics 123, 464-487

Donovan, J., Frankel, R., Lee, J., Martin, X., Seo, H., 2014. Issues raised by studying DeFond and Zhang: What should audit researchers do? Journal of Accounting and Economics 58, 327-338

Drake, M.S., Roulstone, D.T., Thornock, J.R., 2016. The usefulness of historical accounting reports. Journal of Accounting and Economics 61, 448-464

Dustmann, C., Fitzenberger, B., Schönberg, U., Spitz-Oener, A., 2014. From Sick Man of Europe to Economic Superstar: Germany's Resurgent Economy. Journal of Economic Perspectives 28, 167-188

Dye, R.A., 1990. Mandatory versus Voluntary Disclosures: The Cases of Financial and Real Externalities. Accounting Review 65, 1-24

Easterbrook, F.H., Fischel, D.R., 1984. Mandatory Disclosure and the Protection of Investors. Virginia Law Review 70, 669-715

Engel, E., Hayes, R.M., Wang, X., 2007. The Sarbanes–Oxley Act and firms' going-private decisions. Journal of Accounting and Economics 44, 116-145

European Commission, 1996. The Role, Position, and Liability of the Statutory Auditor within the European Union. Available online: http://europa.eu/documents/comm/green_papers/pdf/com96_338_en.pdf

European Commission, 2008. "Think Small First" - A "Small Business Act" for Europe. Available online: http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52008DC0394

European Commission, 2011. Financial Reporting: burden reduction for micro-entities – Frequently Asked Questions. Press release available under: http://europa.eu/rapid/press-release_MEMO-11-911_en.htm?locale=en, accessed 29 February 2016

Farrell, J., Gibbons, R., 1989. Cheap Talk with Two Audiences. American Economic Review 79, 1214-1223

Fazio, G., Modica, M., 2015. Pareto or Log-Normal? Best Fit and Truncation in the Distribution of All Cities. Journal of Regional Science 55, 736-756

Foster, G., 1981. Intra-industry information transfers associated with earnings releases. Journal of Accounting and Economics 3, 201-232

Foster, L., Haltiwanger, J., Syverson, C., 2008. Reallocation, Firm Turnover, and Efficiency: Selection on Productivity or Profitability? American Economic Review 98, 394-425

Fox, M.B., 1999. Retaining Mandatory Securities Disclosure: Why Issuer Choice Is Not Investor Empowerment. Virginia Law Review 85, 1335-1419

Francis, J.R., Huang, S., Khurana, I.K., Pereira, R., 2009. Does Corporate Transparency Contribute to Efficient Resource Allocation? Journal of Accounting Research 47, 943-989

Fuchs, W., Green, B., Papanikolaou, D., 2016. Adverse selection, slow-moving capital, and misallocation. Journal of Financial Economics 120, 286-308

Gao, F., Wu, J.S., Zimmerman, J., 2009. Unintended Consequences of Granting Small Firms Exemptions from Securities Regulation: Evidence from the Sarbanes-Oxley Act. Journal of Accounting Research 47, 459-506

Gao, X., Ritter, J.R., Zhu, Z., 2013. Where Have All the IPOs Gone? Journal of Financial and Quantitative Analysis 48, 1663-1692

Garicano, L., Lelarge, C., Van Reenen, J., 2016. Firm Size Distortions and the Productivity Distribution: Evidence from France. American Economic Review 106, 3439-3479

Glaeser, E.L., La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2004. Do Institutions Cause Growth? Journal of Economic Growth 9, 271-303

Goldstein, I., Yang, L., 2017. Information Disclosure in Financial Markets. Annual Review of Financial Economics 9, 101-125

Gonedes, N.J., 1980. Public Disclosure Rules, Private Information-Production Decisions, and Capital Market Equilibrium. Journal of Accounting Research 18, 441-476

Greenstone, M., Oyer, P., Vissing-Jorgensen, A., 2006. Mandated Disclosure, Stock Returns, and the 1964 Securities Acts Amendments. Quarterly Journal of Economics 121, 399-460

Greenwood, J., Jovanovic, B., 1990. Financial Development, Growth, and the Distribution of Income. Journal of Political Economy 98, 1076-1107

Grullon, G., Larkin, Y., Michaely, R., 2017. Are US Industries Becoming More Concentrated? Working paper; Available at SSRN: www.ssrn.com/abstract_id=2612047

Gustafson, M.T., Iliev, P., 2017. The effects of removing barriers to equity issuance. Journal of Financial Economics 124, 580-598

Hail, L., Muhn, M.N., Oesch, D., 2017a. Do Risk Disclosures Matter When It Counts? Evidence from the Swiss Franc Shock. Working paper; Available at SSRN: www.ssrn.com/abstract_id=2939935

Hail, L., Tahoun, A., Wang, C., 2017b. Corporate Scandals and Regulation. Journal of Accounting Research 56, 617-671

Haltiwanger, J., 2014. Top Ten Signs of Declining Business Dynamism and Entrepreneurship in the U.S. Working paper

Haltiwanger, J., Kulick, R., Syverson, C., 2017. Misallocation Measures: The Distortion That Ate the Residual. Working paper; Available at SSRN: www.ssrn.com/abstract_id=3102017

Haltiwanger, J., Scarpetta, S., Schweiger, H., 2014. Cross-country differences in job reallocation: The role of industry, firm size and regulations. Labour Economics 26, 11-25

Healy, P.M., Palepu, K.G., 2001. Information asymmetry, corporate disclosure, and the capital markets: A review of the empirical disclosure literature. Journal of Accounting and Economics 31, 405-440

Hertzberg, A., Liberti, J.M., Paravisini, D., 2011. Public Information and Coordination: Evidence from a Credit Registry Expansion. Journal of Finance 66, 379-412

Hope, O.-K., Thomas, W., Vyas, D., 2011. Financial Credibility, Ownership, and Financing Constraints in Private Firms. Journal of International Business Studies 42, 935-957

Hope, O.-K., Thomas, W.B., 2008. Managerial Empire Building and Firm Disclosure. Journal of Accounting Research 46, 591-626

Hopenhayn, H., Rogerson, R., 1993. Job Turnover and Policy Evaluation: A General Equilibrium Analysis. Journal of Political Economy 101, 915-938

Hopenhayn, H.A., 2014. Firms, Misallocation, and Aggregate Productivity: A Review. In: Arrow KJ & Bresnahan TF (eds.) Annual Review of Economics, Vol 6. Annual Reviews, Palo Alto, pp. 735-770.

Hsieh, C.T., Klenow, P.J., 2009. Misallocation and manufacturing TFP in China and India. Quarterly Journal of Economics 124, 1403-1448

ICAEW, 2016. SME accounting requirements: basing policy on evidence. Public policy paper

Iliev, P., 2010. The Effect of SOX Section 404: Costs, Earnings Quality, and Stock Prices. Journal of Finance 65, 1163-1196

IPO Task Force Report, 2011. Rebuilding the IPO On-Ramp, Putting Emerging Companies and the Job Market Back on the Road to Growth. White paper; Available online: https://www.sec.gov/info/smallbus/acsec/rebuilding_the_ipo_on-ramp.pdf

Jamal, K., Sunder, S., 2008. Are Regulatory Mandate and Independence Necessary For Audit Quality? Working paper; Available at SSRN: www.ssrn.com/abstract_id=1331550

Jensen, R., 2007. The Digital Provide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector. Quarterly Journal of Economics 122, 879-924

Kalemli-Ozcan, S., Sorensen, B., Villegas-Sanchez, C., Volosovych, V., 2015. How to Construct Nationally Representative Firm Level Data from the ORBIS Global Database. Working paper; Available at SSRN: www.ssrn.com/abstract_id=2660017

Kalemli-Ozcan, S., Sørensen, B.E., 2016. Misallocation, Property Rights, and Access to Finance: Evidence from within and across Africa. University of Chicago Press.

Kanodia, C., Sapra, H., 2016. A Real Effects Perspective to Accounting Measurement and Disclosure: Implications and Insights for Future Research. Journal of Accounting Research 54, 623-676

Kausar, A., Shroff, N., White, H., 2016. Real effects of the audit choice. Journal of Accounting and Economics 62, 157-181

Keating, T., 2012. The Jobs Act: Shifting into Gear and Accelerating Up the IPO On-Ramp. White paper; Available online: http://www.otcmarkets.com/content/doc/jobsact/keatingWhitepaper.pdf

Khan, U., Li, B., Rajgopal, S., Venkatachalam, M., 2017. Do the FASB's Standards Add Shareholder Value? Accounting Review 93, 209-247

Klapper, L., Laeven, L., Rajan, R., 2006. Entry regulation as a barrier to entrepreneurship. Journal of Financial Economics 82, 591-629

Knechel, R.W., 2013. Do Auditing Standards Matter? Current Issues in Auditing 7, A1-A16

Kothari, S.P., Ramanna, K., Skinner, D.J., 2010. Implications for GAAP from an analysis of positive research in accounting. Journal of Accounting and Economics 50, 246-286

Kurlat, P., Veldkamp, L., 2015. Should we regulate financial information? Journal of Economic Theory 158, Part B, 697-720

La Porta, R., Lopez-De-Silanes, F., Shleifer, A., 2006. What Works in Securities Laws? Journal of Finance 61, 1-32

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., 2008. The Economic Consequences of Legal Origins. Journal of Economic Literature 46, 285-332

Leftwich, R., 1980. Market failure fallacies and accounting information. Journal of Accounting and Economics 2, 193-211

Leibenstein, H., 1966. Allocative Efficiency vs. "X-Efficiency". American Economic Review 56, 392-415

Lennox, C.S., Pittman, J.A., 2011. Voluntary Audits versus Mandatory Audits. Accounting Review 86, 1655-1678

Leuz, C., 2007. Was the Sarbanes–Oxley Act of 2002 really this costly? A discussion of evidence from event returns and going-private decisions. Journal of Accounting and Economics 44, 146-165

Leuz, C., 2010. Different approaches to corporate reporting regulation: how jurisdictions differ and why. Accounting and Business Research 40, 229-256

Leuz, C., Triantis, A., Wang, T.Y., 2008. Why do firms go dark? Causes and economic consequences of voluntary SEC deregistrations. Journal of Accounting and Economics 45, 181-208

Leuz, C., Verrecchia, R.E., 2000. The Economic Consequences of Increased Disclosure. Journal of Accounting Research 38, 91-124

Leuz, C., Wüstemann, J., 2004. The Role of Accounting in the German Financial System. In: Krahnen JP & Schmidt RH (eds.) The German Financial System. Oxford University Press, Oxford, pp. 450-481.

Leuz, C., Wysocki, P.D., 2008. Economic Consequences of Financial Reporting and Disclosure Regulation: A Review and Suggestions for Future Research. Working paper; Available at SSRN: www.ssrn.com/abstract_id=1105398

Leuz, C., Wysocki, P.D., 2016. The Economics of Disclosure and Financial Reporting Regulation: Evidence and Suggestions for Future Research. Journal of Accounting Research 54, 525

Li, Y., Lin, Y., Zhang, L., 2017. Trade Secrets Law and Corporate Disclosure: Causal Evidence on the Proprietary Cost Hypothesis. Journal of Accounting Research 56, 265-308

Loayza, N., Serven, L., 2010. Business regulation and economic performance. Washington, DC : World Bank.

Mahoney, N., 2015. Bankruptcy as Implicit Health Insurance. American Economic Review 105, 710-746

McLeay, S., 1999. Accounting Regulation in Europe. In: McLeay S (ed.) Accounting Regulation in Europe. Palgrave Macmillan UK, London, pp. 366-386.

Melitz, M.J., Ottaviano, G.I.P., 2008. Market Size, Trade, and Productivity. Review of Economic Studies 75, 295-316

Messina, J., Vallanti, G., 2007. Job Flow Dynamics and Firing Restrictions: Evidence from Europe. Economic Journal 117, F279-F301

Midrigan, V., Xu, D.Y., 2014. Finance and Misallocation: Evidence from Plant-Level Data. American Economic Review 104, 422-58

Minnis, M., 2011. The Value of Financial Statement Verification in Debt Financing: Evidence from Private U.S. Firms. Journal of Accounting Research 49, 457-506

Minnis, M., Shroff, N., 2017. Why Regulate Private Firm Disclosure and Auditing? Accounting and Business Research 47, 473-502

Morris, S., Shin, H.S., 2002. Social Value of Public Information. American Economic Review 92, 1521-1534

Newman, P., Sansing, R., 1993. Disclosure Policies with Multiple Users. Journal of Accounting Research 31, 92-112

Nicoletti, G., Scarpetta, S., 2005. Regulation and Economic Performance : Product Market Reforms and Productivity in the OECD. OECD Economics Department Working Papers

Olley, G.S., Pakes, A., 1996. The Dynamics of Productivity in the Telecommunications Equipment Industry. Econometrica 64, 1263-1297

Porter, M.E., van der Linde, C., 1995. Toward a New Conception of the Environment-Competitiveness Relationship. Journal of Economic Perspectives 9, 97-118

Rajan, R.G., Zingales, L., 1998a. Financial Dependence and Growth. American Economic Review 88, 559-586

Rajan, R.G., Zingales, L., 1998b. Which Capitalism? Lessons from the East Asian Crisis. Journal of Applied Corporate Finance 11, 40-48

Rajan, R.G., Zingales, L., 2003a. The great reversals: the politics of financial development in the twentieth century. Journal of Financial Economics 69, 5-50

Rajan, R.G., Zingales, L., 2003b. Saving capitalism from the capitalists: unleashing the power of financial markets to create wealth and spread opportunity. New York: Crown Business, 1st ed.

RDC of the Federal Statistical Office and Statistical Offices of the Länder in Germany, Gewerbeanzeigenstatistik, survey years 2003 – 2012, own calculations.

RDC of the Federal Statistical Office and Statistical Offices of the Länder in Germany, Unternehmensregister, survey years 2003 - 2012, own calculations.

Romano, R., 1998. Empowering Investors: A Market Approach to Securities Regulation. Yale Law Journal 107, 2359-2430

Sanderson, E., Windmeijer, F., 2016. A weak instrument F-test in linear IV models with multiple endogenous variables. Journal of Econometrics 190, 212-221

Schlauss, S., 2008. Neues Ordnungsgeldverfahren wegen Verletzung von Jahresabschluss-Publizitatspflichten: erste Erfahrungen und Praxistipps aus dem Bundesamt fur Justiz [Reformed Enforcement of Financial Statement Disclosure Requirements: Initial Experience and Advice from the Federal Ministry of Justice]. Betriebs-Berater 63, 938-940

Seligman, J., 1983. The Historical Need for a Mandatory Corporate Disclosure System. Journal of Corporation Law 9, 1

Shavell, S., 1986. The judgment proof problem. International Review of Law and Economics 6, 45-58

Shleifer, A., 2005. Understanding Regulation. European Financial Management 11, 439-451

Shroff, N., 2016. Discussion of "Is the risk of product market predation a cost of disclosure?". Journal of Accounting and Economics 62, 326-332

Steinwender, C., 2018. Real Effects of Information Frictions: When the States and the Kingdom Became United. American Economic Review 108, 657-96

Stigler, G.J., 1961. The Economics of Information. Journal of Political Economy, 213

Stigler, G.J., 1964. Public Regulation of the Securities Markets. Journal of Business 37, 117-142

Stigler, G.J., 1971. The Theory of Economic Regulation. Bell Journal of Economics and Management Science 2, 3-21

Syverson, C., 2004. Market structure and productivity: A concrete example. Journal of Political Economy 112, 1181-1222

Syverson, C., 2011. What Determines Productivity? Journal of Economic Literature 49, 326-365

Vanstraelen, A., Schelleman, C., 2017. Auditing Private Companies: What Do We Know? Accounting and Business Research 47, 565-584

Verrecchia, R.E., 1983. Discretionary disclosure. Journal of Accounting and Economics 5, 179-194

Verrecchia, R.E., Weber, J., 2006. Redacted Disclosure. Journal of Accounting Research 44, 791-814

Wagenhofer, A., 1990. Voluntary Disclosure with a Strategic Opponent. Journal of Accounting and Economics 12, 341-363

Watts, R.L., Zimmerman, J.L., 1978. Towards a Positive Theory of the Determination of Accounting Standards. Accounting Review 53, 112-134

Watts, R.L., Zimmerman, J.L., 1983. Agency Problems, Auditing, and the Theory of the Firm: Some Evidence. Journal of Law and Economics 26, 613-633

Winston, C., 2006. Government Failure versus Market Failure: Microeconomics Policy Research and Government Performance. AEI-Brookings Joint Center for Regulatory Studies, Washington, D.C.

Zingales, L., 2009. The Future of Securities Regulation. Journal of Accounting Research 47, 391-425

Appendix

A. Potential Channels

The mandatory reporting and auditing of firms' financial statements can affect resource allocation through a multitude of channels (e.g., Bushman & Smith 2001). Although this paper is concerned with the market-wide (net) effect of all possible channels instead of the identification of any particular channel, I briefly discuss the most prominent channels through which financial reporting regulation can affect resource allocation below. (For a list of potential channels, refer to Table A3 in the Online Appendix.)

The mandatory reporting and auditing of firms' financial statements can help market-wide resource allocation by alleviating information frictions. For one, mandatory financial reporting can reduce information asymmetries between market participants, facilitating the arm's length exchange of resources (due to reduced adverse selection; e.g., Akerlof 1970; Bushee & Leuz 2005; Francis et al. 2009; Fuchs et al. 2016; Breuer et al. 2017b) and curbing the misallocation of resources (due to reduced moral hazard; e.g., Greenstone et al. 2006; Berger & Hann 2007; Hope & Thomas 2008). For another, mandatory financial reporting can reduce limited information problems (i.e., uncertainty) of decision makers through information externalities of other firms' reporting (e.g., Badertscher et al. 2013) and external auditor expertise (e.g., Bloom et al. 2013), spurring the reallocation of resources (e.g., Dixit & Pindyck 1994; Bloom et al. 2007; Balsmeier et al. 2017) and improving the efficiency of resource allocation (e.g., Asker et al. 2014).

