The Value of Words: Evidence from Non-Financial Disclosure Regulation*

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Abstract

We examine the effects of laxer non-financial disclosure regulation on operating costs and access to external financing for micro firms in Italy. Simplified account keeping induces a trade-off between costs and transparency. On the one hand, lower accounting burden may allow for costs savings and reflect on profit margins. On the other hand, it makes the firm more opaque, with potential negative effects on equity or debt financing. Starting from 2016, firms below certain size thresholds were exempted from redacting reports with qualitative information complementing the ordinary balance sheet items. In a RDD estimation that exploits multidimensional size cut-offs that determine the eligibility, we detect no evidence of cost savings, but find that access to bank credit diminishes in the medium-term. The effects are concentrated on the extensive margin: affected firms have a lower probability to borrow from a bank within 2-3 years. The take-up of the policy is lower in low social capital areas, suggesting that formal institutions, such as disclosure mandates, may act as a substitute for informal ones.

JEL classification: G30, G38, K22, M41

Keywords: non-financial disclosure, regulation, corporate accounts, access to credit.

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1 Introduction

Reduction of information asymmetries plays a crucial role in corporate activity by alleviating the adverse selection problem between the firm and its investors (e.g., Leuz and Verrecchia 2000) or by levelling the playing field among them and, thus, lowering the cost of capital (Lambert et al., 2007). Moreover, higher information disclosure may improve market efficiency by boosting liquidity at the benefit of corporations (Goldstein and Yang, 2017) or by increasing competition at the benefit of consumers (Board, 2009). Last, but not the least, disclosure may facilitate the monitoring of managers by shareholders, regulators or corporate outsiders, and hence improve managerial decision-making and corporate outcomes (e.g., Bushman and Smith 2001; Lambert et al. 2007).

Over time, regulation requiring firms to disclose financial and non-financial information to their stakeholders has spread. Although reporting mandates aim at increasing transparency, efficiency and accountability, various trade-offs affect the optimal amount of disclosure (Goldstein and Yang, 2017; Christensen et al., 2021). The first order disclosure costs stem directly from administrative burden of preparation, certification, and dissemination of accounting reports. On top, firms may incur indirect costs because multiple audiences (e.g. suppliers, competitors) may utilize disclosed information in their interest (Feltham and Xie, 1992; Berger and Hann, 2007; Berger et al., 2024), because it may crowd out other types of information production (Goldstein and Yang, 2019) or because managers may demand higher remuneration to compensate for increased monitoring by external stakeholders (Hermalin and Weisbach, 2012).

While presenting quantitative indicators is standard in business activity, more recently corporate reporting was extended to comprise qualitative information that complements hard data with soft or contextual aspects of the business and conveys the rationale of managerial decisions, strategy and governance. Differently from financial disclosure, the value of non-financial one is more discussed: qualitative information is more difficult to verify and may fail to deliver material effects to stakeholders, while its processing and dissemination costs are equally significant.

This paper analyzes the impact of non-financial disclosure regulation on operating costs and sources of external finance for small and privately held Italian companies. Our empirical strategy leverages a legislative decree that – starting from 2016 – lowered non-financial reporting requirements for micro firms. Namely, companies below the relevant size thresholds became eligible to file a new form of the balance sheet ("micro-firm balance sheet", MFBS) that did not require redacting reports with qualitative information complementing the ordinary balance sheet items, such as investment or costs. The rationale of the reform was to alleviate administrative burden for particularly small and simple businesses that may lack scale and expertise to sustain costs related to production of the required information.

Since the eligibility to the MFBS was based on discontinuous size cut-offs, we exploit this institutional feature for a Regression Discontinuity Design in which treatment - the lack of mandated non-financial disclosure - is instrumented by the eligibility to file the MFBS. The policy variation lends itself well for the estimation of causal parameters of interest. First, it allows to back-out a counterfactual outcome for treated firms by looking at their counterparts of very similar size and provide causal interpretation at rather mild continuity framework assumptions. Second, the policy is based on the cut-offs that do not coincide with other institutional changes. Third, the eligibility is computed using the pre-determined balance sheet indicators, leaving virtually no scope for manipulation of the forcing variables. Such quasi-experimental setting, we argue, provides a rather clean design to attribute a causal reading to the estimates.

We focus on the impact of laxer non-financial disclosure regulation on the firms' material costs - reflecting regulatory compliance costs - and its capacity to attract external financing - reflecting the value of transparency. Our RD estimates deliver no evidence of cost savings, but indicate that access to bank credit diminishes in the medium-term. The effects are concentrated on the extensive margin: affected firms have a lower probability to borrow from a bank and interact with a lower number of credit institutions. We detect no changes in the amount of credit issued for companies with an existing bank relationship – which is reassuring as disclosure is less valuable among agents with limited information asymmetries – neither changes in turnover among company's shareholders.

We next attempt to shed light on the mechanisms behind the empirical puzzle whereby companies choose to file the MFBS, and yet experience no cost savings and suffer from lower access to bank credit. To this end, we present the complier characterization analysis (Angrist and Pischke, 2009). The evidence points against the idea that firms withhold information due to strategic considerations, whereby they seek to protect their proprietary information from competitors, or due to myopic leadership or governance. The idea that demand for disclosure from banks is driving the take-up of simpler reporting regime does not find support in the data either. Interestingly, the adoption of the MFBS appears more limited in areas with low social capital, suggesting that formal institutions such as disclosure requirements may serve as a substitute for informal ones.

The economic literature on the role of non-financial disclosure in mitigating information frictions and generating material effects on firm performance remains limited but has been expanding in recent years. Similar to the effects of improved financial reporting, Dhaliwal et al. (2011) find a positive association between voluntary non-financial disclosure and the cost of equity capital; Ilhan et al. (2023) establish a positive association between voluntary environmental disclosure and institutional ownership. Gibbons (2024) in a Difference-in-differences setting shows that mandated environmental and social disclosure relates to more innovation and long-term investment, and higher equity capital. We contribute to this literature along three dimensions. First, the existing studies mostly focus on large and publicly owned companies. However, the benefits and costs of disclosure may be more relevant to small enterprises. On the one hand, their lack of scale makes them less exposed to external stakeholders and, in turn, more opaque, possibly exacerbating costs of information asymmetries. On the other hand, in relative terms, the additional burden of gathering, analyzing and presenting qualitative information is higher for small businesses. Therefore, shedding light on the role of non-financial reporting regulation for smaller firms may provide useful insights to policy makers. Indeed, we show novel evidence covering entirely different sample of private Italian micro-firms and illustrate potential costs associated with the lack of disclosure. Second, majority of existing studies are correlational or require strong assumptions for the adopted identification strategy to deliver causal estimates. Our study provides among the first causally identified insights on the role of disclosure in shaping firm activity, in terms of internal functioning and of access to external financing. Third, given that roles of hard and soft information are possibly different, our paper illustrates how complementing standard financial accounts with textual documents providing context to the numbers carries a tangible value that reflects on the firm's access to external finance.