The mandatory reporting and auditing of firms' financial statements can, however, also hurt market-wide resource allocation. For one, mandatory financial reporting subjects firms to

compliance costs (e.g., wages for accountants, fees for auditors, management attention), diverting resources from productive uses to administrative activities. Some firms may also prefer to engage in avoidance behavior (e.g., firm-size manipulations) to circumvent the direct regulatory costs (e.g., Bernard et al. 2018), distorting the optimal allocation of resources (e.g., Hopenhayn 2014; Garicano et al. 2016). For another, mandatory financial reporting can crowd out market participants' incentives to gather private information, counteracting the alleviation of limited information problems (e.g., Breuer et al. 2017b; Goldstein & Yang 2017) and stifling firms' incentives to allocate resources to the discovery of proprietary information (e.g., Arrow 1962; Aghion & Howitt 1992; Bhattacharya & Chiesa 1995).

B. Standardized Scope

a. Standardized firm-size distributions

I construct standardized firm-size distributions per industry using the following step-by-step approach:

(1) Moments of the empirical firm-size distributions

I estimate the means, standard deviations, and pairwise correlations of (the logarithm of) total assets, sales, and employees for each industry using observations from all countries and years in which the smallest firms are not exempted from the requirement to publish their income statements. I include the latter restriction to obtain moments of firm-size distributions that are not unduly truncated from below (e.g., the sales distribution) due to the observability of certain size variables.

(2) Multivariate normal draws

I draw 100,000 random observations for each industry from a multivariate normal distribution parameterized by the industry-specific moments (means, standard deviations, and pairwise correlations). Each observation represents a "simulated" firm characterized by three values. These values mimic the firm-size dimensions (logarithmic) total assets, sales, and employees, because they are generated using the moments of the empirically observed joint distribution of firm sizes across firms in a given industry.

(3) Alternative bootstrap approach

As an alternative approach to drawing from a multivariate normal distribution, I draw 100,000 random (firm-year) observations for each industry from the empirically observed firm-year data with replacement. The benefit of this bootstrap approach is that it provides industry-

specific firm-size distributions without assuming any particular parametric structure. Its drawback is that it provides industry-specific samples that contain firms with missing data for some of the firm-size dimensions, potentially introducing noise or bias in the estimation of standardized scope. Empirically, using the bootstrap approach yields measures of reporting and auditing scope highly correlated with those obtained using the multivariate normal approach.

b. Numerical example

In the following, I provide a simplified example of my empirical strategy using two countries (A and B), two industries (capital-intensive (KI) and labor-intensive (LI)), and two firm-size dimensions (capital (K) and labor (L)). The countries can set a "low" or "high" exemption threshold for each of the two firm-size dimensions.

The firm-size distributions for the two industries are as follows:

CAPITAL-INTENSIVE INDUSTRY (KI)

Number of firms

		K: Low	K: High	Total
L	Low	30	20	50
	High	10	5	15
Total		40	25	65

Share of firms

		K: Low	K: High	Total
L	Low	0.46	0.31	0.77
	High	0.15	0.08	0.23
Total		0.62	0.38	1.00

LABOR-INTENSIVE INDUSTRY (LI)

Number of firms

		K: Low	K: High	Total
L	Low	30	10	40
	High	20	5	25
Total		50	15	65

Share of firms

		K: Low	K: High	Total
L	Low	0.46	0.15	0.62
	High	0.31	0.08	0.38
Total		0.77	0.23	1.00

The number (share) of firms in each quadrant represents the number (share) of exempted firms given the respective exemption threshold combination. For example, 30 firms or 46% of

all firms are exempted from financial reporting regulation in the capital-intensive industry if a country implements a low exemption threshold for both the capital and labor firm-size dimension. If a country instead implements a low exemption threshold for capital, but a high threshold for labor, 40 (= 30 (Low/Low) + 10 (Low/High)) firms or 62% (= 46% (Low/Low) + 15% (Low/High)) of all firms in the capital-intensive industry are exempted. Notably, this threshold combination results in a larger share of exempted firms in the labor-intensive industry. In the labor-intensive industry, 77% of firms are exempted, compared to the 62% of firms in the capital-intensive industry. This difference in the share of exempted firms arises because there are more firms with high labor input in the labor-intensive industry than in the capital-intensive industry. For example, there are 20 firms in the "low"-capital/"high"-labor quadrant in the labor-intensive industry, whereas there are only 10 firms in the respective quadrant in the capital-intensive industry.

These differences in firm-size distributions across industries result in distinct financial reporting scopes, holding country-wide thresholds fixed. Although the firm-size distributions differ across industries, they do not differ across countries (as a result of using a standardized firm-size distribution per industry across all countries). The above industry-specific firm-size distributions apply to both country A and country B. Thus, the (standardized) financial reporting scope for these countries is as follows.

STANDARDIZED SCOPE			
Country	**Industry**	**Thresholds (K, L)**	**Standardized Scope**
A	KI	(High, Low)	0.23
	LI		0.38
Average			0.31
B	KI	(Low, High)	0.38
	LI		0.23
Average			0.31

The standardized scope captures the share of regulated or non-exempted firms. For example, the standardized scope for the capital-intensive industry in country A is 23% (= 100% - 77%), because 77% (= 46% (Low/Low) + 31% (Low/High)) were exempted. Notably, the standardized scope varies within country (e.g., 23% (KI) vs. 38% (LI) in country A) and within industry (e.g., 23% (A) vs. 38% (B) in industry KI), allowing me to control for cross-country and cross-industry differences. I exploit this within-country and within-industry variation in the scope of financial reporting regulation in my empirical strategy.

C. Cross-Sectional Design

There are at least three important reasons for choosing my cross-sectional research approach over alternative approaches relying on time-series variation. First, in contrast to cross-sectional variation in reporting and auditing regulation, there is only limited variation in financial-reporting regulation within countries over time (e.g., Greenstone et al. 2006). In particular, the time-series variation in regulation is either limited to a few extreme cases where exemption thresholds were introduced for the first time, or pertains to slight threshold changes as a result of periodic inflation adjustments. The former changes are problematic as several other institutions/regulations tend to change around the time of the extreme reforms (e.g., Leuz 2007; Hail et al. 2017b). The latter changes are problematic, as inflation adjustments tend to change reporting and audit regulations in concert, preventing their separate identification (e.g., Christensen et al. 2013). Moreover, there is a secular trend toward less extensive regulation over time for nearly all countries in my sample. This trend would not only threaten to confound regulatory effects with general time trends, but would also result in less useful variation: an increase in exemption thresholds reduces current reporting requirements, but does not erase previously reported information. Hence, reductions in reporting regulation provide less powerful regulatory variation than increases in reporting regulation (which are only infrequently observed in the time series of my sample) owing to the continued existence of historical reporting information (e.g., Drake et al. 2016; Hail et al. 2017a). (For empirical evidence on the time-series versus cross-sectional variation refer to section 6.1.)

Second, the use of time-series variation in regulation requires a reasonably precise dating of the effective regulation change and the timing of the regulatory incidence. As both the temporal distance between law changes and effective dates and the maximum lags between fiscal

year-ends and publication dates vary across countries, it is difficult to assure the correct treatment timing, favoring attenuation bias (e.g., Cochrane 2012). This issue is compounded by the fact that the use of time-series variation in regulation requires a timely incidence of any regulatory effects and essentially estimates short-run regulatory effects. By contrast, cross-sectional estimates can be interpreted as long-run/steady-state effects (especially given limited time-series changes in regulation in my sample). These long-run effects are arguably of greater interest, especially when considering aggregate (or general-equilibrium-type) effects.

Lastly, the coverage of firms in my data varies by country over time as a result of changes in the data provider's coverage decisions and countries' enforcement actions (e.g., Bernard 2016; Breuer et al. 2017b). These within-country time-series changes are accounted for in my above specification through the inclusion of country-year fixed effects. A specification predicated on the use of within-country time-series variation would have a harder time dealing with these database changes.

D. Data Limitations

Although my construction of the firm-level sample circumvents crucial issues of the Amadeus database, a number of notable limitations remain. The key limitation is that the coverage of firms in Amadeus is generally contingent on countries' reporting regulation. Hence, Amadeus mainly covers the mandatorily reported financial information of limited liability firms. This has at least three important implications for my study.

First, I cannot observe all firms in a given country and industry, but rather all limited liability firms subject to at least some financial-reporting requirements. To account for this fact, I explicitly restrict my analysis to limited liability firms. Although this restriction does not allow me to speak to the impact of financial-reporting regulation on the entire economic activity in an industry, I still capture a substantial portion of economic activity carried out by limited liability firms (e.g., Kalemli-Ozcan et al. 2015). This restriction also entails a benefit: by defining my regulation and outcome measures for the subset of limited liability firms, I purge my analysis of endogenous cross-country differences in the fraction of limited liability firms among all operating firms(e.g., due to legal and tax-code differences; Bergner & Heckemeyer 2016). A drawback of this restriction is that I implicitly assume that firms avoiding financial-reporting regulation through their legal form choice (i.e., by choosing unlimited liability) do not operate rather than operate using another legal form. As this may confound the measurement of my outcomes and my estimation, I assess the robustness of my inferences to this potential legal form choice issue in section "Supplemental Results: Enforcement reform in Germany" (in the Online Appendix) using an alternative empirical setting in which I can observe all, not just limited liability firms.

Second, I cannot observe income statement information (e.g., sales and wage expense) for limited liability firms that are exempted from the requirements to publicly disclose their income statement and do not choose to voluntarily provide this information. Hence, an increase in financial-reporting regulation in the form of fewer exempted firms would mechanically lead to, for example, a greater number of observed firms (and output), confounding my estimation. Fortunately, there are only nine countries (Austria, Croatia, Germany, Ireland, Luxembourg, Netherlands, Poland, Slovakia, and the United Kingdom) allowing exempted firms to withhold their income statement information, comprising less than a third of all country-industry-year observations. I gauge the robustness of my inferences to this mechanical coverage effect in section "Supplemental Results: Robustness to research-design choices" (in the Online Appendix) by excluding the subset of observations potentially affected by this issue and comparing my results with placebo estimates (which, by construction, are merely due to a mechanical coverage effect).

Third, there are some cross-country differences in the availability of data items (e.g., wage expense, employees), resulting in changing samples depending on the definition of outcome measures. For example, income-statement formats used by firms are either prepared classifying expenses by nature (e.g., wage expense; primarily used in continental Europe) or by function (e.g., cost of goods sold; primarily used in the United Kingdom). Accordingly, wage expense is available for most countries, but not all. Similarly, the number of employees is provided for firms in most countries, but not all. I address issues arising due to cross-country differences in collected data items by calculating multiple versions of key outcome measures (e.g., productivity) using different items (e.g., wage expense versus number of employees) and

assess the robustness of my inferences to the exclusion of individual countries by re-estimating my specifications dropping one country at a time.

E. Supplemental Results

My main findings are robust to a variety of different sample-composition and research-design choices and the pro-competitive effect of reporting regulation replicates in an alternative single-country setting, exploiting a substantial enforcement reform pertaining to firms' reporting requirements in Germany.

a. Robustness to research-design choices

I re-estimate my specifications separately for standardized reporting scope and standardized auditing scope. Without conditioning on the other (reporting or auditing) scope, I find results for both reporting and auditing regulation consistent with their jointly estimated results. Accordingly, the differential associations of the scopes of reporting and auditing regulation in my main specifications are not merely due to multicollinearity.

Even more so, I find that the effects of reporting and auditing regulation are broadly independent (Table A10). In particular, I find similar effects of reporting regulation in country-industry combinations with and without a corresponding auditing mandate. Likewise, I find similar effects of auditing regulation in country-industry combinations with and without a corresponding (expanded) reporting mandate. These findings support the separate assessment of the average effects of reporting and auditing regulation in my main tests.

I further re-estimate my specifications excluding all countries exempting smaller firms from the requirement to publish their income statement and excluding one country at a time. The relevant estimates are generally consistent with my main results. (For a breakdown of the country-by-country sensitivity, refer to Table A11.) Accordingly, my findings do not appear to

be unduly driven or affected by individual countries or a mechanical coverage effect associated with the income statement publication exemption.

Additionally, I re-estimate my specifications controlling for country-industry-specific dimensions of firm-size distributions, such as the average, aggregate, dispersion, and correlation of total assets, sales, and employees. My inferences remain unchanged. Notably, controlling for aggregate sales of an industry, for example, amounts to accounting for country-specific industrial specializations in my within-country and within-industry design. My results do not appear to be confounded by such country-industry-specific factors.

Lastly, I explicitly gauge the impact of a hypothetical coverage effect on my results. I calculate "placebo" outcomes (e.g., average and aggregate labor productivity) for a given industry in a given country and year using the previously simulated firms (making up the standardized industry-specific firm-size distributions). To mechanically induce a hypothetical coverage effect, I calculate the placebo outcomes using only those simulated firms exceeding a country's reporting thresholds in a given year. As a result, I obtain placebo outcomes that vary within industries and across countries not because firms and firm-size distributions are different, but merely because more firms are "observable" and thus included in the placebo outcome calculation for countries exempting fewer firms (i.e., with lower thresholds).

Using the placebo outcomes as dependent variables in my specifications, I find that the hypothetical coverage effect produces dispersion results opposite to my empirical findings, but also generates aggregate productivity and size-productivity covariance overlapping with my main results. Consistent with these placebo results, I find that my main dispersion results are, if anything, strengthened when controlling for the placebo effects (using the placebo outcomes as

controls), whereas the aggregate productivity and size-productivity results attenuate and are no longer statistically significant. (For the placebo analysis, refer to Table A12.) Accordingly, the placebo results suggest that the dispersion results are unlikely to be driven by a mechanical coverage effect. In contrast, I cannot discern an economic effect of reporting regulation on aggregate productivity and size-productivity covariance from a hypothetical coverage effect. In sum, these results support the pro-competitive effect of reporting regulation and suggest caution in interpreting the resource allocation results related to aggregate productivity and the size-productivity covariance.

b. Enforcement reform in Germany

To corroborate the pro-competitive effect of reporting regulation on product markets in an alternative setting, I exploit a major shift in enforcement of reporting (or public disclosure) requirements in Germany. Despite prescribing size-based reporting requirements in accordance with EU directives, Germany had virtually not enforced these requirements until a sweeping enforcement reform in 2007 (e.g., Bernard 2016). Before 2007, limited liability firms were required to file their financial statements with local courts and publish their statements in local newspapers. As local courts were not allowed to engage in pro-active enforcement and legal/monetary sanctions for non-disclosing firms were low, the share of limited liability firms complying with reporting requirements was as low as 5%. Only in response to mounting pressure from the EU commission and the transposition deadline for EU Directive 2003/58/EC did the German legislator reform its disclosure enforcement via the Bill on the Electronic Registers for Commerce, Companies and Associations (EHUG) in 2007 (effective for financial statements covering fiscal years ending December 2006 or later), switching to a central

electronic publication register, pro-active enforcement by the ministry of justice, and escalating fines.[49]

Using comprehensive census data from the German Federal Statistical Office on firm sales and business notifications (on entry and exit) for the years 2003 to 2012, I investigate the effect of the enforcement reform on product-market competition using a flexible difference-in-differences design with a continuous treatment variable:[50]

$$Y_{c,i,t} = \sum_{\tau \neq 2006} \beta_\tau Regulated_{c,i} \times 1(t = \tau) + \alpha_{c,t} + \delta_{i,t} + \gamma_{c,i} + \varepsilon_{c,i,t} \ ,$$

where $Y_{c,i,t}$ is the outcome variable of interest (e.g., market share concentration) in county c, industry i (two-digit NACE industry classification), and year t; $Regulated_{c,i}$ is the share of limited liability firms (among all firms) in county c and industry i in the pre-enforcement period (in particular, in the base year: 2006); $1(t = \tau)$ represents a separate year indicator for each year (except for the base year: 2006); $\alpha_{c,t}$ denotes county-year fixed effects; $\delta_{i,t}$ denotes industry-year fixed effects; and $\gamma_{c,i}$ denotes county-industry fixed effects.

This specification generates nine difference-in-differences coefficients (each relative to the base year: 2006). These coefficients capture, for each year separately, differences in sensitivities (i.e., regression slopes) of the outcome variable with respect to the share of limited liability firms relative to the respective sensitivity in the base year 2006.[51] As the enforcement

[49] For more details, refer to section "Supplemental Information on Enforcement Reform" in the Online Appendix.

[50] Source: RDC of the Federal Statistical Office and Statistical Offices of the Länder in Germany, Unternehmensregister and Gewerbeanzeigenstatistik, survey years 2003 - 2012, own calculations.

[51] The interaction between the share of limited liability firms ("Regulated") and year indicators constitute the difference-in-differences coefficients of interest. As my treatment variable (share of limited liability firms) is continuous, the difference-in-differences coefficients do not capture the differential levels across treatment and control and the pre- and post-period, but rather differential slopes (e.g., Carpenter & Dobkin 2011). The main effects ("Regulated" and the year indicators) are subsumed by the county-industry, county-year, and industry-year fixed effects. I cluster standard errors at the county level.

reform increases the pressure on all limited liability firms to publicly disclose their financial information, I use the share of limited liability firms among all firms as my continuous treatment variable ($Regulated_{c,i}$), assuming that county-industry combinations with a greater (pre-enforcement) share of limited liability firms will be more strongly affected by the enforcement reform.

Table A13 (Figure A1) documents that the enforcement reform is associated with a steep increase in the share of disclosing firms (approximated by the number of limited liability firms covered in Amadeus relative to all firms covered in the census data for a given county, industry, and year), consistent with prior evidence (e.g., Bernard 2016; Breuer et al. 2017b).[52] Table A14 documents that firm entry ("Entry") and exit ("Exit") increase (columns 1 and 2; Figure A2 and Figure A3), whereas product-market concentration ("HHI") decreases after 2006/7 for county-industries with a greater (pre-enforcement) share of limited liability firms (column 3; Figure A4). These findings are consistent with fiercer product-market competition as a result of increased enforcement of reporting regulation.[53]

Table A15 further documents that increases in entry by subsidiaries (columns 1 and 2; Figure A5) and exit due to unprofitability (columns 3 and 4; Figure A6), as well as decreases in product-market concentration (columns 5 and 6; Figure A7) after 2006/7 are concentrated in county-industries composed of few firms in the pre-enforcement period. Consistent with reduced informational entry barriers due to public disclosure, these findings suggest that the

[52] The significant pre-trend before 2006 is due to the database expansion of Amadeus which resulted in increased coverage of limited liability firms even before the enforcement reform. The sharp increase in 2007, however, is clearly due to the enforcement reform as documented in prior literature and shown by more than 300,000 non-compliance notices sent by the Federal Ministry of Justice under threat of punishment to non-disclosing firms in 2007 (Schlauss 2008).

[53] As most public disclosures were made in and after December 2007, the informational (in contrast to the avoidance) effect of the enforcement reform should be expected to mostly occur after 2007.

enforcement of reporting regulation can spur competition and reallocation of market shares especially in previously opaque and concentrated markets.

This alternative single-country setting complements my prior analysis in three important respects. First, it permits a more familiar temporal difference-in-differences approach that compares more and less affected county-industries across several years before and after the enforcement reform.[54] Second, the alternative setting allows me to observe all firms independent of their legal form choice and reporting requirements. Third, the alternative setting provides me with official entry and especially exit information including the type of and reason for entry or exit. Using the temporal difference-in-differences approach on a comprehensive firm sample with detailed entry and exit information, I find results consistent with my main analysis. Thus, the findings of the alternative setting corroborate the cross-sectional difference-in-differences approach employed in my main analysis, allay concerns that time-invariant confounders (e.g., other size-based regulations) and sample selection/truncation (related to legal form choice, Amadeus coverage, etc.) unduly confound my main results, and contribute an improved measurement of business dynamism (i.e., entry and especially exit).

[54] This setting exhibits a number of drawbacks relative to my main setting. First, I have to worry about concurrent events confounding the single-shock temporal difference-in-differences design (e.g., a reduction of minimum legal capital requirements for limited liability firms (Becht et al. 2008; Braun et al. 2011, 2013), or a corporate tax reform (Dobbins & Jacob 2016)). Second, the reformed enforcement of reporting regulation does not allow studying the separate effect of auditing regulation. Third, the census databases provide only few potential outcome variables and exhibits structural breaks in industry classifications that can only imperfectly be harmonized. Lastly, estimates from the single-country setting are arguably less generalizable than those obtained using a broader sample of countries.

F. Supplemental Information on Enforcement Reform

a. Data

I obtain access to confidential data on firm sales from the AFiD-Panel Unternehmensregister and to data on firm entry and exit from the Gewerbeanzeigenstatistik for the years 2003 to 2012, provided by the Research Data Centers of the Federal Statistical Office and the statistical offices of the States in Germany. I harmonize the county codes across years using the official county correspondence table provided by the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR) (with 2014 as the reference year). I harmonize the NACE industry codes across years using the official industry code correspondence table provided by the Federal Statistical Office (with 2008 as the reference year).

I code limited liability firms (GmbH, GmbH & Co. KG, AG, KGaA) as affected and unlimited liability firms (sole proprietorship, OHG, KG, cooperative) as unaffected by the enforcement change.

b. Contemporaneous changes

There are a number of other changes occurring contemporaneously with the enforcement reform in Germany around 2007. These changes threaten to confound my estimation if they are correlated with the share of limited liability firms in a given county and industry in the pre-enforcement period. The most notable changes potentially correlated with my treatment are the following:

(1) Reform of GmbH law (MoMiG)

In response to the increased popularity of foreign limited liability legal forms (e.g., the British "Limited"), the German legislature reformed the law on limited liability companies

(MoMiG) in 2008, introducing a new legal form (Unternehmergesellschaft (UG)) with effectively no minimum capital requirements. This reform resulted in a significant increase of newly registered UGs starting from November 2008 on (e.g., Becht et al. 2008; Braun et al. 2011, 2013). Accordingly, the reform of the law on limited liability companies is contemporaneous with the disclosure enforcement reform and likely correlated with the share of pre-existing limited liability firms in a given county and industry, threatening to confound the entry and exit results.

There, however, are at least three features limiting the confounding influence of this contemporaneous change. First, the UGs were introduced in November 2008. Thus, their introduction effectively starts in 2009, two years after the enforcement reform. Second, the UGs generally substituted for the (British) Limited. Thus, the increase in UGs does not one-for-one increase entry and exit. Third, the well-established GmbH (limited liability form with minimum capital requirement) remains the most popular legal form among newly registered limited liability firms with a share of about 80% and the total fraction of newly founded limited liability firms among all firms amounts to only about 10% (Blechinger 2009). Thus, it is unclear whether the introduction of the UG can account for the entire entry and exit results pertaining to all (limited and unlimited liability) firms.

(2) Corporate tax reform (UntStRefG)

In 2008, the German legislature reformed the corporate tax code, substantially reducing limited liability firms' tax rate. Although the legislator also introduced new tax rules/exemptions for unlimited liability firms to simultaneously reduce the tax disadvantage of unlimited liability firms, limited liability firms were, on average, more favorably affected by the reform. In response to the tax reform, limited liability firms increased capital and labor investments and

sales growth (e.g., Dobbins & Jacob 2016). Accordingly, the corporate tax reform is contemporaneous with the disclosure enforcement reform and likely correlated with the share of pre-existing limited liability firms in a given county and industry, threatening to confound my difference-in-differences results.

(3) NACE industry re-classification

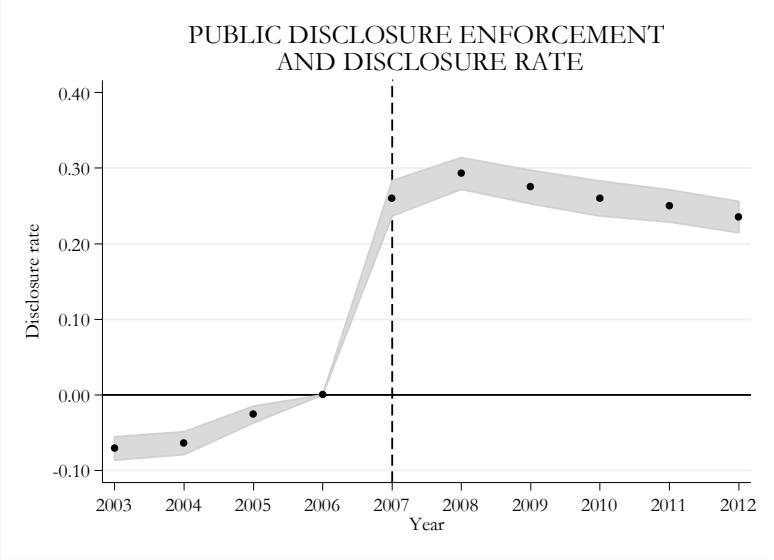
The NACE industry classifications were revised in 2008. The prior classifications (last revised in 2003) can only be imperfectly reconciled with the new classifications. This issue is particularly acute in the entry and exit data provided in the Gewerbeanzeigenstatistik of the Research Data Centers of the Federal Statistical Office, because the entry and exit data are not organized as a panel (e.g., tied to one particular firm over time) and provide only two-digit NACE codes, resulting in a noisy reconciliation. Although it is not a priori obvious why the imperfect harmonization should be correlated with the share of limited liability firms in a given county and industry, the structural break in the NACE industry classification, nevertheless, poses a non-negligible threat to the validity of the entry and exit results.

(4) Other changes

Other contemporaneous changes include the financial and economic crises in 2008 and 2009 and the labor-market reforms (Hartz Concept) in 2003 to 2005. However, I regard these changes as a priori less likely to confound my estimates for several reasons. First, both changes are not obviously correlated with the share of limited liability firms. Second, the financial and economic crises were short-lived relative to my post-sample period, and should not necessarily result in more entry and less concentration, nor exhibit a markedly different pattern (e.g., in aggregate employment and output data) than generated by my difference-in-differences estimation. Third, the labor-market reforms should take effect in the pre-period and their actual

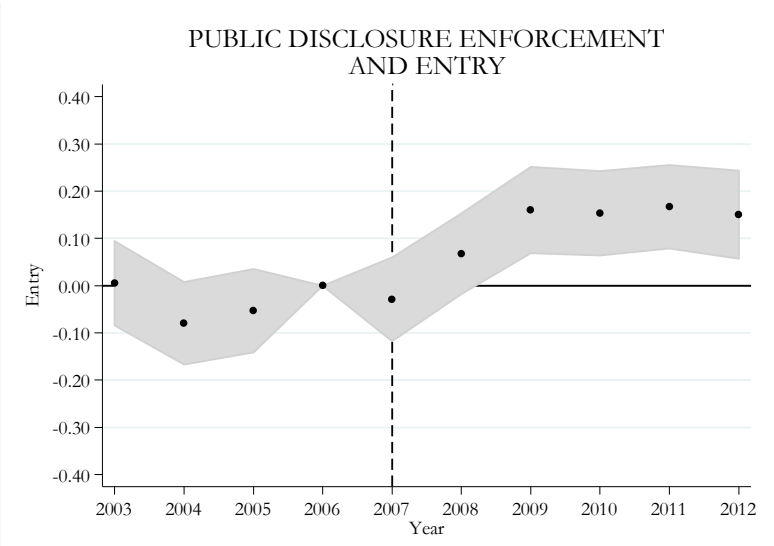
role in the resurgence of the German economy after 2005 is still debated (e.g., Dustmann et al. 2014).

Figure A1: Public disclosure enforcement and disclosure rate



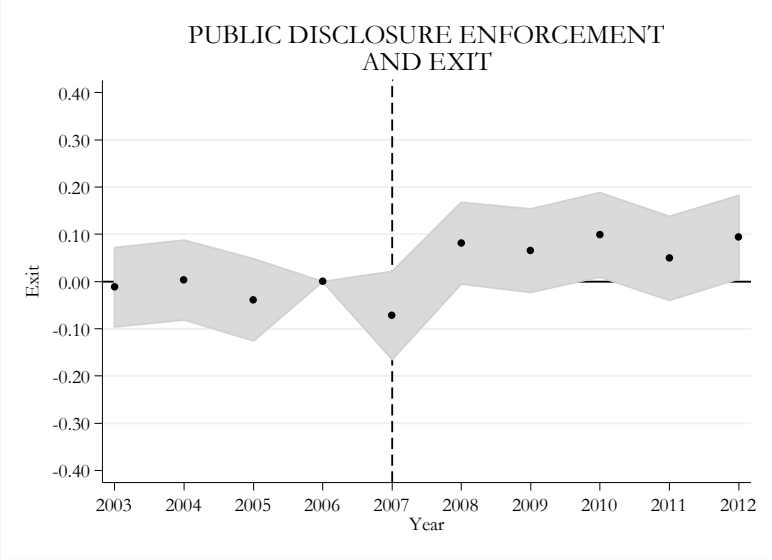
Notes: The figure depicts estimates of a regression of disclosure rate on the share of affected firms. The annual estimates represent difference-in-differences coefficients relative to the base year 2006. "Disclosure Rate" is defined as the fraction of limited liability firms observable in Bureau van Dijk's Amadeus database relative to all firms in a given county, industry, and year in Germany. The share of affected firms is defined as the fraction of limited liability firms in a given county and industry in the base year 2006. The gray shading represents the point-wise 95% confidence interval.

Figure A2: Public disclosure enforcement and entry



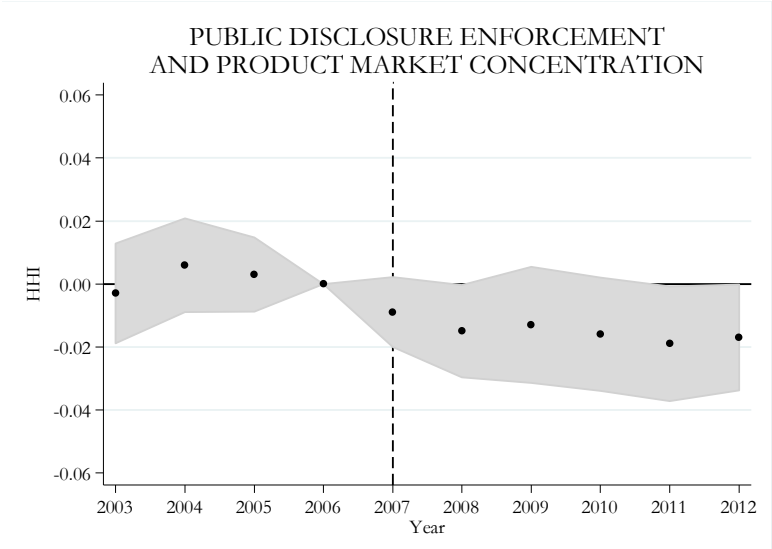
Notes: The figure depicts estimates of a regression of entry on the share of affected firms. The annual estimates represent difference-in-differences coefficients relative to the base year 2006. "Entry" is defined as the log number of firms newly registering at the local commercial register/court in a given county, industry, and year in Germany. The share of affected firms is defined as the fraction of limited liability firms in a given county and industry in the base year 2006. The gray shading represents the point-wise 95% confidence interval.

Figure A3: Public disclosure enforcement and exit



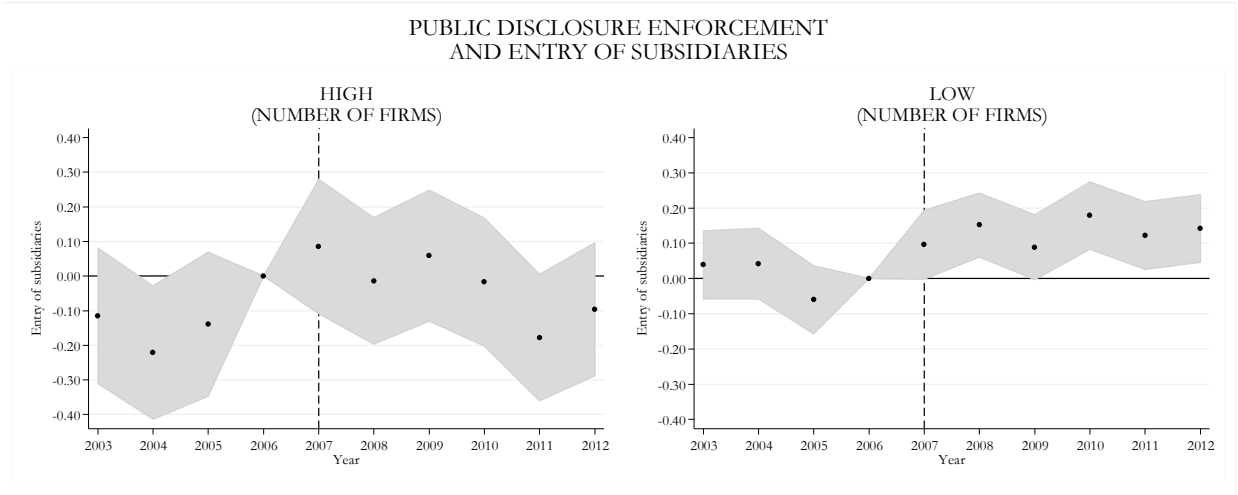
Notes: The figure depicts estimates of a regression of exit on the share of affected firms. The annual estimates represent difference-in-differences coefficients relative to the base year 2006. "Exit" is defined as the log number of firms deregistering at the local commercial register/court in a given county, industry, and year in Germany. The share of affected firms is defined as the fraction of limited liability firms in a given county and industry in the base year 2006. The gray shading represents the point-wise 95% confidence interval.

Figure A4: Public disclosure enforcement and product-market concentration



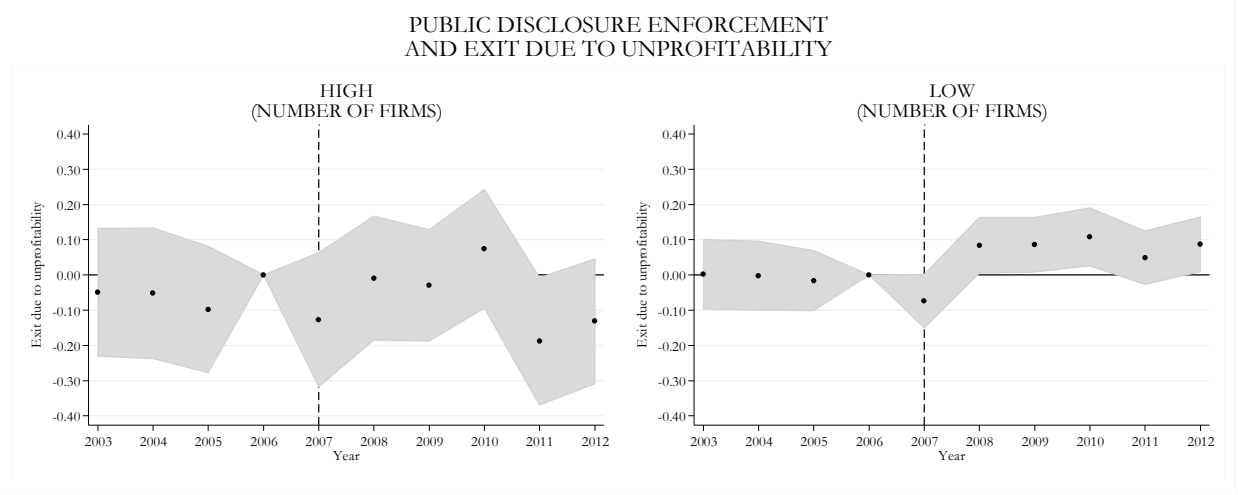
Notes: The figure depicts estimates of a regression of product-market concentration on the share of affected firms. The annual estimates represent difference-in-differences coefficients relative to the base year 2006. "Product Market Concentration" is defined as the sum of squared market shares in a given county, industry, and year in Germany. The share of affected firms is defined as the fraction of limited liability firms in a given county and industry in the base year 2006. The gray shading represents the point-wise 95% confidence interval.