The paper is organized as follows. Section 2 describes the institutional setting and the data. Section 3 presents the identification strategy, while Section 4 shows the results, tests their robustness and heterogeneity. The final Section 5 discusses the policy implications and concludes.

2 Institutional setting and data

The empirical strategy of the paper leverages a recent legislative decree, D.Lgs. 139 of 2015, that introduced a new form of the balance sheet that removed the obligation to redact a textual document (so-called *Nota integrativa*) that provides a detailed description on some crucial firm management choices, such as investment or cost items. Very small firms falling below the relevant size thresholds became eligible to this new form of the balance sheet that was called a *micro-firm balance sheet* (MFBS).[1] In particular, the eligibility was based on meeting at least two of the three size cut-offs, based on the information filed with firms' financial statements in the previous two consecutive financial years: i) the number of employees not exceeding 5; ii) gross sales not exceeding 350,000 €; iii) assets not exceeding 175,000 €. The reform applied starting from the 2016 financial year, and, hence, the eligibility requirements were based on 2014-15 balance sheet data. Table 2.1 summarizes the different reporting regimes of corporate financial accounts based on the size-based eligibility cut-offs.

Table 2.1: Balance sheet regulation

	Micro (MFBS)	**Abbreviato**	**Ordinario**
Items	Income statement* Balance sheet*	Income statement* Balance sheet* Nota integrativa*	Income statement Balance sheet Nota integrativa Financial statement Management report
Eligibility cut-offs	Employees $\leq$ 5 Sales $\leq$ 350k€ Assets $\leq$ 175k€	5< Employees $\leq$ 50 350k€< Sales $\leq$ 8800k€ 175k€< Assets $\leq$ 4400k€	Employees > 50 Sales > 8800k€ Assets > 4400k€

Notes: * indicates that the document is of a simplified format. Firms always have the possibility to opt-in to a more complex reporting regime.

We build a novel and rich dataset that combines several original data sources. Namely, we link information from CERVED group on financial accounts of the universe of Italian limited liability companies, including the full set of balance sheet indicators and mandatory textual reports, with the information from the Chambers of Commerce (*Infocamere*) on firm ownership structure. We then complement this dataset with data on firms' labor force from the National Institute for Social Welfare (*Istituto Nazionale Previdenza Sociale*, INPS). Finally, we merge proprietary data on firm credit histories covering all individual borrowers with an outstanding exposure with a single intermediary over €30,000 from the Italian Central Credit Registry (*Centrale dei Rischi*) managed by the Bank of Italy.

We focus on standalone limited liability companies in private non-financial sector over the period 2013-2019 that file a balance sheet, have non-negative value added and have no non-performing loans. Since our identification strategy compares treated and control units around micro-firm thresholds, we exclude from the sample all observations that in a

[1]The legislative decree 139 of 2015 transposed into the national legislation the 2013 Accounting directive of the European Union (2013/34/EU), that allows a simplified reporting regime for small and medium-sized enterprises and a very light regime for micro-companies based in the European Union.

Table 2.2: Descriptive statistics: micro vs. non-micro firms

	(1) Non-micro		(2) Micro		(3) Difference	
	mean	sd	mean	sd	b	t
Firm age	15.55	10.90	14.98	10.78	0.56***	(10.43)
Location						
Center	0.22	0.42	0.25	0.44	-0.03***	(-13.74)
South and Islands	0.25	0.43	0.32	0.47	-0.07***	(-32.80)
North-East	0.22	0.42	0.19	0.39	0.04***	(18.65)
North-West	0.30	0.46	0.24	0.43	0.07***	(29.80)
Sector						
Construction (F)	0.14	0.35	0.19	0.39	-0.05***	(-24.55)
Manufacturing (C)	0.16	0.37	0.12	0.32	0.05***	(27.80)
Services (E, G-S)	0.67	0.47	0.65	0.48	0.02***	(8.52)
Other activities (A, B, D)	0.02	0.15	0.04	0.21	-0.02***	(-24.82)
Observations	86740		75136		161876	

Notes: Firms defined *micro* along all three dimensions are not included; Firms that exceed at least one of the EU-mandated thresholds (assets: €350 000; sales: €700 000; employees: 10) are also dropped. Significance: ***=.01, **=.05, *=.1. Errors are robust.

given year exceed at least one of the simplified (*abbreviato*) balance-sheet thresholds (assets: €4,400k; sales: €8,800k; employees: 50).

Table 2.2 compares companies in our sample based on the micro firm status defined in 2015 in terms of two of the thresholds described in Table 2.1. Micro firms are somewhat younger and more often located in the central or southern regions of Italy. In terms of sectoral composition, the incidence of the constructions sector is larger among micro companies, at the expense, at large, of manufacturing.

3 Identification strategy

Our identification strategy exploits the Legislative Decree No. 139 of 2015 that relaxed the reporting requirements for particularly small firms, exempting them from the duty to file *Nota integrativa* with their financial accounts. The introduction of the so-called "micro firms balance sheet" (MFBS) allowed small companies willing to reduce their administrative duties to file a simpler set of documents. Legislative Decree No. 139 defines eligibility to the MFBS based on the three thresholds and requires that at least two of them are met in the two previous consecutive years.

The empirical strategy leverages the fact that, conditional on meeting one size requirement, falling just below or just above the second size requirement generates a quasi-random variation in the eligibility assignment. To isolate firms that take-part in this "natural experiment" we proceed as follows. To start with, we exclude companies that meet all the three size requirements (or none of them), as for them passing or not passing any one of the size cut-offs does not affect the eligibility: they would qualify by the other two requirements or would not qualify by only one. We then condition on one of the requirements being fulfilled and on the second one not being fulfilled and exploit the third condition as the source of exogenous variation in the eligibility to filing the MFBS.

Table 3.1 illustrates this conditioning scheme by listing the three mutually nonexclusive "experiments" and their sample sizes. For example, corresponding to the first experiment (rows 1 and 2), among firms that are sufficiently small to meet the eligibility criteria in terms of assets, but are larger than the required threshold in terms of employment, there are 2,210 firms that exceed the eligibility threshold in terms of sales and 5,913 firms that meet this criterion. Similarly, among firms that are too large to meet the eligibility criteria in terms of assets, but are smaller than the required threshold in terms of employment, there are 78,963 firms that exceed the eligibility threshold in terms of sales and 63,859 firms that meet this criterion. The analogous reading applies to the other two experiments. Table 3.1 highlights that first experiment that uses sales for the forcing variable is the most numerous and comprises over 90% of all 161,876 observations in the sample. Therefore, without a major loss in generality, our empirical analysis will focus on this case.