Figure A5: Public disclosure enforcement and entry of subsidiaries



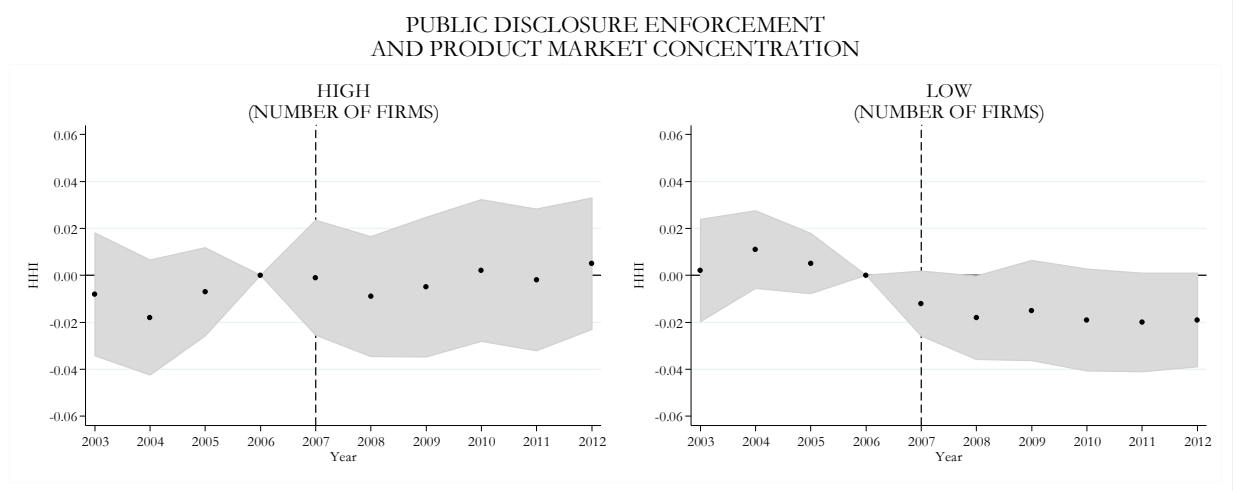
Notes: The figure depicts estimates of regressions of entry of subsidiaries on the share of affected firms split by the number of operating firms in the pre-enforcement period. The left (right) graph shows estimates for county-industries with an above (below) median number of operating firms in the pre-enforcement period. The annual estimates represent difference-in-differences coefficients relative to the base year 2006. "Entry of Subsidiaries" is defined as the log number of subsidiaries newly registering at the local commercial register/court in a given county, industry, and year in Germany. The share of affected firms is defined as the fraction of limited liability firms in a given county and industry in the base year 2006. The gray shading represents the point-wise 95% confidence interval.

Figure A6: Public disclosure enforcement and exit due to unprofitability



Notes: The figure depicts estimates of regressions of exit due to unprofitability on the share of affected firms split by the number of operating firms in the pre-enforcement period. The left (right) graph shows estimates for county-industries with an above (below) median number of operating firms in the pre-enforcement period. The annual estimates represent difference-in-differences coefficients relative to the base year 2006. "Exit due to Unprofitability" is defined as the log number of firms deregistering at the local commercial register/court due to unprofitability in a given county, industry, and year in Germany. The share of affected firms is defined as the fraction of limited liability firms in a given county and industry in the base year 2006. The gray shading represents the point-wise 95% confidence interval.

Figure A7: Public disclosure enforcement and product-market concentration by number of firms



Notes: The figure depicts estimates of regressions of product-market concentration on the share of affected firms split by the number of operating firms in the pre-enforcement period. The left (right) graph shows estimates for county-industries with an above (below) median number of operating firms in the pre-enforcement period. The annual estimates represent difference-in-differences coefficients relative to the base year 2006. "Product Market Concentration" is defined as the sum of squared market shares in a given county, industry, and year in Germany. The share of affected firms is defined as the fraction of limited liability firms in a given county and industry in the base year 2006. The gray shading represents the point-wise 95% confidence interval.

Table A1: Variable definitions

Variable	Aggregation	Definition
	Financial Reporting	
Standardized Reporting Scope	Average	Fraction of firms exceeding reporting thresholds using standardized firm-size distributions
Standardized Auditing Scope	Average	Fraction of firms exceeding auditing thresholds using standardized firm-size distributions
Measured Reporting Scope	Average	Fraction of firms exceeding reporting thresholds using countries' actual firm-size distributions
Measured Auditing Scope	Average	Fraction of firms exceeding auditing thresholds using countries' actual firm-size distributions
Audit	Average	Fraction of firms obtaining a financial-statement audit
	Type of Resource Allocation	
Entry	Average	Fraction of firms founded within the last two years
Entry	Aggregate	Market-share-weighted sum of firms founded within the last two years
Exit	Average	Fraction of firms that turned inactive for bankruptcy/illiquidity reasons
Exit	Aggregate	Market-share-weighted sum of firms that turned inactive for bankruptcy/illiquidity reasons
HHI	Sum	Sum of squared market shares
Distance (Gross Margin)	p80-p20	Difference between 80th and 20th percentile of sales less wage and labor expense (or cost of goods sold) scaled by sales (normalized by the average gross margin)
Dispersion (Gross Margin)	Standard deviation	Standard deviation of sales less wage and labor expense (or cost of goods sold) scaled by sales (normalized by the average gross margin)
Distance (EBITDA/Sales)	p80-p20	Difference between the 80th and 20th percentile of EBITDA scaled by sales (normalized by the average EBITDA/Sales ratio)
Dispersion (EBITDA/Sales)	Standard deviation	Standard deviation of EBITDA scaled by sales (normalized by the average EBITDA/Sales ratio)
Publicly Listed	Average	Fraction of publicly listed firms
Publicly Listed	Aggregate	Market-share-weighted sum of publicly listed firms
Shareholders	Average	Average number of (log) shareholders

Table A1 continued

Shareholders	Aggregate	Market-share-weighted sum of number of (log) shareholders
Independence	Average	Average independence score based on numeric transformation of Bureau van Dijk's alphanumeric independence score (1: most independent, 0: most dependent)
Independence	Aggregate	Market-share-weighted sum of independence score based on numeric transformation of Bureau van Dijk's alphanumeric independence score (1: most independent, 0: most dependent)
Efficiency of Resource Allocation		
Lower Tail (TFP (Employees))	p20	20th percentile of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log employees
Upper Tail (TFP (Employees))	p80	80th percentile of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log employees
Distance (TFP (Employees))	p80-p20	Difference between 80th and 20th percentile of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log employees (normalized by average TFP (Employees))
Dispersion (TFP (Employees))	Standard deviation	Standard deviation of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log employees (normalized by average TFP (Employees))
Lower Tail (TFP ((Wage))	p20	20th percentile of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log wage expense
Upper Tail (TFP (Wage))	p80	80th percentile of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log wage expense
Distance (TFP (Wage))	p80-p20	Difference between 80th and 20th percentile of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log wage expense (normalized by average TFP (Wage))
Dispersion (TFP (Wage))	Standard deviation	Standard deviation of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log wage expense (normalized by average TFP (Wage))

Table A1 continued

Covariance Y/L and Y (Employees)	Aggregate-Average	Market-share-weighted sum less equally weighted average of labor productivity defined as log sales less log employees
Covariance TFP and Y (Employees)	Aggregate-Average	Market-share-weighted sum less equally weighted average of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log employees
Covariance Y/L and Y (Wage)	Aggregate-Average	Market-share-weighted sum less equally weighted average of labor productivity defined as log sales less log wage expense
Covariance TFP and Y (Wage)	Aggregate-Average	Market-share-weighted sum less equally weighted average of total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log wage expense
Y/L (Employees)	Average	Average labor productivity defined as log sales less log employees
Y/L (Wage)	Average	Average labor productivity defined as log sales less log wage expense
TFP (Employees)	Average	Average labor productivity defined as log sales less 0.3*log tangible capital and 0.7*log employees
TFP (Wage)	Average	Average labor productivity defined as log sales less 0.3*log tangible capital and 0.7*log wage expense
Y/L (Employees)	Aggregate	Market-share-weighted sum of labor productivity defined as log sales less log employees
Y/L (Wage)	Aggregate	Market-share-weighted sum of labor productivity defined as log sales less log wage expense
TFP (Employees)	Aggregate	Market-share-weighted sum of labor productivity defined as log sales less 0.3*log tangible capital and 0.7*log employees
TFP (Wage)	Aggregate	Market-share-weighted sum of labor productivity defined as log sales less 0.3*log tangible capital and 0.7*log wage expense
ΔY/L (Employees)	Average	Average first difference in labor productivity defined as log sales less log employees
ΔY/L (Wage)	Average	Average first difference in labor productivity defined as log sales less log wage expense
ΔTFP (Employees)	Average	Average first difference in total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log employees
ΔTFP (Wage)	Average	Average first difference in total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log wage expense

Table A1 continued

ΔY/L (Employees)	Aggregate	First difference of industry-wide/aggregate market-share-weighted labor productivity defined as log sales less log employees
ΔY/L (Wage)	Aggregate	First difference of industry-wide/aggregate market-share-weighted labor productivity defined as log sales less log wage expense
ΔTFP (Employees)	Aggregate	First difference of industry-wide/aggregate market-share-weighted total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log employees
ΔTFP (Wage)	Aggregate	First difference of industry-wide/aggregate market-share-weighted total factor productivity defined as log sales less 0.3*log tangible assets and 0.7*log wage expense

Table A2: Descriptive statistics

Financial Reporting									
Variable	Aggregation	N	Mean	SD	p10	p25	p50	p75	p90
Standardized Reporting Scope	Average	223,924	0.226	0.268	0.014	0.051	0.134	0.277	0.530
Standardized Auditing Scope	Average	223,924	0.308	0.321	0.034	0.080	0.184	0.380	0.999
Measured Reporting Scope	Average	223,924	0.203	0.287	0.000	0.006	0.070	0.258	0.742
Measured Auditing Scope	Average	223,924	0.253	0.324	0.000	0.011	0.096	0.375	0.895
Audit	Average	223,924	0.162	0.265	0.000	0.000	0.010	0.218	0.579
Type of Resource Allocation									
Variable	Aggregation	N	Mean	SD	p10	p25	p50	p75	p90
Entry	Average	221,894	0.183	0.173	0.000	0.063	0.148	0.253	0.393
Entry	Aggregate	211,700	0.087	0.199	0.000	0.000	0.022	0.085	0.230
Exit	Average	177,665	0.024	0.068	0.000	0.000	0.000	0.023	0.060
Exit	Aggregate	169,210	0.008	0.054	0.000	0.000	0.000	0.001	0.009
HHI	Sum	214,262	0.377	18.751	0.028	0.075	0.205	0.493	0.914
Distance (Gross Margin)	p80-p20	197,341	0.120	0.253	0.001	0.003	0.016	0.096	0.387
Dispersion (Gross Margin)	Standard deviation	197,555	0.106	0.162	0.005	0.014	0.045	0.126	0.281
Distance (EBITDA/Sales)	p80-p20	178,370	0.145	0.292	0.001	0.004	0.023	0.126	0.463
Dispersion (EBITDA/Sales)	Standard deviation	178,711	0.125	0.190	0.006	0.017	0.052	0.146	0.332
Publicly Listed	Average	180,154	0.005	0.042	0.000	0.000	0.000	0.000	0.002
Publicly Listed	Aggregate	171,685	0.031	0.134	0.000	0.000	0.000	0.000	0.016
Shareholders	Average	171,315	0.836	0.343	0.322	0.693	0.890	1.055	1.194
Shareholders	Aggregate	162,568	0.993	0.471	0.617	0.719	0.957	1.143	1.402
Independence	Average	167,375	0.195	0.149	0.000	0.106	0.184	0.261	0.375
Independence	Aggregate	158,767	0.170	0.194	0.000	0.016	0.120	0.242	0.444
Efficiency of Resource Allocation									
Variable	Aggregation	N	Mean	SD	p10	p25	p50	p75	p90
Lower Tail (TFP (Employees))	p20	201,507	0.972	2.565	0.001	0.003	0.020	0.179	3.229
Upper Tail (TFP (Employees))	p80	201,507	2.291	3.235	0.018	0.075	0.474	3.679	8.273
Distance (TFP (Employees))	p80-p20	183,660	0.166	0.295	0.002	0.007	0.036	0.182	0.574
Dispersion (TFP (Employees))	Standard deviation	183,660	0.140	0.183	0.010	0.028	0.079	0.187	0.358
Lower Tail (TFP ((Wage))	p20	190,366	0.150	0.563	0.000	0.000	0.002	0.017	0.278
Upper Tail (TFP (Wage))	p80	190,366	0.414	0.756	0.003	0.011	0.070	0.487	1.409
Distance (TFP (Wage))	p80-p20	175,317	0.181	11.139	0.001	0.005	0.030	0.162	0.574
Dispersion (TFP (Wage))	Standard deviation	175,317	0.162	7.370	0.009	0.025	0.075	0.194	0.404
Covariance Y/L and Y (Employees)	Aggregate-Average	188,295	0.854	0.826	0.055	0.318	0.688	1.191	1.829
Covariance TFP and Y (Employees)	Aggregate-Average	183,648	0.568	0.682	-0.065	0.142	0.433	0.839	1.378
Covariance Y/L and Y (Wage)	Aggregate-Average	176,748	0.365	0.645	-0.205	0.008	0.245	0.583	1.071
Covariance TFP and Y (Wage)	Aggregate-Average	175,300	0.280	0.598	-0.266	-0.045	0.169	0.482	0.953
Y/L (Employees)	Average	204,837	11.703	1.344	10.092	10.905	11.720	12.371	13.127
Y/L (Wage)	Average	191,504	1.686	0.773	0.898	1.242	1.637	2.082	2.576
TFP (Employees)	Average	201,507	8.762	1.053	7.520	8.135	8.771	9.305	9.922
TFP (Wage)	Average	190,366	1.700	0.717	0.981	1.336	1.663	2.061	2.522

Table A2 continued

Y/L (Employees)	Aggregate	204,837	12.488	1.464	10.878	11.631	12.374	13.135	14.173
Y/L (Wage)	Aggregate	191,504	2.023	0.985	1.003	1.412	1.891	2.497	3.214
TFP (Employees)	Aggregate	201,507	9.280	1.172	8.002	8.584	9.191	9.812	10.689
TFP (Wage)	Aggregate	190,366	1.958	0.889	1.075	1.428	1.827	2.369	3.051
ΔY/L (Employees)	Average	198,797	-0.050	0.560	-0.251	-0.095	-0.006	0.077	0.213
ΔY/L (Wage)	Average	187,184	-0.026	0.320	-0.226	-0.099	-0.021	0.048	0.162
ΔTFP (Employees)	Average	194,397	-0.032	0.441	-0.237	-0.088	0.000	0.080	0.206
ΔTFP (Wage)	Average	185,859	-0.016	0.300	-0.210	-0.087	-0.010	0.059	0.169
ΔY/L (Employees)	Aggregate	184,790	-0.055	0.804	-0.485	-0.140	0.004	0.133	0.387
ΔY/L (Wage)	Aggregate	172,938	-0.017	0.545	-0.337	-0.112	-0.005	0.097	0.297
ΔTFP (Employees)	Aggregate	181,505	-0.035	0.649	-0.429	-0.132	0.005	0.131	0.365
ΔTFP (Wage)	Aggregate	171,846	-0.012	0.507	-0.329	-0.112	0.000	0.105	0.302

Table A3: Potential channels

CHANNELS		RESOURCE ALLOCATION		LITERATURE
Generic	Specific	Dispersed/Competitive Type	Efficiency	Examples
Asymmetric information	Adverse selection	+	+	Akerlof (1970); Bushee and Leuz (2005); Francis et al. (2009); Fuchs et al. (2016); Breuer et al. (2017b)
	Moral hazard	+	+	Greenstone et al. (2006); Berger and Hann (2007); Hope and Thomas (2008)
Limited information	(Un)certainty	+	+	Dixit and Pindyck (1994); Bloom et al. (2007); Asker et al. (2014); Balsmeier et al. (2017); Choi (2017)
	Information externality	+	+	Badertscher et al. (2013)
	Search costs	+	+	Stigler (1961)
	External expertise and internal controls		+	Cheng et al. (2013b); Bloom et al. (2013)
Reporting/auditing costs	Preparation (e.g., audit fee)		-	Iliev (2010)
	Avoidance (e.g., size manipulation)		-	Gao et al. (2009); Garicano et al. (2016); Bernard et al. (2018)
	Proprietary information cost	+	+/-	Verrecchia (1983); Darrough and Stoughton (1990); Wagenhofer (1990)
	Predation	-	-	Bernard (2016); Shroff (2016)
Crowding out other information	Private information acquisition	+	-	Kurlat and Veldkamp (2015); Goldstein and Yang (2017)
	Proprietary information generation		-	Arrow (1962); Bhattacharya and Ritter (1983); Bhattacharya and Chiesa (1995)
	Unregulated firms' financial reporting		-	Admati and Pfleiderer (2000); Baginski and Hinson (2016); Breuer et al. (2018)
	Coordination on public information	-	-	Morris and Shin (2002); Hertzberg et al. (2011)
Other regulatory effects	Commitment	+	+	Leuz and Verrecchia (2000); Cheng et al. (2013a)
	Penalties	+	+	Shavell (1986); Leuz (2010)
	Cost saving/duplication	+	+	Diamond (1985)
	X-inefficiencies		+	Leibenstein (1966); Porter and van der Linde (1995)
	Regulatory capture and constraints		-	Stigler (1971)

Notes: The table provides a non-exhaustive list of non-exclusive potential channels through which financial reporting regulation can affect the type and efficiency of resource allocation according to prior research.

Table A4: Reporting regulation example

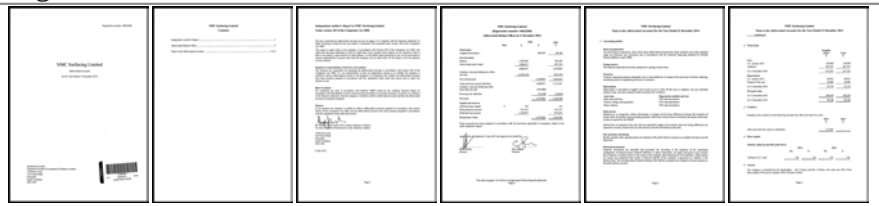
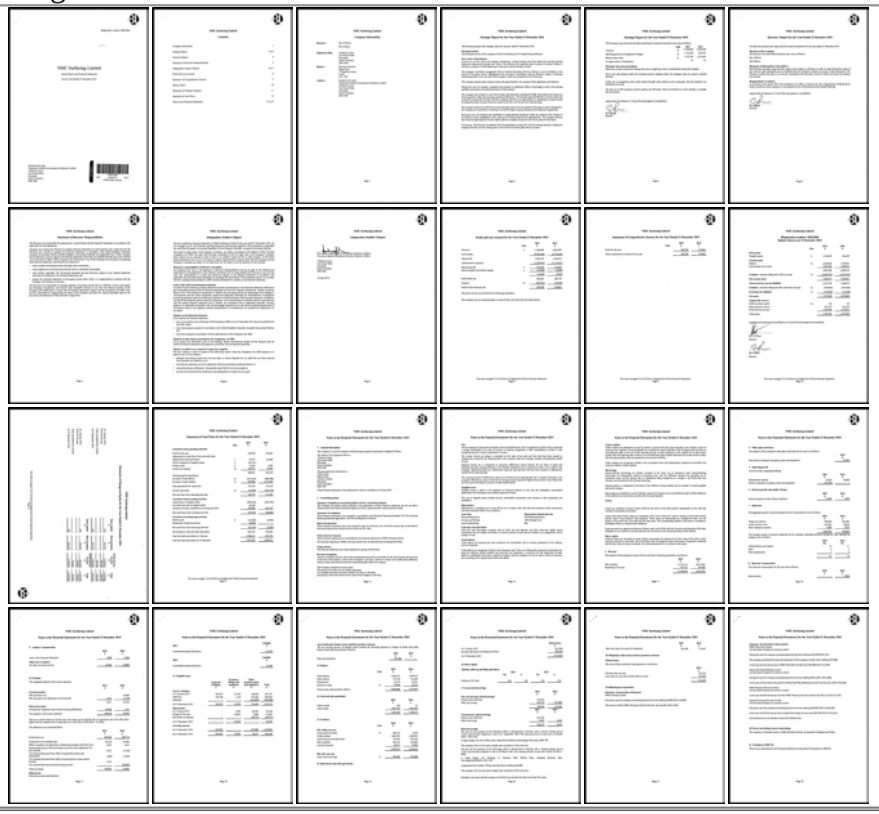
Excerpt of title page and table of contents	Individual pages
Exempted or "unregulated" firm	
NMC Surfacing Limited Abbreviated Accounts for the Year Ended 31 December 2014	
Non-exempted or "regulated" firm	
NMC Surfacing Limited Annual Report and Financial Statements for the Year Ended 31 December 2015 Company Information 1 Strategic Report 2 to 3 Directors' Report 4 Statement of Directors' Responsibilities 5 Independent Auditor's Report 6 to 7 Profit and Loss Account 8 Statement of Comprehensive Income 9 Balance Sheet 10 Statement of Changes in Equity 11 Statement of Cash Flows 12 Notes to the Financial Statements 13 to 22	

Table A4 continued

Notes: The table presents excerpts of title pages, tables of contents, and miniature pages from mandatory filings provided to the official publication platform (Companies House) in the UK by a firm exempted from reporting requirements in fiscal year 2014 and non-exempted from reporting requirements in fiscal year 2015. In 2014, the firm states in its filing: "These accounts have been prepared in accordance with the provisions applicable to companies subject to the small companies regime." Taking advantage of the exemptions, the firm only provides an abbreviated balance sheet with abbreviated notes in 2014. After exceeding the exemption thresholds, the firm provides a full set of financial statements including extensive notes and a management report (here: strategic report) in 2015.

Table A5: Standardized reporting and auditing scopes by country and year

	2001		2002		2003		2004		2005		2006		2007	
Country	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing
Austria	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.16	0.16	0.15	0.15	0.15	0.15
Belgium	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15
Bulgaria	0.31	0.41	0.31	0.41	0.31	0.35	0.29	0.33	0.28	0.32	0.20	0.24	0.20	0.24
Croatia	0.25	1.00	0.25	1.00	0.25	1.00	0.26	1.00	0.26	1.00	0.25	1.00	0.06	0.93
Czech Republic	1.00	0.17	1.00	0.17	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Denmark	1.00	1.00	1.00	1.00	0.08	1.00	0.07	1.00	0.06	1.00	0.06	1.00	0.06	0.27
Estonia	1.00	0.26	1.00	0.25	1.00	0.26	1.00	0.26	1.00	0.25	1.00	0.18	1.00	0.18
Finland	0.21	1.00	0.21	1.00	0.16	1.00	0.16	1.00	0.16	1.00	0.15	1.00	0.15	1.00
France	0.47	0.22	0.47	0.22	0.47	0.22	0.47	0.22	0.47	0.22	0.47	0.22	0.47	0.22
Germany	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.15	0.15
Greece	0.24	0.24	0.23	0.23	0.22	0.22	0.22	0.22	0.23	0.23	0.23	0.23	0.23	0.23
Hungary	0.03	0.13	0.03	0.13	0.03	0.12	0.03	0.12	0.03	0.12	0.03	0.12	0.02	0.12
Ireland	0.20	0.27	0.20	0.27	0.20	0.28	0.21	0.28	0.20	0.28	0.20	0.23	0.21	0.24
Italy	0.18	0.18	0.18	0.18	0.17	0.17	0.17	0.17	0.16	0.16	0.17	0.17	0.17	0.17
Lithuania	1.00	1.00	1.00	1.00	1.00	1.00	0.11	1.00	0.20	0.12	0.20	0.12	0.20	0.12
Luxembourg	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14
Netherlands	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.14	0.14
Norway	0.08	1.00	0.08	1.00	0.08	1.00	0.07	1.00	0.06	1.00	0.06	1.00	0.06	1.00
Poland	0.27	0.19	0.21	0.19	0.21	0.19	0.21	0.19	0.20	0.19	0.20	0.19	0.20	0.18
Portugal	1.00	0.31	1.00	0.31	1.00	0.22	1.00	0.22	1.00	0.22	1.00	0.22	1.00	0.22
Romania	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.16	0.16	0.16	0.16
Slovakia	0.11	0.11	0.11	0.11	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10
Slovenia					0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.16	0.16
Spain	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18	0.18
Sweden	0.17	1.00	0.17	1.00	0.17	1.00	0.16	1.00	0.16	1.00	0.16	1.00	0.16	1.00
United Kingdom	0.23	0.27	0.24	0.28	0.23	0.27	0.22	0.25	0.16	0.16	0.16	0.16	0.16	0.16
Total	0.37	0.43	0.37	0.43	0.29	0.41	0.26	0.40	0.26	0.36	0.22	0.32	0.22	0.29

Table A5 continued

	2008		2009		2010		2011		2012		2013		2014		2015	
Country	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing	Reporting	Auditing
Austria	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.13
Belgium	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15
Bulgaria	0.20	0.20	0.20	0.20	0.20	0.20	0.21	0.21	0.20	0.20	0.21	0.21	0.21	0.21	0.21	0.21
Croatia	0.06	0.93	0.05	0.93	0.05	0.93	0.06	0.93	0.05	0.93	0.06	0.93	0.06	0.93	0.06	0.93
Czech Republic	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Denmark	0.06	0.26	0.05	0.26	0.05	0.26	0.05	0.26	0.05	0.19	0.05	0.19	0.05	0.19	0.05	0.19
Estonia	1.00	0.18	1.00	0.17	1.00	0.17	1.00	0.26	1.00	0.26	1.00	0.26	1.00	0.26	1.00	0.26
Finland	0.15	1.00	0.15	0.66	0.15	0.66	0.15	0.66	0.15	0.66	0.15	0.66	0.15	0.66	0.15	0.66
France	0.47	0.22	0.47	0.22	0.47	0.22	0.47	0.22	0.29	0.22	0.29	0.22	0.30	0.22	0.15	0.22
Germany	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.13	0.13
Greece	0.23	0.23	0.19	0.19	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.19
Hungary	0.02	0.12	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.10	0.02	0.09
Ireland	0.21	0.16	0.21	0.16	0.21	0.16	0.21	0.16	0.21	0.16	0.20	0.16	0.15	0.15	0.14	0.14
Italy	0.16	0.16	0.15	0.15	0.14	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Lithuania	0.19	0.12	0.15	0.11	0.15	0.11	0.16	0.11	0.15	0.11	0.16	0.11	0.15	0.11	0.15	0.10
Luxembourg	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.13	0.13	0.13	0.13	0.13	0.13	0.09	0.09
Netherlands	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.15	0.15	0.14	0.14	0.15	0.15	0.14	0.14
Norway	0.06	1.00	0.05	1.00	0.06	1.00	0.06	1.00	0.05	0.34	0.05	0.34	0.05	0.34	0.05	0.34
Poland	0.20	0.19	0.20	0.19	0.20	0.19	0.20	0.18	0.20	0.18	0.20	0.18	0.20	0.19	0.20	0.18
Portugal	1.00	0.22	0.11	0.22	0.11	0.22	0.36	0.22	0.22	0.22	0.22	0.22	0.22	0.22	0.20	0.20
Romania	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16		
Slovakia	0.09	0.09	0.09	0.09	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28	0.28
Slovenia	0.16	0.16	0.16	0.16	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14
Spain	0.19	0.19	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.14	0.16
Sweden	0.06	1.00	0.06	1.00	0.06	1.00	0.06	1.00	0.05	0.34	0.05	0.35	0.05	0.35	0.05	0.35
United Kingdom	0.15	0.15	0.14	0.14	0.14	0.14	0.15	0.15	0.14	0.14	0.15	0.15	0.15	0.15	0.15	0.15
Total	0.21	0.29	0.17	0.27	0.18	0.27	0.19	0.28	0.17	0.22	0.18	0.23	0.17	0.22	0.16	0.23

Table A6: Legal sources for reporting and auditing requirements

Country	Reporting	Auditing
Austria	§906 Abs. 2 UGB §221 Abs. 1 UGB §906 Abs. 11 UGB & ReLÄG 2004 §906 Abs. 18 UGB & URÄG 2008 §906 Abs. 28 UGB & RÄG 2014	§ 268 Abs. 1 UGB
Belgium	Art.4 Arrêté royal modifiant Art. 15 Art. 2 Arrêté royal modifiant Art. 15 Art. 3 Loi 2005 modifiant Art. 15 Art. 15 Code des sociétés & Art. 3 Modifications du Code de sociétés 2015	Art. 141 (2) Code des sociétés 1999 Art. 141 (2) Code des sociétés as amended by Art. 10 Loi 2006 Art. 141 (2) Code des sociétés as amended by Art. 27 Modifications du Code de sociétés 2015
Bulgaria	Art. 22b Accountancy Act as amended by SG 105-2006 Accountancy Act 2006 § 1 No. 15 Art. 19 Accountancy Act 2016	Art. 37 (1) Accountancy Act 2016
Croatia	Art. 16 (2) Accounting Act 1992 (Official Gazette No. 90/92) Art. 17 (1) Accounting Act 2005 (Official Gazette No. 146/05) Art. 3 (2) Accounting Act 2007 (Official Gazette No. 109/07) Art. 5 (3) Accounting Act 2015 (Official Gazette No. 78/15)	Art. 6 Audit Act 2005 Art. 6a Audit Act 2008 & 2012 Art. 20 (3) Accounting Act 2015 (Official Gazette No. 78/15)
Czech Republic	§ 18 Accounting law § 18 Accounting law as amended by Accounting Act 2001 §§ 1b, 18 & 20 Accounting law 2016	§ 20 Accounting law § 20 Accounting law as amended by Accounting Act 2001 § 20 Accounting law 2016
Denmark	§ 7 stk. 2 No. 1 Danish Financial Statements Act 2001 § 7 stk. 2 No. 1 Danish Financial Statements Act as amended by Sec. 5 of the Law on the amendment of the Danish Financial Statements Act 2004 § 7 stk. 2 No. 1 Danish Financial Statements Act as amended by Sec. 5 of the Law on the amendment of the Danish Financial Statements Act 2008 § 7 stk. 2 No. 1 Danish Financial Statements Act as amended by Sec. 13 of the Law on the amendment of the Danish Financial Statements Act 2015	§ 135 Danish Financial Statements Act 2001 § 135 Danish Financial Statements Act as amended by Sec. 50 of the Audit Act 2006 § 135 Danish Financial Statements Act as amended by Sec. 1 of the Audit Act 2011
Estonia	§ 3 (15) Accounting Act	§ 14 (3) Accounting Act 2003 § 14 (3) Accounting Act 2005 § 91 (1) & (2) Auditors Activities Act 2010 § 91 (1) & (2) Auditors Activities Act
Finland	Ch. 3 § 9 Accounting Act 1997 Ch. 3 § 9 Accounting Act as amended by Amendment 2001 Ch. 3 § 9 Accounting Act as amended by Amendment 2004 Ch. 1 § 4a Accounting Act 2016	Ch. 3 § 9 Audit Act 1994 Ch. 2 § 4 Audit Act 2007 Ch. 2 § 2 Audit Act 2016

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France	Art. 17 of Decree No. 83-1020 of November 29, 1983 as amended by Decree 1994 Art. 17 of Decree No. 83-1020 of November 29, 1983 as amended by Decree 2001 Art. 17 of Decree No. 83-1020 of November 29, 1983 as amended by Decree 2005 Article R 123-200 Code de Commerce Decree of 28 December 2010 concerning approval of Regulation No. 2010-10 of the Accounting Standards Authority of 7 October 2010 Decree n° 2014-136 of February 17, 2014 & Article D 123-200 Code de Commerce	Art. 12 of Decree No. 67-236 of March 23, 1967 as amended by Decree 1985 Art. 12 of Decree No. 67-236 of March 23, 1967 as amended by Decree 2001 Article R 223-27 & Article R 221-5 Code de Commerce
Germany	§ 267 (1) HGB amended through Art. 1 Nr. 6 KapCoRiLiG § 267 (1) HGB amended through Art. 1 Nr. 1 EuroBilG § 267 (1) HGB amended through Art. 1 Nr. 3 BilReG § 267 (1) HGB amended through Art. 1 Nr. 19 BilMoG § 267 (1) HGB amended through Art. 1 Nr. 10 BilRUG	§ 316 (1) HGB in conjunction with § 267 (1) HGB
Greece	Art. 43a (2) & Art. 43b (1) Law 2190/1920 refer to Art. 42a (6) Law 2190/1920 Art. 2 (4) Law 4308/2014	Art. 42a (6) Law 2190/1920 as amended by Art. 2 Law 325/1994 Art. 42a (6) Law 2190/1920 as amended by Art. 16 (4) Law 2919/2001 Art. 42a (6) Law 2190/1920 as amended by Art. 52 Law 3604/2007 Art. 2 (A) Subparagraph (A1) Nr. 1a Law 4336/2015
Hungary	Sec. 7 Act XVIII of 1991 Sec. 9 (2) Act C of 2000 on Accounting Sec. 9 (2) Act C of 2000 on Accounting as amended by Sec. 49 of Act XXVI of 2005 Sec. 9 (2) Act C of 2000 on Accounting as amended by Sec. 2 (2) Act CI of 2015	Sec. 73 (7) Act XVIII 1991 as amended by Sec. 20 (2) Act CXXX of 1997 Sec. 155 (3) Act C of 2000 on Accounting Sec. 155 (3) Act C of 2000 on Accounting as amended by Sec. 213 of Act LXXV of 2007 Sec. 155 (3) Act C of 2000 on Accounting as amended by Sec. 25 (i) of Act XCVI of 2011 Sec. 155 (3) Act C of 2000 on Accounting as amended by Sec. 25 (j) of Act XCVI of 2011
Ireland	Sec. 8 (2) Companies (Amendment) Act 1986 as amended by S.I. No. 396 of 1993 Sec. 8 (2) Companies (Amendment) Act 1986 as amended by S.I. No. 304 of 2012 Ch. 14 Sec. 350 (5) Companies Act 2014	Sec. 32 (3) Companies Act 1999 Sec. 32 (3) Companies Act 1999 as amended by Sec. 53 (b) Companies Act 2003 Sec. 32 (3) Companies Act 1999 as amended by Sec. 9 (1b) Companies Act 2006 Sec. 32 (3) Companies Act 1999 as amended by S.I. No. 308 of 2012