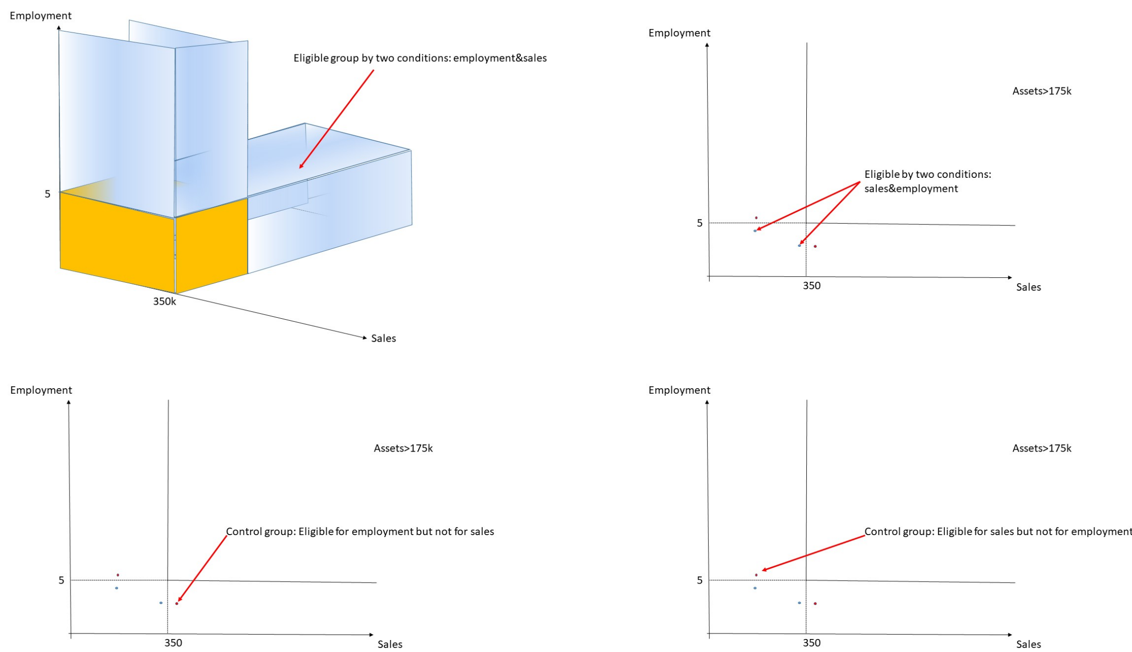
Table 3.1: Sample size

Observations:			Non Eligible	Eligible	*of which:* Treated
	Conditioning vars:		**Forcing var:**		
			Sales: ✗	Sales: ✓	
150,945	Assets: ✓	Empl.: ✗	2,210	5,913	1,617
	Assets: ✗	Empl.: ✓	78,963	63,859	23,245
			Empl.: ✗	Empl.: ✓	
77,046	Assets: ✓	Sales: ✗	2,210	4,692	1,115
	Assets: ✗	Sales: ✓	6,285	63,859	23,245
			Assets: ✗	Assets: ✓	
95,853	Empl.: ✓	Sales: ✗	78,963	4,692	1,115
	Empl.: ✗	Sales: ✓	6,285	5,913	1,617

Notes: Data refer to 2016. Firms defined micro along all three dimensions or in any of the three dimensions are not included. Firms that exceed at least one of the eligibility conditions for filing *Abbreviato* balance-sheet are also dropped. ✓ (✗) indicates that the MFBS eligibility condition based on the specific variable is (not) satisfied: the firm falls bellow (above) the threshold established by the regulation.

Figure 3.1 illustrates our empirical design graphically with an example of treated and control units.

Figure 3.1: RDD with multiple cut-offs



Note: The figure illustrates our identification strategy by the example in which conditional on having exceeded the assets cut-off, the other two dimensions discontinuisly affect the eligibility to file the MFBS.

In our Regression Discontinuity Design the treatment - i.e. filing the MFBS - is instrumented with eligibility. We present two sets of evidence. First, we estimate an Intention To Treat effects in a reduced form model in which the outcome variables of interest are regressed on the eligibility to file the MFBS:

$$Y_i = \alpha + \beta Eligible_i + f(Sales_i) + \epsilon_i \tag{1}$$

where Y_i is the outcome of interest for firm i; $Sales_i$ is a measure of sales of firm i; $Eligible_i$ is an indicator for firms with sales below the €8,800k cut-off. Next, to assess the effect of the treatment of interest, we also estimate the following cross-sectional two-stage model:

$$Y_i = \theta + \rho MFBS_i + f(Sales_i) + \varepsilon_i \tag{2}$$

$$MFBS_i = \alpha + \beta Eligible_i + f(Sales_i) + \epsilon_i \tag{3}$$

where Y_i is the outcome of interest for firm i; $MFBS_i$ is an indicator for firms filing a MFBS in which *Nota integrativa* is not mandatory; $Sales_i$ is a measure of sales of firm i; $Eligible_i$ is an indicator for firms with sales below the €8,800k cut-off. Treatment variable $MFBS_i$ is measured in 2016, while the eligibility conditions are verified in 2014 and 2015, according to the provisions of D. Lgs. 139/2015. We note that for eligible firms, treatment is voluntary and compliance is incomplete. The estimation sample is restricted to the observations within the MSE optimal bandwidth; regressions use the triangular kernel and the first order polynomial for the functional form of the local polynomial $f(Sales_i)$.

The causal interpretation of our findings rests on a number of identifying assumptions. First, the standard assumptions for valid inference in the continuity framework (Hahn et al., 2001) require:

- RD1: there is no manipulation of the forcing variable;
- RD2: potential outcomes are continuous.