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Italy	Art. 2435 bis Code Civil as amended by Art. 19 Law 1996 No. 52 Art. 2435 bis Code Civil as amended by Art.1 Decree 2001 No. 203 Art. 2435 bis Code Civil as amended by Art. 1 Decree 2003 No. 6 Art. 2435 bis Code Civil as amended by Art. 2 Decree 2003 No. 394 Art. 2435 bis Code Civil as amended by Art. 1 Decree 2006 No. 285 Art. 2435 bis Code Civil as amended by Art. 1 (4) Decree 2008 No. 173 Art. 2435 bis Code Civil as amended by Art. 6 Decree 2015 No. 139	Art. 2477 Code Civil Art. 2477 Code Civil as amended by Art. 37 Decree 2010 No. 39 Art. 2477 Code Civil as amended by Art. 14 Decree 2011 No. 183 Art. 2477 Code Civil as amended by Art. 35 Decree 2012 No. 5 Art. 2477 Code Civil as amended by Art. 20 Decree 2014 No. 91
Lithuania	Art. 24 (4) Law on Financial Statements of Entities Art. 24 (6) Law on Financial Statements of Entities as amended by Art. 11 Amendment 2003 No. IX-1915 Art. 24 (6) Law on Financial Statements of Entities as amended by Art. 11 Amendment 2006 No. X-731 Art. 24 (1) Law on Financial Statements of Entities as amended by Amendment 2008 No. X-1633 Art. 24 (1) Law on Financial Statements of Entities as amended by Art. 1 Amendment 2012 No. XI-2164 Art. 24 (1) Law on Financial Statements of Entities as amended by Art. 4 Amendment 2014 No. XII-1124 Art. 4 (2) Law on Financial Statements of Entities as amended by Amendment 2015 No. XII-1696	Art. 58 (4) Joint-Stock Company Law as amended by Amendment 2003 No. IX-1889 Art. 19 (2) Law on Financial Statements of Entities as amended by Art. 8 Amendment 2006 No. X-731 Art. 20 (2) Law on Financial Statements of Entities as amended by Amendment 2008 No. X-1633 Art. 20 (2) Law on Financial Statements of Entities as amended by Art. 3 Amendment 2011 No. IX-1799 Art. 20 (2) Law on Financial Statements of Entities as amended by Art. 2 Amendment 2014 No. XII-1124 Art. 24 (2) Law on Financial Statements of Entities as amended by Amendment 2015 No. XII-1696
Luxembourg	Art. 215 of the amended Law of December 1915 as amended by Art. 1 Law of 29 December 2000 Art. 35 Law of 19 December 2002 Art. 35 Law of 19 December 2002 as amended by Law of 10 December 2010 Art. 35 Law of 19 December 2002 as amended by Art. 2 Law of 18 December 2015	Art. 256 of the amended Law of December 1915 as amended by Art. 1 Law of 10 May 1984 Art. 69 (2) Law of 19 December 2002 Art. 69 (2) Law of 19 December 2002 as amended by Law of 10 December 2010 Art. 69 (2) Law of 19 December 2002 as amended by Art. 2 Law of 18 December 2015

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Netherlands	Art. 396 (1) Civil Code Book 2 as amended by Decision 1999-515	Art. 396 Civil Code Book 2 as amended by Decision 1999-515
	Art. 396 (1) Civil Code Book 2 as amended by Law 2001-664	Art. 396 Civil Code Book 2 as amended by Law 2001-664
	Art. 396 (1) Civil Code Book 2 as amended by Law 2002-225	Art. 396 Civil Code Book 2 as amended by Law 2002-225
	Art. 396 (1) Civil Code Book 2 as amended by Decision 2004-54	Art. 396 Civil Code Book 2 as amended by Decision 2004-54
	Art. 396 (1) Civil Code Book 2 as amended by Law 2005-377	Art. 396 Civil Code Book 2 as amended by Law 2005-377
	Art. 396 (1) Civil Code Book 2 as amended by Decision 2006-474	Art. 396 Civil Code Book 2 as amended by Decision 2006-474
	Art. 396 (1) Civil Code Book 2 as amended by Law 2008-217	Art. 396 Civil Code Book 2 as amended by Law 2008-217
	Art. 396 (1) Civil Code Book 2 as amended by Law 2008-243	Art. 396 Civil Code Book 2 as amended by Law 2008-243
	Art. 396 (1) Civil Code Book 2 as amended by Law 2008-550	Art. 396 Civil Code Book 2 as amended by Law 2008-550
	Art. 396 (1) Civil Code Book 2 as amended by Law 2012-300	Art. 396 Civil Code Book 2 as amended by Law 2012-300
	Art. 396 (1) Civil Code Book 2 as amended by Law 2015-349	Art. 396 Civil Code Book 2 as amended by Law 2015-349
Norway	Ch. 1 § 1-6 Law on Financial Statements	§ 7-6 Law on Private Limited Liability Companies as amended by Law of 15 April 2011 No. 10
	Ch. 1 § 1-6 Law on Financial Statements as amended by Law of 10 December 2004 No. 81	§ 7-6 Law on Private Limited Liability Companies as amended by Law of 14 June 2014 No. 40
	Ch. 1 § 1-6 Law on Financial Statements as amended by Law of 10 June 2005 No. 46	
	Ch. 1 § 1-6 Law on Financial Statements as amended by Law of 25 June 2010 No. 33	
Poland	Art. 50 Accounting Act 1994	Art. 64 Accounting Act 1994 as amended by Amendment Act 2000
	Art. 50 Accounting Act 1994 as amended by Amendment Act 2000	Art. 64 Accounting Act 1994 as amended by Amendment Act 2003
	Art. 50 Accounting Act 1994 as amended by Amendment Act 2004	Art. 64 Accounting Act 1994 as amended by Amendment Act 2004
	Art. 50 Accounting Act 1994 as amended by Amendment Act 2009	Art. 64 Accounting Act 1994 as amended by Amendment Act 2005
	Art. 50 Accounting Act 1994 as amended by Amendment Act 2012	Art. 64 Accounting Act 1994 as amended by Amendment Act 2008
	Art. 28b Accounting Act 1994 as amended by Amendment Act 2015	Art. 64 Accounting Act 1994 as amended by Amendment Act 2009
		Art. 64 Accounting Act 1994 as amended by Amendment Act 2011
		Art. 64 Accounting Act 1994 as amended by Amendment Act 2015
Portugal	Art. 2 Annex Decree Law No. 372-2007	Art. 262 (2) Commercial Company Code as amended by Decree Law No. 262-86
	Art. 9 (1) Decree Law No. 158-2009	Art. 262 (2) Commercial Company Code as amended by Decree Law No. 343-98
	Art. 9 (1) Decree Law No. 158-2009 as amended by Law No. 20-2010	
	Art. 9 (2) Decree Law No. 158-2009 as amended by Decree-Law No. 98-2015	

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Romania	Art. 3 Order No. 1752-2005 Art. 3 Order No. 3055-2009 Annex 1 Sec. 1.3 No. 9.(3) of Order No. 1802-2014 Annex 1 Sec. 1.3 No. 9.(3) of Order No. 1802-2014 as amended by Art. 8 of Order No. 773-2015	Art. 5 Order No. 1752-2005 Art. 5 Order No. 3055-2009 Annex 1 Sec. 10.1 No. 563.(2) of Order No. 1802-2014
Slovakia	§ 2 (7) Accounting Law 431-2002 as amended by Law 333-2014 § 2 (7) Accounting Law 431-2002 as amended by Law 130-2105 & 423-2015	§ 20 Accounting Law 563/1991 as amended by Law 336/1999 § 19 Accounting Law 431-2002 § 19 Accounting Law 431-2002 as amended by Law 561-2004 § 19 Accounting Law 431-2002 as amended by Law 540-2007 & 198-2007 § 19 Accounting Law 431-2002 as amended by Law 61-2009 § 19 Accounting Law 431-2002 as amended by Law 504-2009 § 19 Accounting Law 431-2002 as amended by Law 352-2013 § 19 Accounting Law 431-2002 as amended by Law 333-2014
Slovenia	Art. 52 (2) Companies Act (ZGD) as amended by Art. 12 ZGD-F Art. 52 (2) Companies Act (ZGD) as amended by Art. 4 ZGD-H Art. 55 (3) Companies Act (ZGD-1) 2006 Art. 55 (3) Companies Act (ZGD-1) 2006 as amended by Art. 3 ZGD-1B Art. 55 (3) Companies Act (ZGD-1) 2006 as amended by Art. 12 ZGD-1I	Art. 54 (1) Companies Act (ZGD) as amended by Art. 12 ZGD-F Art. 54 (1) Companies Act (ZGD) as amended by Art. 6 ZGD-H Art. 57 (1) Companies Act (ZGD-1) 2006 Art. 57 (1) Companies Act (ZGD-1) 2006 as amended by Art. 5 ZGD-1B Art. 57 (1) Companies Act (ZGD-1) 2006 as amended by Art. 14 ZGD-1I
Spain	Art. 181 Legislative Decree 1564-1989 as amended by Decree 572-1997 Art. 175 Legislative Decree 1564-1989 as amended by Law 16-2007 Art. 257 (1) Legislative Decree 1-2010 Art. 257 (1) Legislative Decree 1-2010 as amended by Art. 49 Law 14-2013 Art. 3 (9) Legislative Decree 1-2010 as amended by Law 22-2015	Art. 203 (2) in conjunction with Art. 181 Legislative Decree 1564-1989 Art. 203 (2) in conjunction with Art. 175 Legislative Decree 1564-1989 Art. 263 (2) in conjunction with Art. 257 (1) Legislative Decree 1-2010 Art. 263 (2) Legislative Decree 1-2010 as amended by Art. 49 Law 14-2013
Sweden	Ch. 1 § 3 Annual Accounts Act 1995:1554 as amended by Amendment 2006:871 Ch. 1 § 3 Annual Accounts Act 1995:1554 as amended by Amendment 2007:541 Ch. 1 § 3 Annual Accounts Act 1995:1554 as amended by Amendment 2009:34 Ch. 1 § 3 Annual Accounts Act 1995:1554 as amended by Amendment 2010:848 Ch. 1 § 3 Annual Accounts Act 1995:1554 as amended by Amendment 2015:813	§ 2 Audit Act 1999:1079 as amended by Amendment 2010:837

Table A6 continued

	Sec. 247 Companies Act 1985 as amended by Art. 5 SI 1992-2452	Sec. 249A Companies Act 1985 as amended by Art. 2 SI 1997-936
	Sec. 247 Companies Act 1985 as amended by Art. 2 SI 2004-16	Sec. 249A Companies Act 1985 as amended by Art. 2 SI 2000-1430
United Kingdom	Sec. 382 Companies Act 2006 as amended by Art. 3 SI 2008-393	Sec. 249A Companies Act 1985 as amended by Art. 4 SI 2004-16
	SI 2015-980	Sec. 477 (2) Companies Act 2006 as amended by SI 2008-393
		SI 2015-980

Notes: The table provides a selected list of official legal sources for country-specific financial reporting regulations and reporting- and auditing-exemption thresholds, in particular.

Table A7: Correlated factors

	(1) Measured Reporting Scope	(2) Standardized Reporting Scope	(3) Measured Reporting Scope	(4) Standardized Reporting Scope
Number of firms	0.001	0.002	-0.001	0.000
	(0.002)	(0.001)	(0.002)	(0.001)
Average sales (log)	0.016***	-0.002	0.020***	0.001
	(0.003)	(0.002)	(0.002)	(0.001)
Average employees (log)	0.051***	0.007**	0.045***	0.000
	(0.005)	(0.003)	(0.003)	(0.001)
Average capital (log)	0.024***	-0.004***	0.029***	-0.002**
	(0.003)	(0.001)	(0.002)	(0.001)
Concentration (HHI)	0.000***	0.000*	0.000***	-0.000*
	(0.000)	(0.000)	(0.000)	(0.000)
EU Member	-0.083	-0.105		
	(0.055)	(0.067)		
EURO Member	0.235***	0.104**		
	(0.062)	(0.045)		
IFRS Directive	0.150*	0.086		
	(0.077)	(0.079)		
TPD Directive	0.064**	0.043*		
	(0.026)	(0.024)		
MAD Directive	-0.061	-0.051		
	(0.059)	(0.067)		
High-technology exports	0.001	-0.011		
	(0.023)	(0.027)		
Net barter terms of trade index	0.027***	0.017		
	(0.010)	(0.011)		
Merchandise trade (% of GDP)	0.019	-0.005		
	(0.033)	(0.038)		
Urban population growth (annual %)	-0.013	-0.022		
	(0.022)	(0.024)		
Population, total	37.211***	39.031***		
	(10.741)	(10.604)		
Population growth (annual %)	-0.006	0.003		
	(0.021)	(0.025)		
Fertility rate, total (births per woman)	0.031	-0.009		
	(0.032)	(0.040)		
Life expectancy at birth, total (years)	-0.185**	-0.209**		
	(0.080)	(0.090)		
Adolescent fertility rate	0.084	0.097		
	(0.064)	(0.068)		
Net migration	0.045***	0.037**		
	(0.014)	(0.015)		
Income share held by lowest 20%	-0.008	-0.008		
	(0.012)	(0.013)		
Improved sanitation facilities	-0.067	0.016		
	(0.070)	(0.070)		
Immunization, measles	0.016	0.031		
	(0.017)	(0.020)		
Improved water source	-0.160***	-0.146***		
	(0.046)	(0.050)		
Mortality rate, under-5	-0.453***	-0.405***		
	(0.131)	(0.146)		

Table A7 continued

Gross enrolment ratio, secondary	-0.002	-0.009
	(0.016)	(0.018)
Gross enrollment ratio, primary	0.044***	0.062***
	(0.013)	(0.014)
School enrollment, primary and secondary	-0.010	-0.015
	(0.015)	(0.017)
GNI per capita, Atlas method	22.574***	24.521***
	(6.708)	(6.637)
GNI, Atlas method (current US$)	-40.586***	-43.818***
	(12.046)	(11.935)
GDP growth (annual %)	-0.027**	-0.045***
	(0.013)	(0.014)
GDP (current US$)	-0.149	-0.122
	(0.291)	(0.311)
Inflation, GDP deflator (annual %)	-0.004	0.005
	(0.017)	(0.018)
Industry, value added (% of GDP)	-0.093**	-0.063
	(0.041)	(0.045)
Agriculture, value added (% of GDP)	0.150***	0.201***
	(0.033)	(0.038)
Imports of goods and services	-0.209	-0.164
	(0.138)	(0.148)
Gross capital formation (% of GDP)	0.059**	0.061**
	(0.026)	(0.026)
Exports of goods and services (% of GDP)	0.281*	0.254
	(0.146)	(0.159)
Military expenditure (% of GDP)	0.017	0.004
	(0.022)	(0.026)
Internet users (per 100 people)	0.000	0.015
	(0.043)	(0.050)
Mobile cellular subscriptions	0.050	0.044
	(0.034)	(0.037)
Time required to start a business (days)	-0.049***	-0.054***
	(0.016)	(0.017)
Tax revenue (% of GDP)	0.044***	0.033*
	(0.016)	(0.017)
Revenue, excluding grants (% of GDP)	-0.234***	-0.149**
	(0.054)	(0.061)
Domestic credit (financial sector)	-0.042	-0.045
	(0.028)	(0.030)
Terrestrial and marine protected areas	0.094***	0.087**
	(0.034)	(0.039)
Annual freshwater withdrawals, total	0.284***	0.318***
	(0.074)	(0.082)
Population density	-2.717	-2.372
	(1.778)	(1.677)
CO2 emissions (metric tons per capita)	0.021	0.068
	(0.067)	(0.087)
Energy use	-0.050	-0.087
	(0.081)	(0.105)

Table A7 continued

Electric power consumption	-0.071	-0.054		
	(0.139)	(0.144)		
Personal remittances, received	0.028	0.046		
	(0.030)	(0.032)		
Foreign direct investment, net inflows	-0.002	-0.006		
	(0.004)	(0.005)		
Surface area (sq. km)	5.163	18.016		
	(10.277)	(11.706)		
Forest area (sq. km)	2.205***	3.249***		
	(0.811)	(0.931)		
Year FE	X	X		
Industry FE (4-Digit)	X	X		
Country FE	X	X		
Industry-Year FE (4-Digit)			X	X
Country-Year FE			X	X
Observations	205,732	205,732	205,660	205,660
Clusters (Country-Industry)	260	260	260	260
Clusters (Country-Year)	387	387	387	387
R-Squared (Within)	0.432	0.510	0.293	0.001

Notes: The table presents estimates of regressions of measured and standardized reporting scope on a broad set of country and industry-level variables. The number of firms, average sales, average employees, average tangible capital, and market share concentration in a given country, industry, and year are obtained from Bureau van Dijk's Amadeus. The EU and EURO indicators are coded based on official information on countries' EU and EURO membership. The IFRS, TPD, and MAD indicators are coded based on the work of Christensen et al. (2013) and Christensen et al. (2016). The remaining variables are taken from the World Bank indicators. Columns (1) and (2) include country, industry, and year fixed effects. Columns (3) and (4) include country-year and industry-year fixed effects. Standard errors (in parentheses) are clustered at the county level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table A8: Second-stage estimates (IV)

		Instrumented Reporting Scope		Instrumented Auditing Scope	
Variable	Aggregation	Coefficient	Standard Error	Coefficient	Standard Error
Financial Reporting					
Audit	Average	-0.167	(0.168)	0.319***	(0.084)
Type of Resource Allocation					
Entry	Average	0.112	(0.071)	-0.207***	(0.043)
Entry	Aggregate	0.138**	(0.059)	-0.094**	(0.036)
Exit	Average	0.025**	(0.012)	0.024**	(0.011)
Exit	Aggregate	0.001	(0.005)	0.002	(0.004)
HHI	Sum	-0.399**	(0.178)	0.032	(0.120)
Distance (Gross Margin)	p80-p20	-0.280**	(0.112)	-0.017	(0.077)
Dispersion (Gross Margin)	Standard deviation	-0.170**	(0.072)	0.020	(0.053)
Distance (EBITDA/Sales)	p80-p20	-0.374***	(0.133)	-0.028	(0.086)
Dispersion (EBITDA/Sales)	Standard deviation	-0.249***	(0.080)	-0.027	(0.052)
Publicly Listed	Average	0.018**	(0.008)	0.001	(0.007)
Publicly Listed	Aggregate	0.112**	(0.049)	-0.002	(0.043)
Shareholders	Average	0.630**	(0.255)	0.179	(0.199)
Shareholders	Aggregate	0.904***	(0.307)	0.017	(0.245)
Independence	Average	0.186	(0.135)	0.031	(0.088)
Independence	Aggregate	0.241*	(0.143)	-0.013	(0.092)
Efficiency of Resource Allocation					
Lower Tail (TFP (Employees))	p20	-1.282	(0.983)	1.194*	(0.634)
Upper Tail (TFP (Employees))	p80	-3.847**	(1.878)	-0.194	(1.140)
Distance (TFP (Employees))	p80-p20	-0.280**	(0.137)	-0.102	(0.089)
Dispersion (TFP (Employees))	Standard deviation	-0.174**	(0.085)	-0.078	(0.055)
Lower Tail (TFP ((Wage))	p20	-0.186	(0.171)	0.221**	(0.105)
Upper Tail (TFP (Wage))	p80	-0.699**	(0.344)	0.050	(0.221)
Distance (TFP (Wage))	p80-p20	-0.471***	(0.173)	-0.064	(0.115)
Dispersion (TFP (Wage))	Standard deviation	-0.264**	(0.116)	-0.028	(0.076)
Covariance Y/L and Y (Employees)	Aggregate-Average	0.124	(0.256)	0.045	(0.191)
Covariance TFP and Y (Employees)	Aggregate-Average	0.232	(0.199)	0.150	(0.142)
Covariance Y/L and Y (Wage)	Aggregate-Average	0.465**	(0.220)	0.399**	(0.195)
Covariance TFP and Y (Wage)	Aggregate-Average	0.217	(0.191)	0.263*	(0.157)
Y/L (Employees)	Average	-0.031	(0.277)	-0.255	(0.191)
Y/L (Wage)	Average	0.200	(0.220)	-0.173	(0.183)
TFP (Employees)	Average	0.185	(0.201)	0.012	(0.153)
TFP (Wage)	Average	0.319*	(0.180)	0.067	(0.153)
Y/L (Employees)	Aggregate	0.117	(0.259)	-0.216	(0.199)
Y/L (Wage)	Aggregate	0.703**	(0.276)	0.001	(0.221)
TFP (Employees)	Aggregate	0.366	(0.237)	0.145	(0.187)
TFP (Wage)	Aggregate	0.750***	(0.277)	0.299	(0.225)
ΔY/L (Employees)	Average	-0.081*	(0.042)	0.024	(0.032)
ΔY/L (Wage)	Average	-0.045	(0.037)	-0.013	(0.027)
ΔTFP (Employees)	Average	-0.062*	(0.034)	0.025	(0.029)
ΔTFP (Wage)	Average	-0.027	(0.034)	0.009	(0.024)
ΔY/L (Employees)	Aggregate	-0.116*	(0.068)	0.033	(0.049)
ΔY/L (Wage)	Aggregate	-0.052	(0.062)	-0.012	(0.043)
ΔTFP (Employees)	Aggregate	-0.054	(0.052)	-0.021	(0.043)
ΔTFP (Wage)	Aggregate	-0.021	(0.045)	-0.028	(0.035)

Notes: The table summarizes the second-stage estimates of a two-stage least squares estimation using "Standardized Reporting Scope" and "Standardized Auditing Scope" as instruments for "Measured Reporting Scope" and "Measured Auditing Scope". The "Sign" columns provide the signs of my main results. "Measured Reporting Scope" is the share of firms exceeding reporting-related exemption thresholds in a given country, industry, and year. "Measured Auditing Scope" is the share of firms exceeding auditing-related exemption thresholds in a given country, industry, and year. "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year a standardized firm-size distribution per industry

Table A8 continued

(across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table A9: Firm density and resource allocation

		Number of firms		Number of firms (squared)	
Variable	Aggregation	Coefficient	Standard Error	Coefficient	Standard Error
Financial Reporting					
Measured Reporting Scope	Average	0.009***	(0.003)	-0.001***	(0.000)
Measured Auditing Scope	Average	0.008**	(0.003)	-0.001***	(0.000)
Audit	Average	0.011***	(0.003)	-0.002***	(0.000)
Type of Resource Allocation					
Entry	Average	0.027***	(0.003)	-0.003***	(0.000)
Entry	Aggregate	0.005***	(0.002)	-0.001***	(0.000)
Exit	Average	0.007***	(0.001)	-0.001***	(0.000)
Exit	Aggregate	0.001***	(0.000)	-0.000	(0.000)
HHI	Sum	-0.257***	(0.004)	0.017***	(0.001)
Distance (Gross Margin)	p80-p20	-0.238***	(0.006)	0.019***	(0.001)
Dispersion (Gross Margin)	Standard deviation	-0.130***	(0.003)	0.009***	(0.000)
Distance (EBITDA/Sales)	p80-p20	-0.254***	(0.007)	0.020***	(0.001)
Dispersion (EBITDA/Sales)	Standard deviation	-0.140***	(0.004)	0.010***	(0.000)
Publicly Listed	Average	0.002***	(0.000)	-0.000***	(0.000)
Publicly Listed	Aggregate	0.010***	(0.002)	-0.000*	(0.000)
Shareholders	Average	0.011***	(0.003)	-0.002***	(0.000)
Shareholders	Aggregate	0.013*	(0.007)	0.000	(0.001)
Independence	Average	0.015***	(0.003)	-0.001***	(0.000)
Independence	Aggregate	-0.002	(0.003)	0.001***	(0.000)
Efficiency of Resource Allocation					
Lower Tail (TFP (Employees))	p20	-2.091***	(0.072)	0.179***	(0.008)
Upper Tail (TFP (Employees))	p80	-2.924***	(0.076)	0.216***	(0.010)
Distance (TFP (Employees))	p80-p20	-0.275***	(0.008)	0.021***	(0.001)
Dispersion (TFP (Employees))	Standard deviation	-0.145***	(0.004)	0.010***	(0.000)
Lower Tail (TFP ((Wage))	p20	-0.332***	(0.014)	0.028***	(0.002)
Upper Tail (TFP (Wage))	p80	-0.536***	(0.015)	0.039***	(0.002)
Distance (TFP (Wage))	p80-p20	-0.325***	(0.011)	0.025***	(0.001)
Dispersion (TFP (Wage))	Standard deviation	-0.173***	(0.005)	0.012***	(0.001)
Covariance Y/L and Y (Employees)	Aggregate-Average	0.202***	(0.013)	-0.013***	(0.002)
Covariance TFP and Y (Employees)	Aggregate-Average	0.137***	(0.010)	-0.009***	(0.001)
Covariance Y/L and Y (Wage)	Aggregate-Average	0.104***	(0.010)	-0.008***	(0.001)
Covariance TFP and Y (Wage)	Aggregate-Average	0.078***	(0.010)	-0.006***	(0.001)
Y/L (Employees)	Average	-0.036***	(0.008)	-0.000	(0.001)
Y/L (Wage)	Average	0.003	(0.011)	0.001	(0.001)
TFP (Employees)	Average	-0.012	(0.008)	-0.002**	(0.001)
TFP (Wage)	Average	0.014	(0.009)	-0.001	(0.001)
Y/L (Employees)	Aggregate	0.176***	(0.013)	-0.013***	(0.002)
Y/L (Wage)	Aggregate	0.111***	(0.011)	-0.008***	(0.001)
TFP (Employees)	Aggregate	0.127***	(0.011)	-0.011***	(0.001)
TFP (Wage)	Aggregate	0.091***	(0.011)	-0.007***	(0.001)
ΔY/L (Employees)	Average	-0.001	(0.002)	-0.000	(0.000)
ΔY/L (Wage)	Average	-0.002	(0.002)	0.000	(0.000)
ΔTFP (Employees)	Average	-0.002	(0.002)	0.000	(0.000)
ΔTFP (Wage)	Average	-0.002*	(0.001)	0.000*	(0.000)
ΔY/L (Employees)	Aggregate	0.014***	(0.003)	-0.001***	(0.000)
ΔY/L (Wage)	Aggregate	0.010***	(0.003)	-0.001***	(0.000)
ΔTFP (Employees)	Aggregate	0.009***	(0.002)	-0.001***	(0.000)
ΔTFP (Wage)	Aggregate	0.007***	(0.002)	-0.001***	(0.000)

Notes: The table summarizes estimates from regressions of financial reporting and resource allocation measures on the number of firms and its squared term (as a measure of endogenous competition). The estimates provide a benchmark for the association of financial reporting and resource allocation measures with competition as measured by firm density. "Number of firms" is the log number of firms in a given country, industry, and year. "Number of firms (squared)" is the squared log number of firms in a given country, industry, and year. The regressions include

Table A9 continued

industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table A10: Interaction of reporting and auditing regulation

		(1)	(2)	(3)	(4)
		Standardized Reporting Scope		Standardized Auditing Scope	
Variable	Aggregation	> Auditing Scope	≤ Auditing Scope	> Reporting Scope	≤ Reporting Scope
		Financial Reporting			
Measured Reporting Scope	Average	0.670***	0.429***	-0.084	-0.129***
		(0.119)	(0.064)	(0.061)	(0.045)
Measured Auditing Scope	Average	0.069	-0.176**	0.534***	0.534***
		(0.120)	(0.084)	(0.067)	(0.060)
Audit	Average	0.124	-0.222***	0.247***	0.134***
		(0.106)	(0.059)	(0.049)	(0.051)
		Type of Resource Allocation			
Entry	Average	0.037	0.081**	-0.164***	-0.079***
		(0.034)	(0.033)	(0.025)	(0.025)
Entry	Aggregate	0.059**	0.062*	-0.089***	-0.042*
		(0.028)	(0.032)	(0.022)	(0.023)
Exit	Average	0.005	0.010*	0.007	0.009
		(0.008)	(0.006)	(0.006)	(0.007)
Exit	Aggregate	0.001	-0.000	-0.001	0.003
		(0.003)	(0.003)	(0.002)	(0.003)
HHI	Sum	-0.271	-0.164	0.116*	-0.046
		(0.173)	(0.132)	(0.065)	(0.106)
Distance (Gross Margin)	p80-p20	-0.144*	-0.076	0.044	-0.069
		(0.086)	(0.076)	(0.052)	(0.065)
Dispersion (Gross Margin)	Standard deviation	-0.118**	-0.036	0.057**	-0.035
		(0.054)	(0.050)	(0.028)	(0.042)
Distance (EBITDA/Sales)	p80-p20	-0.236***	-0.136	0.045	-0.028
		(0.088)	(0.085)	(0.057)	(0.070)
Dispersion (EBITDA/Sales)	Standard deviation	-0.155***	-0.088*	0.026	-0.042
		(0.051)	(0.050)	(0.030)	(0.043)
Publicly Listed	Average	0.006*	0.010***	-0.001	-0.002
		(0.003)	(0.003)	(0.003)	(0.003)
Publicly Listed	Aggregate	0.025	0.067***	-0.016	-0.015
		(0.023)	(0.022)	(0.022)	(0.022)
Shareholders	Average	0.131	0.244***	0.016	0.017
		(0.117)	(0.061)	(0.048)	(0.049)

Table A10 continued

Shareholders	Aggregate	0.379**	0.483***	-0.124	-0.157*
		(0.157)	(0.087)	(0.081)	(0.080)
Independence	Average	-0.025	0.109***	-0.071*	0.009
		(0.043)	(0.038)	(0.039)	(0.038)
Independence	Aggregate	0.062	0.152***	-0.100**	-0.032
		(0.055)	(0.045)	(0.043)	(0.046)
Efficiency of Resource Allocation					
Lower Tail (TFP (Employees))	p20	-0.774	-0.646	1.471***	0.489
		(1.006)	(0.612)	(0.543)	(0.459)
Upper Tail (TFP (Employees))	p80	-2.564	-1.577	0.583	-0.498
		(1.643)	(1.387)	(0.734)	(1.054)
Distance (TFP (Employees))	p80-p20	-0.183	-0.099	-0.023	-0.086
		(0.116)	(0.105)	(0.055)	(0.083)
Dispersion (TFP (Employees))	Standard deviation	-0.147**	-0.056	-0.020	-0.071
		(0.071)	(0.063)	(0.033)	(0.051)
Lower Tail (TFP ((Wage))	p20	-0.163	-0.089	0.207**	0.128
		(0.139)	(0.108)	(0.092)	(0.081)
Upper Tail (TFP (Wage))	p80	-0.561*	-0.275	0.195	0.015
		(0.291)	(0.271)	(0.134)	(0.207)
Distance (TFP (Wage))	p80-p20	-0.272**	-0.138	0.062	-0.086
		(0.133)	(0.126)	(0.067)	(0.103)
Dispersion (TFP (Wage))	Standard deviation	-0.175**	-0.085	0.046	-0.048
		(0.086)	(0.083)	(0.041)	(0.070)
Covariance Y/L and Y (Employees)	Aggregate-Average	-0.073	0.057	-0.134	0.127
		(0.210)	(0.152)	(0.148)	(0.129)
Covariance TFP and Y (Employees)	Aggregate-Average	0.028	0.117	-0.057	0.155*
		(0.161)	(0.106)	(0.106)	(0.087)
Covariance Y/L and Y (Wage)	Aggregate-Average	0.249*	0.208	0.015	0.135
		(0.147)	(0.134)	(0.135)	(0.132)
Covariance TFP and Y (Wage)	Aggregate-Average	0.147	0.200**	0.037	0.185**
		(0.143)	(0.101)	(0.096)	(0.093)
Y/L (Employees)	Average	0.294	-0.030	0.021	-0.220
		(0.192)	(0.160)	(0.128)	(0.139)
Y/L (Wage)	Average	0.372**	0.076	-0.098	-0.152
		(0.173)	(0.134)	(0.121)	(0.134)
TFP (Employees)	Average	0.147	0.070	0.021	-0.012
		(0.152)	(0.119)	(0.098)	(0.113)
TFP (Wage)	Average	0.278*	0.113	-0.019	0.023
		(0.162)	(0.106)	(0.103)	(0.098)

Table A10 continued

Y/L (Employees)	Aggregate	0.191	0.079	-0.143	-0.093
		(0.205)	(0.170)	(0.151)	(0.164)
Y/L (Wage)	Aggregate	0.588***	0.314*	-0.188	-0.039
		(0.216)	(0.171)	(0.165)	(0.151)
TFP (Employees)	Aggregate	0.205	0.179	-0.019	0.119
		(0.180)	(0.142)	(0.132)	(0.132)
TFP (Wage)	Aggregate	0.434**	0.340**	-0.005	0.170
		(0.175)	(0.151)	(0.144)	(0.129)
ΔY/L (Employees)	Average	-0.057**	-0.034	0.012	0.016
		(0.029)	(0.022)	(0.026)	(0.018)
ΔY/L (Wage)	Average	-0.037	-0.042*	-0.013	-0.008
		(0.024)	(0.021)	(0.022)	(0.017)
ΔTFP (Employees)	Average	-0.061**	-0.026	0.001	0.024
		(0.031)	(0.022)	(0.022)	(0.018)
ΔTFP (Wage)	Average	-0.027	-0.027	-0.005	0.007
		(0.024)	(0.020)	(0.020)	(0.017)
ΔY/L (Employees)	Aggregate	-0.095**	-0.042	0.054	0.041
		(0.047)	(0.039)	(0.041)	(0.029)
ΔY/L (Wage)	Aggregate	-0.083**	-0.032	0.030	0.014
		(0.035)	(0.036)	(0.033)	(0.024)
ΔTFP (Employees)	Aggregate	-0.028	-0.016	0.016	0.002
		(0.034)	(0.029)	(0.034)	(0.024)
ΔTFP (Wage)	Aggregate	-0.041	-0.022	0.023	-0.006
		(0.030)	(0.027)	(0.025)	(0.020)

Table A10 continued

Notes: The table summarizes the estimates from regressions of financial reporting and resource allocation measures on the scopes of reporting regulation and auditing regulation and their interactions. "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The first column of reporting scope (subtitled: "> Auditing Scope") captures variation in reporting scope if the auditing scope in the same country, industry, and year is lower; otherwise the reporting scope is set to zero. This column captures the effects of reporting regulation without a corresponding auditing mandate. The second column of reporting scope (subtitled: "≤ Auditing Scope") captures variation in reporting scope if the auditing scope in the same country, industry, and year is the same or higher; otherwise the reporting scope is set to zero. This column captures the effects of reporting regulation with a corresponding auditing mandate. The first column of auditing scope (subtitled: "> Reporting Scope") captures variation in auditing scope if the reporting scope in the same country, industry, and year is lower; otherwise the reporting scope is set to zero. This column captures the effects of auditing regulation without a corresponding (expanded) reporting mandate. The second column of reporting scope (subtitled: "≤ Auditing Scope") captures variation in auditing scope if the reporting scope in the same country, industry, and year is the same or higher; otherwise the reporting scope is set to zero. This column captures the effects of auditing regulation with a corresponding (expanded) reporting mandate. Differences between the reporting scope columns (with and without auditing mandate) and the auditing scope columns (with and without reporting mandate) may arise not only due to a potential interaction of reporting and auditing regulation, but also because of heterogeneity in treatment effects related to the level of the regulatory scope (e.g., variation among higher vs. lower scopes can matter differentially). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications), country-year fixed effects, and fixed effects for each partition (i.e., (a) reporting scope higher than auditing scope, (b) reporting scope lower than auditing scope, and (c) reporting scope equal to auditing scope). Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table A11: Robustness to country-by-country exclusion