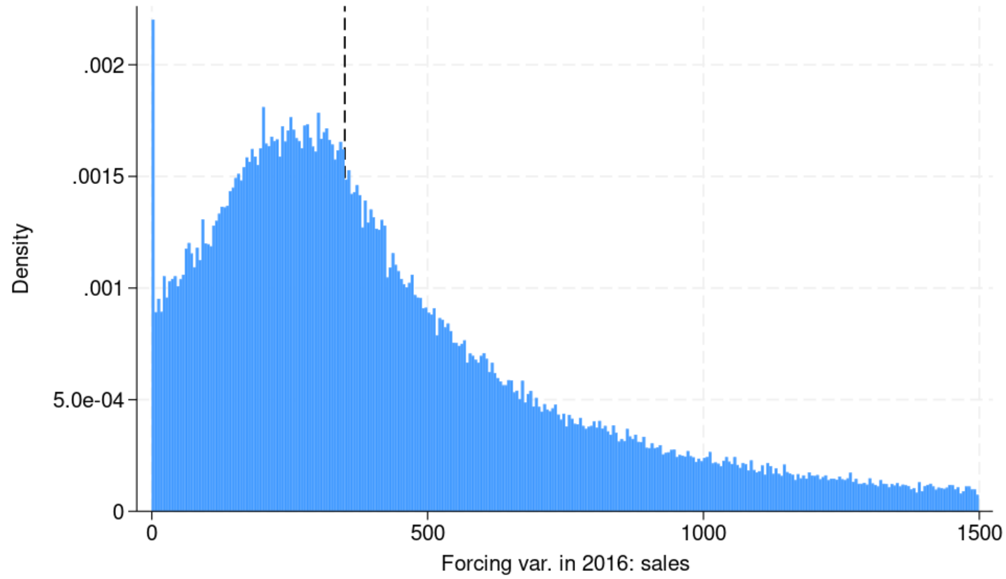
There are a number of reasons why it is plausible that RD1 is respected. First, the reform is based on cut-offs that do not coincide with any other institutional changes, such as the definition of small or medium enterprises, eligibility to subsidies, etc. Second, eligibility in 2016 is determined based on balance sheet data from 2014 and 2015, with threshold values set in those years, well before the treatment period. This makes ex-post manipulation of the forcing variables highly implausible. However, since the reform was under discussion in 2014 and 2015, the possibility of anticipation effects cannot be completely ruled out; to account for this, we test for the continuity of the density function of the forcing variable in Figure 3.2 and find no evidence of manipulation, as we cannot reject the null hypothesis of continuity.

The assumption RD2 cannot be tested directed, as counterfactual outcomes are not observed. It can be indirectly tested by looking at the continuity of the observed outcomes before the treatment shown in Section 4.

The fuzzy Regression Discontinuity Design also bears on the instrumental variables' identifying assumptions:

- IV1 First-stage: the instrument affects the treatment variable in a substantial manner;
- IV2 Exclusion restriction: the instrument only affects the outcomes through the treatment variable;
- IV3 Monotonicity: the effect of the instrument is weakly positive/negative for all subpopulations in the sample.

Figure 3.2: Manipulation of the forcing variable



Note: The figure shows the density function of the forcing variable sales for MFBS eligibility in 2016 defined as the maximum value of firm's sales in 2014 and 2015, in €thousands. The null hypothesis of no manipulation cannot be rejected (p-value 0.39)

IV1 assumption of the first-stage can be directly tested in the data. In fact, in our RD setting it consists of verifying the presence of a discontinuous jump in the treatment variable $MFBS_i$ at the cut-off of the forcing variable $Sales_i$. Figure 3.3 clearly shows that while the probability of filing a MFBS decreases as the firm size increases, it falls discontinuously at the threshold of €350k. In Section 4 we estimate that magnitude of the jump and its statistical significance.

IV2 exclusion restriction requires that the reform does not affect the outcomes of interest through other channels, but the MFBS. In our setting it is satisfied by design, as no other policies use the same thresholds.

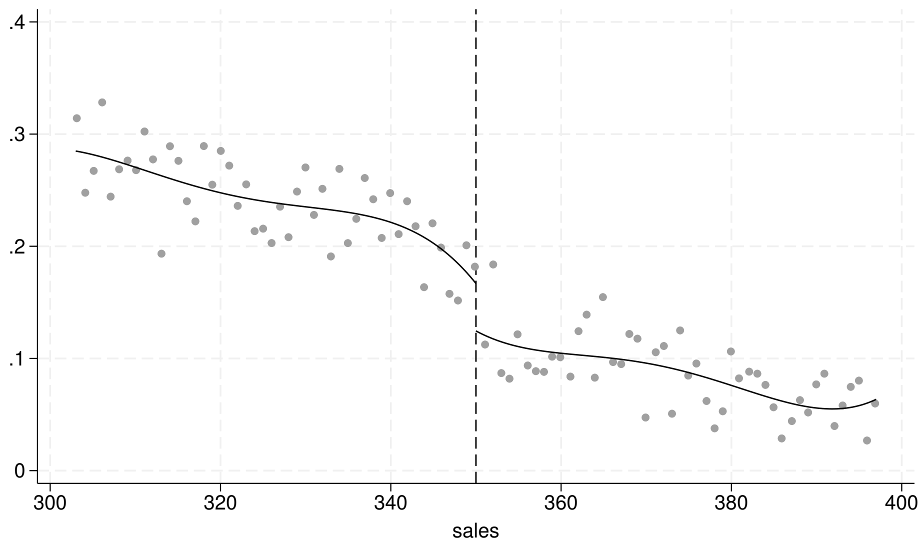
As Figure 3.3 illustrates, there is no perfect compliance with the law (for the reasons unknown to the researcher). In this real-life setting, therefore, the estimation of meaningful causal effects must bear the monotonicity assumption that cannot be tested in the data.

4 Results

4.a Baseline results

The simplification of non-financial reporting requirements potentially affects a number of outcomes. The first order expected effects relate to costs, as interpreting corporate balance

Figure 3.3: First stage: probability of filing a MFBS



Note: The figure plots the binned averages of the indicator for firms filing a micro firm balance sheet (MFBS) against the forcing variable of sales defined as the maximum value of firm's sales in 2014 and 2015 at the most numerous eligibility threshold.

sheet variables, providing additional information and redacting *note integrative* requires time and effort or, as is likely the case of the very small firms affected by the reform, deployment of resources external to the firm (e.g., external consultancy, extra time for company's accountant, etc). To study this channel, we look at the company's cost incidence over sales and its cost composition, distinguishing between cost of services and cost of labour and test whether the reform actually attenuates company's expenditures. However, the redaction of *note integrative* increases the information available on corporate accounts of the company and the company itself. Therefore, we may expect it to be related to company's relationships with its stakeholders. In this paper, we focus on companies' access to external financing, either through equity (proxied by changes in the shareholders' structure) or through bank debt, both on the extensive and on the intensive margins.

We start by studying the Intention To Treat (ITT) effect by estimating sharp RD regressions in which we estimate the MFBS eligibility effects on various outcome variables. More specifically, Table 4.1 shows the RD estimates of passing the relevant threshold from the left to the right[2] on the following dependent variables: total costs over sales (Panel A); indicator

[2]Strictly speaking, these estimates deliver the effect of non-eligibility, as conceptually we define our treatment as filing a MFBS. However, this difference is completely immaterial, as the estimates of eligibility can be directly obtained by multiplying the forcing variable by a negative unit. In the interest of clarity, the interpretation of the result directly refers to the point estimate of an opposite sign when commenting on the effects of MFBS eligibility.