		Standardized Reporting Scope			Standardized Auditing Scope		
Variable	Aggregation	Sign	Significance	Sign Flip	Sign	Significance	Sign Flip
Financial Reporting							
Measured Reporting Scope	Average	+	***		-	**	
Measured Auditing Scope	Average	-			+	***	
Audit	Average	-			+	***	
Type of Resource Allocation							
Entry	Average	+	**		-	***	
Entry	Aggregate	+	***		-	***	
Exit	Average	+	*		+		
Exit	Aggregate	+		FR, NO, PL	+		FI, NO
HHI	Sum	-	**		+		EE
Distance (Gross Margin)	p80-p20	-	**		+		EE
Dispersion (Gross Margin)	Standard deviation	-	**		+		EE
Distance (EBITDA/Sales)	p80-p20	-	***		-		FI, NO
Dispersion (EBITDA/Sales)	Standard deviation	-	***		-		FI
Publicly Listed	Average	+	***		-		HR
Publicly Listed	Aggregate	+	***		-		HR
Shareholders	Average	+	***		+		BG, PT
Shareholders	Aggregate	+	***		-		HR
Independence	Average	+	*		-		HR, DK
Independence	Aggregate	+	**		-		HR
Efficiency of Resource Allocation							
Lower Tail (TFP (Employees))	p20	-			+	**	
Upper Tail (TFP (Employees))	p80	-	**		+		EE
Distance (TFP (Employees))	p80-p20	-	*	EE	-		HR, FI, PL
Dispersion (TFP (Employees))	Standard deviation	-	*	EE	-		FI, SE
Lower Tail (TFP ((Wage))	p20	-			+	**	
Upper Tail (TFP (Wage))	p80	-	**		+		EE
Distance (TFP (Wage))	p80-p20	-	***		-		More than 3
Dispersion (TFP (Wage))	Standard deviation	-	**		-		More than 3
Covariance Y/L and Y (Employees)	Aggregate-Average	+		FR	+		More than 3
Covariance TFP and Y (Employees)	Aggregate-Average	+			+		
Covariance Y/L and Y (Wage)	Aggregate-Average	+	**		+		HR
Covariance TFP and Y (Wage)	Aggregate-Average	+	**		+		
Y/L (Employees)	Average	-		More than 3	-		
Y/L (Wage)	Average	+			-		
TFP (Employees)	Average	+			-		More than 3
TFP (Wage)	Average	+	*		+		More than 3
Y/L (Employees)	Aggregate	+			-		
Y/L (Wage)	Aggregate	+	***		-		BG, FI, SE
TFP (Employees)	Aggregate	+			+		HR, EE
TFP (Wage)	Aggregate	+	***		+		
ΔY/L (Employees)	Average	-	**		+		
ΔY/L (Wage)	Average	-			-		More than 3
ΔTFP (Employees)	Average	-	*		+		
ΔTFP (Wage)	Average	-			+		HR
ΔY/L (Employees)	Aggregate	-	*		+		
ΔY/L (Wage)	Aggregate	-			-		More than 3
ΔTFP (Employees)	Aggregate	-			-		More than 3
ΔTFP (Wage)	Aggregate	-			-		HR

Notes: The table summarizes the sensitivity of my main results with respect to the exclusion of individual countries. The "Sign" columns provide the signs of my main results. The "Significance" columns provide the statistical significance levels of my main results (*, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively). The "Sign Flip" columns list the country codes of the individual countries which, when excluded, result in a change of coefficient sign compared to the main results. If there are more than three such countries for a given result, the "Sign Flip" column states "More than 3" rather than lists all relevant country codes.

Table A12: Placebo controls

Independent variable		Standardized Reporting Scope		Standardized Auditing Scope	
Dependent variable		Coefficient	Standard Error	Coefficient	Standard Error
Lower Tail (TFP (Employees))	p20	-0.941	(0.580)	1.012***	(0.384)
Upper Tail (TFP (Employees))	p80	-2.996***	(1.123)	0.182	(0.688)
Distance (TFP (Employees))	p80-p20	-0.214**	(0.083)	-0.052	(0.053)
Dispersion (TFP (Employees))	Standard deviation	-0.106**	(0.050)	-0.039	(0.034)
Lower Tail (TFP ((Wage))	p20	-0.170*	(0.097)	0.172***	(0.066)
Upper Tail (TFP (Wage))	p80	-0.677***	(0.211)	0.072	(0.130)
Distance (TFP (Wage))	p80-p20	-0.392***	(0.108)	-0.019	(0.070)
Dispersion (TFP (Wage))	Standard deviation	-0.220***	(0.066)	-0.009	(0.047)
Covariance Y/L and Y (Employees)	Aggregate-Average	-0.079	(0.144)	0.019	(0.112)
Covariance TFP and Y (Employees)	Aggregate-Average	-0.024	(0.107)	0.089	(0.079)
Covariance Y/L and Y (Wage)	Aggregate-Average	0.009	(0.136)	0.116	(0.120)
Covariance TFP and Y (Wage)	Aggregate-Average	-0.045	(0.107)	0.151*	(0.086)
Y/L (Employees)	Average	-0.037	(0.147)	-0.189*	(0.113)
Y/L (Wage)	Average	0.054	(0.138)	-0.139	(0.110)
TFP (Employees)	Average	0.011	(0.120)	-0.079	(0.091)
TFP (Wage)	Average	0.096	(0.117)	-0.019	(0.083)
Y/L (Employees)	Aggregate	-0.033	(0.177)	-0.173	(0.125)
Y/L (Wage)	Aggregate	0.164	(0.183)	-0.058	(0.132)
TFP (Employees)	Aggregate	0.006	(0.157)	0.016	(0.103)
TFP (Wage)	Aggregate	0.150	(0.166)	0.111	(0.110)

Notes: The table summarizes my main results related to resource reallocation after controlling for a hypothetical ("placebo") coverage effect. The placebo controls are calculated based on the "simulated" firms used in the construction of the standardized measures of financial reporting scope. The placebo controls include the equally weighted average and market share weighted sum of simulated total assets, sales, and employees calculated using only those simulated firms exceeding a country's reporting thresholds in a given year. For each dependent variable, the placebo controls further include a specific control replicating the exact dependent variable definition using simulated firms exceeding a country's reporting thresholds in a given year. For example, the regression of the 20th percentile of TFP ("Lower Tail (p20)") on standardized reporting and auditing scope includes the equally weighted average and market share weighted sum of simulated total assets, sales, and employees as well as the 20th percentile of the TFP distribution of simulated firms exceeding countries' reporting thresholds (where TFP is approximated using total assets instead of tangible assets). "Standardized Reporting Scope" is the share of (simulated) firms exceeding reporting-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). "Standardized Auditing Scope" is the share of (simulated) firms exceeding auditing-related exemption thresholds in a given country, industry, and year using a standardized firm-size distribution per industry (across countries). The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table A13: Public disclosure enforcement and disclosure rate

	(1) Disclosure rate
Regulated*2003	-0.071***
	(0.008)
Regulated*2004	-0.064***
	(0.008)
Regulated*2005	-0.026***
	(0.006)
Regulated*2007	0.216***
	(0.010)
Regulated*2008	0.293***
	(0.011)
Regulated*2009	0.275***
	(0.011)
Regulated*2010	0.260***
	(0.012)
Regulated*2011	0.250***
	(0.011)
Regulated*2012	0.235***
	(0.010)
F-Statistic (2003-2005 = 2007-2012)	880.86***
p-value	0.000
County-Industry (2-Digit)	X
Industry-Year (2-Digit)	X
County-Year	X
Observations	195,578
Clusters (Country)	326
Adjusted R-Squared	0.909

Notes: The table presents estimates of a regression of disclosure rates on the share of firms affected by the enforcement reform. "Disclosure Rate" is defined as the fraction of limited liability firms observable in Bureau van Dijk's Amadeus database relative to all firms in a given county, industry, and year in Germany. "Regulated" denotes the share of affected firms and is defined as the fraction of limited liability firms in a given county, industry, and year. The coefficient of "Regulated" is estimated separately for each year relative to the base year 2006. The joint difference between pre-enforcement (2003-2005) and post-enforcement (2007-2012) coefficients is tested with an F-test (providing a corresponding F-statistic). The regressions include county-industry, industry-year, and county-year fixed effects (where the industries are defined using two-digit NACE classifications). Standard errors (in parentheses) are clustered at the county level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table A14: Public disclosure enforcement and competition

	(1) Entry	(2) Exit	(3) HHI
Regulated*2003	0.005	-0.012	-0.003
	(0.045)	(0.043)	(0.008)
Regulated*2004	-0.080*	0.003	0.006
	(0.044)	(0.043)	(0.008)
Regulated*2005	-0.053	-0.039	0.003
	(0.045)	(0.044)	(0.008)
Regulated*2007	-0.029	-0.072	-0.009
	(0.045)	(0.048)	(0.006)
Regulated*2008	0.067	0.081*	-0.015**
	(0.044)	(0.044)	(0.008)
Regulated*2009	0.160***	0.065	-0.013
	(0.046)	(0.045)	(0.009)
Regulated*2010	0.153***	0.099**	-0.016*
	(0.045)	(0.045)	(0.009)
Regulated*2011	0.167***	0.049	-0.019**
	(0.045)	(0.045)	(0.009)
Regulated*2012	0.150***	0.094**	-0.017**
	(0.047)	(0.045)	(0.009)
F-Statistic (2003-2005 = 2007-2012)	23.48***	4.72**	6.79***
p-value	0.000	0.031	0.001
County-Industry (2-Digit)	X	X	X
Industry-Year (2-Digit)	X	X	X
County-Year	X	X	X
Observations	134,662	132,537	194,519
Clusters (Country)	326	326	326
Adjusted R-Squared	0.950	0.948	0.904

Notes: The table presents estimates of regressions of entry, exit, and product-market concentration on the share of firms affected by the enforcement reform. "Entry" is defined as the log number of firms newly registering at the local commercial register/court in a given county, industry, and year in Germany. "Exit" is defined as the log number of firms deregistering at the local commercial register/court in a given county, industry, and year in Germany. "HHI" is defined as the sum of squared market shares in a given county, industry, and year in Germany. "Regulated" denotes the share of affected firms and is defined as the fraction of limited liability firms in a given county, industry, and year. The coefficient of "Regulated" is estimated separately for each year relative to the base year 2006. The joint difference between pre-enforcement (2003-2005) and post-enforcement (2007-2012) coefficients is tested with an F-test (providing a corresponding F-statistic). The regressions include county-industry, industry-year, and county-year fixed effects (where the industries are defined using two-digit NACE classifications). Standard errors (in parentheses) are clustered at the county level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table A15: Public disclosure enforcement and competition by number of firms

	Entry (Subsidiaries)		Exit (Unprofitability)		HHI	
	(1)	(2)	(3)	(4)	(5)	(6)
Number of firms (2003-2006)	High	Low	High	Low	High	Low
Regulated*2003	-0.115	0.039	-0.049	0.002	-0.008	0.002
	(0.100)	(0.049)	(0.092)	(0.050)	(0.013)	(0.011)
Regulated*2004	-0.221**	0.042	-0.052	-0.002	-0.018	0.011
	(0.099)	(0.051)	(0.095)	(0.050)	(0.013)	(0.008)
Regulated*2005	-0.139	-0.060	-0.098	-0.016	-0.007	0.005
	(0.106)	(0.049)	(0.092)	(0.043)	(0.010)	(0.007)
Regulated*2007	0.085	0.096*	-0.127	-0.074*	-0.001	-0.012*
	(0.099)	(0.050)	(0.097)	(0.039)	(0.013)	(0.007)
Regulated*2008	-0.014	0.152***	-0.009	0.084**	-0.009	-0.018**
	(0.093)	(0.046)	(0.090)	(0.041)	(0.013)	(0.009)
Regulated*2009	0.059	0.089*	-0.029	0.086**	-0.005	-0.015
	(0.097)	(0.047)	(0.081)	(0.040)	(0.015)	(0.011)
Regulated*2010	-0.017	0.179***	0.074	0.108**	0.002	-0.019*
	(0.094)	(0.049)	(0.086)	(0.042)	(0.015)	(0.011)
Regulated*2011	-0.178*	0.122**	-0.188**	0.049	-0.002	-0.020*
	(0.093)	(0.049)	(0.092)	(0.039)	(0.015)	(0.011)
Regulated*2012	-0.096	0.142***	-0.131	0.087**	0.005	-0.019*
	(0.098)	(0.049)	(0.090)	(0.039)	(0.014)	(0.010)

Table A15 continued

County-Industry (2-Digit)	X	X	X	X	X	X
Industry-Year (2-Digit)	X	X	X	X	X	X
County-Year	X	X	X	X	X	X
Observations	82,051	52,473	82,693	59,695	104,783	89,694
Clusters (Country)	326	326	326	326	326	326
Adjusted R-Squared	0.848	0.450	0.895	0.549	0.813	0.869

Notes: The table presents estimates of regressions of entry of subsidiaries, exit due to unprofitability, and product-market concentration on the share of firms affected by the enforcement reform split by the number of operating firms in the pre-enforcement period. The "High" ("Low") columns show estimates for county-industries with an above (below) median number of operating firms in the pre-enforcement period. "Entry (Subsidiaries)" is defined as the log number of subsidiaries newly registering at the local commercial register/court in a given county, industry, and year in Germany. "Exit (Unprofitability)" is defined as the log number of firms deregistering at the local commercial register/court due to unprofitability in a given county, industry, and year in Germany. "HHI" is defined as the sum of squared market shares in a given county, industry, and year in Germany. "Regulated" denotes the share of affected firms and is defined as the fraction of limited liability firms in a given county, industry, and year. The coefficient of "Regulated" is estimated separately for each year relative to the base year 2006. The regressions include county-industry, industry-year, and county-year fixed effects (where the industries are defined using two-digit NACE classifications). Standard errors (in parentheses) are clustered at the county level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.

Table A16: Voluntary auditing

		Audit	
Variable	Aggregation	Coefficient	Standard Error
Financial Reporting			
Measured Reporting Scope	Average	0.297***	(0.029)
Measured Auditing Scope	Average	0.332***	(0.029)
Type of Resource Allocation			
Entry	Average	-0.129***	(0.013)
Entry	Aggregate	-0.062***	(0.011)
Exit	Average	0.000	(0.003)
Exit	Aggregate	-0.001	(0.001)
HHI	Sum	-0.132***	(0.025)
Distance (Gross Margin)	p80-p20	-0.022	(0.015)
Dispersion (Gross Margin)	Standard deviation	-0.009	(0.011)
Distance (EBITDA/Sales)	p80-p20	-0.039**	(0.017)
Dispersion (EBITDA/Sales)	Standard deviation	-0.012	(0.011)
Publicly Listed	Average	0.004***	(0.001)
Publicly Listed	Aggregate	0.021***	(0.008)
Shareholders	Average	0.108***	(0.026)
Shareholders	Aggregate	0.058*	(0.031)
Independence	Average	-0.058***	(0.012)
Independence	Aggregate	-0.066***	(0.014)
Efficiency of Resource Allocation			
Lower Tail (TFP (Employees))	p20	-0.866***	(0.161)
Upper Tail (TFP (Employees))	p80	-0.967***	(0.221)
Distance (TFP (Employees))	p80-p20	-0.061***	(0.019)
Dispersion (TFP (Employees))	Standard deviation	-0.042***	(0.012)
Lower Tail (TFP ((Wage))	p20	-0.143***	(0.027)
Upper Tail (TFP (Wage))	p80	-0.187***	(0.046)
Distance (TFP (Wage))	p80-p20	-0.065**	(0.027)
Dispersion (TFP (Wage))	Standard deviation	-0.039**	(0.019)
Covariance Y/L and Y (Employees)	Aggregate-Average	-0.258***	(0.062)
Covariance TFP and Y (Employees)	Aggregate-Average	-0.231***	(0.041)
Covariance Y/L and Y (Wage)	Aggregate-Average	0.173***	(0.046)
Covariance TFP and Y (Wage)	Aggregate-Average	0.040	(0.033)
Y/L (Employees)	Average	0.615***	(0.063)
Y/L (Wage)	Average	-0.060	(0.051)
TFP (Employees)	Average	0.382***	(0.045)
TFP (Wage)	Average	-0.052	(0.044)
Y/L (Employees)	Aggregate	0.423***	(0.062)
Y/L (Wage)	Aggregate	0.116**	(0.052)
TFP (Employees)	Aggregate	0.194***	(0.050)
TFP (Wage)	Aggregate	-0.013	(0.047)
ΔY/L (Employees)	Average	0.013*	(0.008)
ΔY/L (Wage)	Average	0.015**	(0.008)
ΔTFP (Employees)	Average	0.003	(0.007)
ΔTFP (Wage)	Average	0.012*	(0.007)
ΔY/L (Employees)	Aggregate	0.042***	(0.015)
ΔY/L (Wage)	Aggregate	0.018	(0.013)
ΔTFP (Employees)	Aggregate	0.028**	(0.011)
ΔTFP (Wage)	Aggregate	0.007	(0.011)

Notes: The table summarizes the estimates from regressions of financial reporting and resource allocation measures on the share of firms with voluntary audits in an industry. "Audit" is the share of firms providing audited financial

Table A16 continued

statements in a given country, industry, and year. After controlling for mandatory reporting and auditing scopes, this measure captures variation in voluntary audits. For brevity, the coefficients on mandatory reporting scope ("Standardized Reporting Scope") and mandatory auditing scope ("Standardized Auditing Scope") are not tabulated. The regressions include industry-year fixed effects (where the industries are defined using four-digit NACE classifications) and country-year fixed effects. Standard errors (in parentheses) are clustered at the country-industry level (where the industries are defined using one-digit NACE classifications) and the country-year level. *, **, and *** denote statistical significance at the 10%, 5%, and 1% level (two-tailed), respectively.