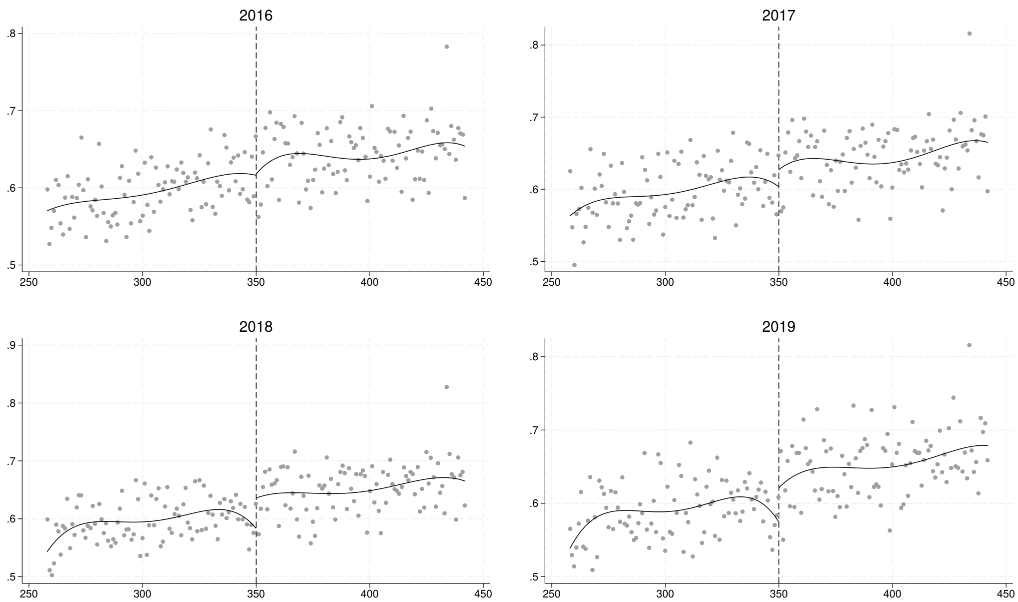
for companies experiencing a change in its shareholders structure in a given year (Panel B); indicator for companies having at least one bank relationship (Panel C); the number of banks a given company relies on for its debt financing (Panel D); the amount of bank loans over its assets (Panel E). Columns 1 to 4 (columns 5 to 8) use a linear (quadratic) local polynomial to approximate $F(Sales_i)$ in equation 1. Columns 1 and 5 illustrate the contemporaneous effect, while columns 2 and 6, 3 and 7, and 4 and 8 show the lagged effects in 2017, 2018 and 2019, respectively. The different specifications serve the purpose to illustrate the sensitivity of our estimates to alternative choices for key parameters in the RD setting.

Table 4.1, Panel A, shows that there is little going on the side of firm's costs: the coefficients on the immediate and the lagged effects are very small and imprecisely estimated both using linear and quadratic polynomial in sales. Similarly, the estimates in Panel B cannot reject the null hypothesis of no effect on firm's ownership structure. However, when we look at the probability of having at least one loan with an Italian bank, the results reveal a positive and statistically significant effect, which amounts to roughly 2.5 percentage points probability of having secured a loan for firms' above the relevant eligibility threshold. The effects three years later are larger, amounting to almost 4 percentage points. Overall, these findings are consistent with the idea that banks use information in corporate non-financial reporting to determine firm's creditworthiness: in other words, lower firm's transparency results in more difficult access to credit. Interestingly, Panel D reveals that companies are able to secure credit from a larger pool of banks; yet, the results are virtually null on the intensive margin, as illustrated in Panel E. This finding is intuitive, as more precise information about the firm may plausible play a role in the bank's decision on whether to start providing to a give firm or not, but - as it is hardly collateralizible - it does not affect the amount of credit issued to the firm.

We then turn to graphical evidence. In the interest of brevity, we will not report RD graphs for all variables of interest but will focus on those that appear to be affected by the eligibility. More specifically, we study the effects at different time horizons of the MFBS eligibility on the probability of having access to bank credit, as in Panel C of Table 4.1. The RD plots in Figure 4.1 illustrate that while the effects it not clearly visible in 2016, in the following years there is an evident discontinuity showing that the probability of having access to bank financing drops for firms that are eligible to file a MFBS. This pattern was not present in the years prior to treatment, as shown in Figure 4.2, the evidence that supports the identifying assumption RD2 that requires that the potential outcomes are continuous.

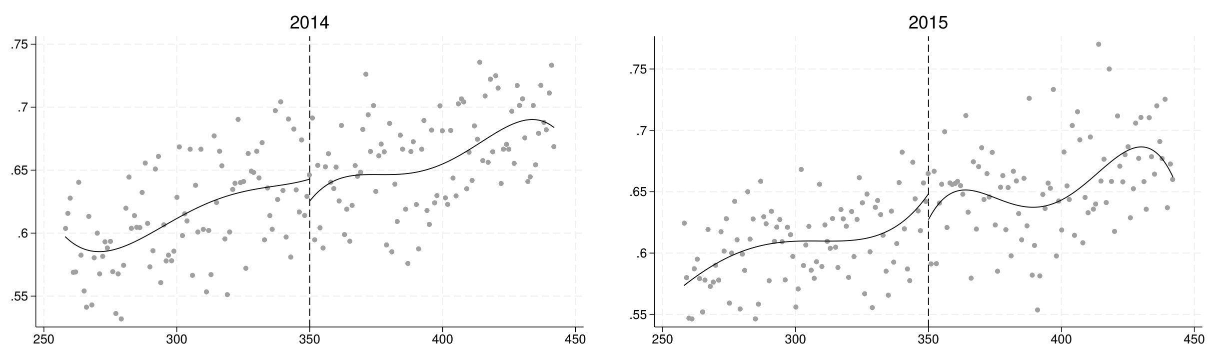
We then present a number of 2SLS regressions in which MFBS is instrumented by the

Figure 4.1: Extensive margin: p(at least one bank relationship)



Note: The figure plots the binned averages of the indicator for firms having at least one banking relationship against the forcing variable of sales defined as the maximum value of firm's sales in 2014 and 2015 at the most numerous eligibility threshold. The eligibility is defined in 2016 and different panels show the contemporaneous and lagged effects of the treatment in 2016 (upper left), in 2017 (upper right), in 2018 (bottom left) and in 2019 (bottom right).

Figure 4.2: Falsification test: Extensive margin, p(at least one bank relationship)



Note: The figure plots the binned averages of the indicator for firms having at least one banking relationship against the baseline forcing variable of sales (defined as the maximum value of firm's sales in 2014 and 2015). The eligibility is defined in 2016 and different panels show the effect of the treatment on past outcomes in 2014 (left) and in 2015 (right).

Table 4.1: ITT: the eligibility effect on firm outcomes

Specification	Linear				Quadratic			
	t	$t+1$	$t+2$	$t+3$	t	$t+1$	$t+2$	$t+3$
Panel A: Total costs over sales								
Coefficient	0.0014	0.0040	-0.0003	0.0051	0.0009	0.0025	-0.0006	0.0041
	(0.0045)	(0.0048)	(0.0049)	(0.0051)	(0.0059)	(0.0063)	(0.0065)	(0.0067)
Mean not elig	0.989	0.984	0.988	0.983	0.987	0.985	0.991	0.984
Obs. elig	20465	18690	17632	16662	25384	23183	21835	20607
Obs. not elig	16258	15093	14301	13528	19329	17945	16998	16108
Panel B: Indicator change in shareholders								
Coefficient	0.0038	0.0113**	0.0019	0.0009	0.0056	0.0127**	0.0022	0.0008
	(0.0051)	(0.0053)	(0.0053)	(0.0041)	(0.0061)	(0.0064)	(0.0064)	(0.0049)
Mean not elig	0.0744	0.0687	0.0968	0.0189	0.0738	0.0731	0.0919	0.0217
Obs. elig	25253	23042	21761	20487	38413	34863	32697	30647
Obs. not elig	19481	18076	17159	16288	27117	25139	23881	22744
Panel C: Indicator banking linkage								
Coefficient	0.0112	0.0155	0.0265**	0.0311**	0.0144	0.0172	0.0283**	0.0329**
	(0.0113)	(0.0118)	(0.0121)	(0.0125)	(0.0116)	(0.0122)	(0.0125)	(0.0129)
Mean not elig	0.355	0.376	0.420	0.442	0.350	0.370	0.406	0.419
Obs. elig	18710	17104	16145	15255	39467	35855	33593	31507
Obs. not elig	15124	14050	13310	12571	27210	25219	23904	22732
Panel D: Number of banks								
Coefficient	0.0191	0.0093	0.0055	0.0062	0.0178	0.0102	0.0103	0.0056
	(0.0252)	(0.0269)	(0.0278)	(0.0304)	(0.0267)	(0.0285)	(0.0295)	(0.0322)
Mean not elig	1.270	1.372	1.460	1.550	1.272	1.363	1.438	1.532
Obs. elig	12347	11308	10662	9949	23340	21189	19754	18245
Obs. not elig	10610	9876	9447	8959	18708	17462	16677	15926
Panel E: Bank loans over assets								
Coefficient	-0.0044	-0.0044	-0.0034	0.0080	-0.0047	-0.0043	-0.0030	0.0097
	(0.0080)	(0.0083)	(0.0085)	(0.0084)	(0.0095)	(0.0098)	(0.0101)	(0.0100)
Mean not elig	0.429	0.407	0.408	0.397	0.430	0.416	0.418	0.407
Obs. elig	14650	13411	12619	11806	22107	20147	18763	17378
Obs. not elig	12365	11531	11066	10541	18065	16873	16156	15432

Notes: The table shows the conventional RD estimates of the Intention-To-Treat effect of passing the relevant threshold in the forcing variable from the left to the right. The forcing variable is defined as the maximum value of firm's sales in 2014 and 2015 and the most numerous eligibility threshold is used. T-statistics in parentheses. *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1.

eligibility in Table 4.2.[3] These scaled estimates allow one to assess the magnitude of the effects. In line with the reduced form evidence in Table 4.1, the clearest results are visible on the extensive margin of credit: the probability of having a bank loan goes down by around

[3]The bottom panel reports the first stage coefficient and its significance.

45 percentage points for companies filing a MFBS. Although the interpretation of this set of results hinges on the exclusion restriction assumption IV2 that is not testable, the estimates point at the effects that are rather large: filing a MFBS virtually excludes affected companies from the bank financing channel.

Table 4.2: LATE: the MFBS effect on firm outcomes

Specification	Linear				Quadratic			
	t	$t+1$	$t+2$	$t+3$	t	$t+1$	$t+2$	$t+3$
Panel A: Total costs over sales								
Coefficient	-0.0139	-0.0468	0.0119	-0.0625	-0.0186	-0.0555	-0.0005	-0.0732
	(0.0632)	(0.0690)	(0.0704)	(0.0697)	(0.0939)	(0.1007)	(0.1076)	(0.1023)
Mean not elig	0.993	0.987	0.992	0.988	0.987	0.985	0.992	0.986
Obs. elig	16289	14877	14055	13290	23172	21147	19955	18847
Obs. not elig	13470	12507	11850	11162	17948	16675	15783	14947
Panel B: Indicator change in shareholders								
Coefficient	-0.0889	-0.1476*	-0.0243	0.0144	-0.0871	-0.1859*	-0.0505	0.0091
	(0.0806)	(0.0857)	(0.0854)	(0.0625)	(0.0976)	(0.1074)	(0.1063)	(0.0774)
Mean not elig	0.0723	0.0528	0.0999	0.0254	0.0755	0.0676	0.0965	0.0212
Obs. elig	15578	14213	13459	12716	29340	26712	25173	23659
Obs. not elig	13001	12069	11470	10817	21952	20346	19302	18372
Panel C: Indicator banking linkage								
Coefficient	-0.1688	-0.2883	-0.4482**	-0.4536**	-0.2048	-0.2919	-0.4439**	-0.4826**
	(0.1805)	(0.1921)	(0.2028)	(0.1983)	(0.1727)	(0.1928)	(0.1981)	(0.1979)
Mean not elig	0.351	0.377	0.418	0.445	0.351	0.372	0.409	0.428
Obs. elig	13063	11902	11238	10667	33956	30905	29076	27298
Obs. not elig	11066	10264	9737	9159	24208	22427	21249	20200
Panel D: Number of banks								
Coefficient	-0.2006	-0.1033	-0.0620	-0.0661	-0.2312	-0.1558	-0.1438	-0.0934
	(0.2668)	(0.3079)	(0.3015)	(0.3183)	(0.3184)	(0.3714)	(0.3559)	(0.3760)
Mean not elig	1.271	1.374	1.462	1.553	1.274	1.366	1.441	1.538
Obs. elig	12347	11306	10658	9941	22505	20453	19084	17630
Obs. not elig	10610	9875	9444	8957	18086	16889	16111	15388
Panel E: Bank loans over assets								
Coefficient	0.1038	0.1031	0.1023	-0.0507	0.0602	0.0495	0.0347	-0.1148
	(0.1103)	(0.1195)	(0.1227)	(0.1118)	(0.1121)	(0.1245)	(0.1223)	(0.1169)
Mean not elig	0.435	0.411	0.411	0.404	0.431	0.416	0.418	0.408
Obs. elig	9468	8674	8192	7685	21316	19439	18142	16806
Obs. not elig	8401	7802	7516	7106	17447	16304	15590	14889
First stage								
β	-0.0707***	-0.0724***	-0.0695***	-0.0744***	-0.0685***	-0.0668***	-0.0659***	-0.0704***
	(0.0114)	(0.0118)	(0.0121)	(0.0123)	(0.0106)	(0.0110)	(0.0113)	(0.0115)

Notes: The table shows the conventional RD estimates of local average treatment effect of filing a MFBS where the treatment is instrumented by passing the relevant threshold in the forcing variable from the left to the right. The forcing variable is defined as the maximum value of firm's sales in 2014 and 2015 and the most numerous eligibility threshold is used. T-statistics in parentheses. *** p-value < 0.01, ** p-value < 0.05, * p-value < 0.1.

All in all, lower disclosure does not impact firms' costs and (as a consequence) profitability. Yet, there is evidence that it reduces firms' ability to secure bank credit. On the intensive lending margin, the existing bank relationships are unaffected, and so is the entry of new shareholders.

4.b Validation and robustness

We next present evidence to validate our identification strategy. In particular, the identifying assumption RD2 can be indirectly verified by testing the continuity of the observed outcomes prior to the treatment. For this falsification test, we inspect whether in 2014 or in 2015 there were any statistically significant discontinuities in the probability of having at least one banking relationship in the neighborhood of the 2016 eligibility threshold. Figure 4.2 plots the binned averages of the indicator for firms having at least one banking relationship against the baseline forcing variable of sales defined in 2016. Different panels show the effect of the treatment on past outcomes in 2014 (left) and in 2015 (right). As expected, being entitled to file the MFBS in 2016 is not retrospectively linked to discontinuous jumps in the indicator measuring the extensive margin of credit access. The absence of an impact before 2016 further reinforces the validity of our identification strategy and reassures that our results capture the effects of the balance-sheet reform that entered into force in 2016, rather than reflecting some spurious pre-existing cross-sectional patterns. In a similar spirit, we show that the pre-determined firm characteristics, such as sector, age or geography do not discontinuously change at the cut-off, further strengthening the validity of the identifying assumption RD2.

We next make sure that the discontinuities exploited in our empirical framework are not capturing the impact of some other unobserved variable that is spuriously correlated with firm size instead of the actual effect of the reform. In fact, there may be other size thresholds – not related to disclosure regulation – that result in similar effects. To this end, we consider alternative placebo cut-offs based on the definition of micro companies originally provided in the 2013 Accounting directive of the European Union (2013/34/EU) and re-run our baseline estimation.[4] Given that the thresholds suggested in the EU Directive may still reflect salient differences in firm characteristics and performances, we set as placebo values the corresponding default thresholds for micro undertakings outlined in the EU regulation: turnover and balance sheet total should be below €0.7 million and €0.35 million, respectively; the average number of employees during the financial year should not exceed 10.[5] We de-

[4]When transposing the Directive, Member States had the option to increase or decrease any of the thresholds for small undertakings (up to a maximum). The Italian legislator re-scaled the indicated size thresholds to align them with the national market structure, characterized by smaller firms.

[5]As mentioned in Section 2, the micro undertaking must be within any two of the three size thresholds for two successive accounting periods; the thresholds for the firm categories are periodically adjusted to inflation, with the thresholds mandated in 2013 lasting in force until 2023.

tect no significant jumps in either of the variables of interested (results are available upon request).

Finally, we provide a number of robustness checks to corroborate our RDD estimates. In particular, we show that our baseline results shown in Section 4.1. are not sensitive to the choice of the bandwidth or the kernel used in the RD estimation (the results are available upon request).

4.c Characterization of the compliers

The observation that some firms adopt the MFBS despite the lack of cost savings and an increased likelihood of exclusion from credit markets raises the need to study the identity of these compliers and the motivations behind their decisions. The choice to withhold information from company's financial statements can be attributed to three distinct mechanisms:

1. **Strategic considerations**: Firms may deliberately choose MFBS to limit the disclosure of proprietary information, thereby reducing transparency to competitors; this strategic opacity aims to protect competitive advantages by withholding sensitive data that could be exploited by rivals (Berger et al., 2024).

2. **Myopic considerations**: Some entrepreneurs, particularly those with lower ability or experience, may underestimate the medium-term consequences of adopting MFBS on their capacity to secure external financing.

3. **Dependence on external finance**: Regardless of strategic and myopic considerations, the opportunity cost of MFBS should be higher for firms that are more dependent on the credit market.

In line with the approach outlined by Angrist and Pischke (2009), we characterize the firms that adopt the MFBS by estimating the first-stage regression across subsamples defined by various observable characteristics. Specifically, we assess heterogeneity in compliance behavior by partitioning the sample along relevant firm attributes and testing whether the first-stage coefficients differ significantly across these groups.

If the argument of strategic considerations holds, one should observe a significant difference in the compliance rate between industries characterized by different degrees of market concentration. In a highly competitive market, firms may be more inclined to signal financial stability and reliability to attract investors and financial institutions. Conversely, in more concentrated and less competitive industries, firms may benefit from strategic opacity to protect their market rents and limit the dissemination of sensitive information to competitors (Berger et al., 2024). In our analysis, we use as a proxy for market concentration the revenue-weighted average markup *à la* De Loecker, Eeckhout, and Unger, as computed by Ciapanna et al. (2024) for the Italian economy, aggregated at the 2-digit level of the ATECO classification.

On the other hand, if the myopic considerations argument holds, we should observe that firms with lower managerial competence and productivity are more likely to adopt the MFBS. As a proxy for labor productivity, we use value added per employee based on balance-sheet and INPS data. To measure the degree of managerialization, we construct a series of indicators on the ownership structure from the Infocamere dataset, namely: the share value-weighted average age of shareholders, the number of shareholders, and family ownership (as defined in Baltrunaite et al. 2024).

To assess the extent to which dependence on the credit market influences the likelihood of presenting the MFBS, we characterize the compliers based on two observable variables from balance-sheet data: (1) the external finance dependence index at the 2-digit ATECO level, constructed following Rajan and Zingales (1996) as the percentage difference between investments and cash flow, and (2) the firm-level liquidity ratio, defined as the ratio of current assets to current liabilities.

Finally, we partition the sample in the first-stage analysis using macro-sectoral dummies (Manufacturing, Construction, and Services) and geographical classifications (Center-North and South) to examine whether sectoral or regional heterogeneity plays a significant role in determining firms' selection into treatment.

Table 4.3 reports the results of the split-sample analysis of the first-stage regression separately for firms below and above the median of each specified characteristic (rows 1–3), across sectors (rows 4.a–4.c, comparing firms within each sector to all others), and geographic location (row 5).

Quite surprisingly, the findings do not provide empirical support for either the strategic or myopic explanations for MFBS adoption. Specifically, we do not observe significant differences in the first-stage coefficients when partitioning the sample based on market concentration (proxied by the revenue-weighted markup), managerialization indicators (number of shareholders, age-weighted average of shareholders, and family ownership), or labor productivity (value added per employee). This suggests that the sectoral heterogeneity in market concentration, as well as firm-level differences in managerialization and productivity, are not associated with significant differences in MFBS adoption rates. Similarly, no statistically significant differences emerge across firms belonging to different macro-sectors, despite a slightly higher compliance rate within the manufacturing sector compared to services and construction.

Table 4.3: Characterization of the compliers

First stage by split-sample based on:			Below p50	Above p50	t-test
1)	Markup	β	-0,073	-0,0798	-0,180
	(at ateco 2digit level, Ciapanna et al., 2024)	σ	0,0218	0,0308	
2.a)	Age of shareholders (weighted average)	β	-0,0515	-0,0857	-1,409
		σ	0,0164	0,0179	
2.b)	Number of shareholders	β	-0,0656	-0,0677	-0,063
		σ	0,0306	0,0132	
2.c)	Family ownership	β	-0,0901	-0,0619	1,013
		σ	0,0237	0,0146	
2.d)	VA per employee	β	-0,0645	-0,0722	-0,316
		σ	0,017	0,0174	
3.a)	External finance dependence	β	-0,0921	-0,0448	2,033**
	(at ateco 2digit level, Rajan and Zingales, 1996)	σ	0,0163	0,0166	
3.b)	Liquidity index	β	-0,0595	-0,0765	-0,730
		σ	0,0169	0,016	
			Outside sector	**Within sector**	**t-test**
4.a)	Services	β	-0,0757	-0,0661	0,395
		σ	0,0196	0,0144	
4.b)	Manufacturing	β	-0,0646	-0,0925	-0,906
		σ	0,0128	0,0280	
4.c)	Construction	β	-0,0712	-0,0609	0,323
		σ	0,0126	0,0293	
			North	**South**	**t-test**
5)	Location	β	-0,0882	-0,0147	3,010***
		σ	0,014	0,02	

Note: The characterization of the compliers is based on a split-sample analysis of the first-stage regression. Rows report estimates (β) and standard errors (σ) of the first-stage coefficients, separately for firms below and above the median of each specified characteristic (rows 1–3), across sectors (rows 4.a–4.c, comparing firms within each sector to all others), and geographic location (row 5). The last column reports the t-statistic for the difference between the two groups. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

However, two results stand out. First, firms with higher dependence on external finance, as measured by the Rajan-Zingales external finance dependence index, exhibit significantly lower compliance rates, suggesting that the opportunity cost of reduced financial transparency is indeed more pronounced for firms that rely more heavily on credit markets. Second, a strong geographical pattern emerges: firms located in the South of Italy are significantly less likely to be compliers compared to those in the Center-North, with the first-stage estimate for Southern firms being statistically insignificant.

The observed geographical differences in compliance behavior may stem from different causes. One possible explanation is that the local credit market structure influences firms'

Table 4.4: Disentangling the North-South divide in take-up rates

First stage by split-sample based on:			**Low**	**High**	**t-test**
1.a)	Social capital (blood donations) - all provinces	β	-0,0375	-0,0975	-2,594***
		σ	0,0159	0,0168	
1.b)	Social capital (blood donations) - North only	β	-0,0547	-0,1036	-1,725*
		σ	0,0232	0,0163	
2.a)	Presence of small banks (province-level)	β	-0,0728	-0,0643	0,338
		σ	0,0138	0,021	
			North	**South**	**t-test**
2.b)	Location, excluding small banks	β	-0,0981	-0,0209	3,184***
		σ	0,014	0,0198	

Note: The characterization is based on a split-sample analysis of the first-stage regression. Rows report estimates (β) and standard errors (σ) of the first-stage coefficients, separately for provinces below and above the median of blood donations (rows 1.a–1.b), presence of small and medium-sized banks at the province level (row 2.a), and by geographic location excluding small and medium-sized banks (row 1.b). The last column reports the t-statistic for the difference between the two groups. Significance levels: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

financial reporting decisions. In regions where large banks dominate, such as Southern Italy, firms might face more standardized lending practices, necessitating detailed disclosure to secure credit. Conversely, in areas with a higher presence of small and medium-sized banks, like Northern Italy, relationship lending may reduce the reliance on formal financial statements.

We test this hypothesis by splitting the sample in two ways: (1) by comparing provinces with a high versus low presence of small and medium-sized banks[6], based on the province-level median market share of small and medium-sized banks in the pre-treatment period, and (2) by repeating the North-South sample split while excluding firms that have credit relationships with small and medium-sized banks. The results reported in Table 4.4 do not support the hypothesis that local credit market structures drive compliance behavior: the first-stage coefficients are statistically indistinguishable across provinces with varying levels of presence of small and medium-sized banks, indicating that firms operating in areas that are plausibly more intensive in relationship lending do not exhibit systematically different take-up rates. Moreover, even when firms with ties to small and medium-sized banks are excluded, the North-South gap remains significant.

An alternative hypothesis is that the North-South difference in compliance rates is driven by heterogeneity in social capital: firms in low social capital areas (more common in Southern

[6]The size classification of banks is based on the Bank of Italy's financial intermediaries' registry records.

Italy) may compensate for low trust by increasing disclosure to enhance credibility. Our empirical results support this explanation. As shown in Table 4.4, firms in provinces with lower social capital, proxied by blood donations[7] exhibit significantly lower MFBS take-up rates. This pattern remains even when restricting the analysis to Northern regions, though the significance of the coefficient is reduced (possibly due to lower sample size). Focusing on the North mitigates concerns that the result is driven by broader structural differences between Northern and Southern Italy, such as variation in institutional quality, economic development, or financial access, which could confound the relationship between social capital and selection into treatment. All in all, our evidence supports the idea that formal institutions, such as disclosure mandates, may serve as a substitute for informal ones.

5 Concluding remarks

We study the effects of lower non-financial disclosure regulation on the trade-off between internal costs and access to external financing for a large sample of small limited liability companies in Italy. Our identification strategy exploits an institutional change that exempted firms below multiple size cut-offs from filing reports that complement standard balance sheet items with qualitative information and are visible to companies' stakeholders. We leverage this feature for a Regression Discontinuity Design that allows to uncover causal estimates of lower reporting requirements on firm outcomes. The evidence reveals no tangible effects on firms' operating costs or on its shareholder turnover or composition. Interestingly, we find that withholding non-financial information reduces the firm's capacity to access to bank credit, in line with the idea that disclosure may reduce information asymmetries.

Our findings show novel evidence that disclosure matters also outside of the realm of large publicly listed companies. In fact, we establish that disclosing qualitative information helps firms to secure external financing from banks, relaxing their credit constraints and potentially boosting their growth prospects. Contrary to the disclosure critiques of being too costly, these simple reports do not appear to impose substantial costs on micro-firms. All in all, our findings may inform policy-making by illustrating potential benefits of regulation or by indirectly showing that non-financial reporting goes beyond the "cheap talk" and carries value in economic exchanges.

[7]Blood donations serve as a reliable proxy for social capital in Italy, as they are purely altruistic, driven by social norms rather than legal or economic incentives. The standardized, anonymous collection process, managed nationwide by AVIS, ensures that donation levels reflect social cohesion rather than variations in medical infrastructure. The source for these data is Guiso et al. (2004).

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